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»A Quarter of Century of the European Anthropological Association – Reflections and Perspectives«
Zagreb, Croatia, August 30th – September 3rd 2002

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Analysis of Lifestyle Changes Following the Retirement

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Within a larger research carried out with Fiat Auto to analyze the mobility requirements of elderly population we submitted a questionnaire to a sample of 142 men and 92 women aged 50–80, ex members of Fiat staff living in Northern and Central Italy, to obtain evaluations on retirement condition, on subjective stress sensations before and after the retirement and a series of data about the activities carried out before and after the retirement. We found out that the percentage of subjects positively evaluating the retirement condition is much higher than that of people that gives negative evaluations or some positive and some negative evaluations. As expected, positive evaluations regard mainly the larger free time at disposal, negative ones the economic aspect. The analysis of subjective stress sensations shows that retired subjects feel significantly better, are less under pressure, are more satisfied, less irresolute, but also less calm and relaxed. We verified that there is a relation between some subjective stress sensations and the previous job. Analyzing the activities carried out by subjects before and after the retirement we didn't observed significant changes in the performance of most of them; however after the retirement the percentage of subjects that join associations, stay at home and watch television increases, while the percentage of those that go to cinema and to dance decreases. In addition there is a drop in the sports practice. The results were analyzed pointing out age and sex differences. In general we verified that our sample represents a population that is still quite active and that lives quite well the retirement condition, because the majority of people is well integrated in social life. This fact can also be related with the high percentage of retired persons that keeps on driving.

Advanced Anthropometric Footwear Design

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High qualities of life need better shoe then ever. Requested characteristics such as comfort, good cushioning, stability can be resolved through application human anatomy, biomechanical engineering and carefully material selection in design procedures. The footwear structures depend on many factors such as subject activity, climate, foot structure and function. The body shock isolation, fatigue and endurance, comfort, fashion are examples of some footwear design criteria. Anthropometry is used in many areas of manufacture to provide information for the design of products such as clothing, footwear, vehicle, furniture and any objects with which people interact. The Internet use for on-line electronic retailing has opened up exciting new use for anthropometric data in virtual shopping applications. Anthropometric data sets are the basic for the behaviour and the proportions of the digital human model in virtual environment. The foot in CAD (Computer Aided Design) is represented as set digitized points on the surface that more closely approximate an average shaped foot. The foot becomes the last for the shoe after typical modifications such as adding a toe extension, narrowing the heel section. The size and shape of the last dictates the fashion and fit of the shoes pro-

duced. Anthropometric variables such as foot length, joint girth, bottom width, hell height, toe spring are stochastic variables in nature. Probability distribution of these variables is determined from measurement for given population in determined geographic region in specified time interval. Most of them are distributed according the normal distribution and some of them cross-correlated. The foot length and joint girth dimension are basic dimensional factors in present standard footwear systems. The modern research for foot and leg anthropometry indicates that, for a given stature, males have longer and broader feet than females. In this study we also demonstrates that female feet are not simply scaled-down isometric version of male feet, but rather differ in a number of shape characteristics. Women's foot has a higher arch, a shorter ankle length and outside ball of the foot, and a smaller instep circumference. In this paper, foot length and joint girth are analyzed by using a bi-variate normal distribution to obtain a new footwear grading system. A group of 374 adult male and female samples collected in Croatia area are used in analysis to establish foot size system. 3D foot shape measurement parameters are correlated with flatness index, inclination of hell and so on. Some anomaly in size-related change in proportion due to differential growth is indicated. Influence of the candidate's birthplace and style of life is significant for some foot dimensions.

Climate and Human Evolution in the European Late Pleistocene

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During the later part of the Late Pleistocene (~60–25ka) Neanderthals gave way to modern humans in Europe. New research shows that this was a period of many abrupt alternations between relatively warm periods and cold intervals. It has also shown that Neanderthal archaeological sites are limited to areas where the average winter wind chill was above zero degrees Fahrenheit while contemporaneous and later Aurignacian and Gravettian archaeological sites (attributed to modern humans) are found in areas of much colder climates. This suggests that modern people had developed cultural means to cope with life in areas of Europe that were simply not accessible to the Neanderthals. Growing knowledge of European climates during the last glacial together with appreciation of the thermoregulatory limits of Neanderthals and modern humans, are helping to clarify our understanding of the patterning of human occupation in ice age Europe.

Oral Sensory Thresholds to Galvanic and Sinusoidal Constant Current Stimulation

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Experimental oral mucosal sensibility has been the interest of only few studies, in spite of the fact that the orofacial region represents the most common pain site of the body. The aim of this investigation was to establish the oral mucosal sensibility pattern

to galvanic (i.e. DC) and to sinusoidal constant current stimulation (frequency range 20 Hz – 5 kHz). In this study we measured sensory thresholds of oral mucosa in 20 young healthy volunteers (females, mean age). Measurements of sensory thresholds assessed by galvanic stimulation were performed on 15 oral regions. For producing measurable stimuli, dental iontophoretic apparatus was used. Current intensities that reached the sensory threshold ranged from 0.1 mA to 8.5 mA. Subsequently, other measurements were performed on the most (tongue tip) and the least sensitive (buccal mucosa) oral regions, according to galvanic stimulation results. These measurements were performed using sinusoidal constant current stimulation in the frequency range 20 Hz – 3 kHz. Oral sensory thresholds to sinusoidal current were from 0.013 to 3.7 mA, depending on the frequency used and the region tested. In both regions, however, sensory threshold increases as frequencies increase. Smaller standard errors were found when lower frequencies were used on both regions. Galvanic current stimulation seems to be a suitable method for oral sensory testing, but sinusoidal current seems to be more reliable and reproducible, and obtained results promise new advances in under investigated oral mucosal sensory function.

Electromyographic Evaluation of Human Masticatory Muscles' Activity in Normal Young People and in Subjects With Temporomandibular Dysfunction (TMD)

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The aim of the present study was to evaluate the masticatory muscles' activity during different functional mandibular positions in patients with TMD and to compare it with healthy subjects. In this study 27 control group and 13 TMD patients were investigated. Surface EMG recordings were obtained from left and right anterior temporal, masseter and digastric muscles. Data were recorded during standardized jaw positions that included clenching in the position of maximal intercuspation of teeth, lateral positions, maximal lateral positions, protrusion and maximal protrusion. The relative contribution of muscles was compared by means of the activity index (IAc). Considering the temporal masseter IAc, the anterior temporal muscle prevalence was obvious in both groups during clenching in the position of maximal intercuspation of teeth. The masseter muscle prevalence was seen in 42% of subjects in asymptomatic group, and in 44% of subjects in symptomatic group, with significantly higher mean values in the group of patients with TMD ($p < 0.05$). In lateral eccentric positions 63% of healthy subjects maintain jaw position by using more temporal than masseter muscle, while in symptomatic group only about 50% of people show temporal muscle prevalence in lateral eccentric positions. Considering the temporal digastric IAc, the temporal muscle prevalence in right lateral position was obvious in more than 80% of asymptomatic subjects, and only in 53% of symptomatic subjects. In left lateral position, the digastric muscle prevalence was seen in 26% of asymptomatic subjects and in 31% of symptomatic subjects, with significantly higher mean values in the TMD group ($p < 0.05$). This investigation points out that changes in EMG activity pattern could indicate the possible functional alteration in patients with TMD.

Cremated Bones

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In 1998 part of a burial place from the 1st century AD was excavated in Southern Jutland, Denmark. It consisted of interment graves as well as a variety of cremation graves. No skeletal material was preserved from the 4 interment graves but the grave goods indicated 2 males and 2 females. The grave finds from the 73 cremation graves were more sparse and/or destroyed by fire, and only in a very few cases was it possible to get an indication of sex through the archaeological material. An anthropological investigation of the bone material showed that the results of the analyses very much depended on the type of cremation grave: 14 of the 43 ashpits, and 25 of the 30 urn and urn-ashpits contained bones suitable for analysis. All the individuals from the ashpits were adults, of which 2 were interpreted as females. Of the urns and urn-ashpits 6 contained sub-adults, 4 juveniles and 15 adults. Of the 15 adults 8 were interpreted as females and 3 as males; the remaining 4 could not be determined. The distribution of age and sex showed a tendency to a concentration of the childrens' graves in the eastern part of the burial place together with the male graves, whereas the females were more widely spread. All in all, although only 39 of the 73 cremation graves delivered some kind of anthropological information, the analyses of the cremated bones did generate new data for the on-going analysis of the burial place, and no doubt a full excavation of the site will reveal further information.

Somatic Development of Children From Premature and Complicated Deliveries – Pilot Study

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The highest developmental tempo is present, apart from intrauterus development, during newborn and infant phases of ontogenesis. Therefore the all events which happen during these phases determine the whole future development of the child. Morphological and physiological delay in maturity of children from premature and complicated deliveries makes their adaptation to new life conditions difficult, and could negatively influence their future development. Most of these children have microtraumas of the CNS. It is generally accepted, that during first 6 months of life the development of these children is delayed in comparison to their healthy counterparts. The aim of the study was to assess the somatic development of such children in respect to their healthy counterparts, and to determine the time span needed to catch up the delay. 71 children aged 1 to 12 months were measured. All children were patients of Neurorehabilitation Outpatient Clinic. The following somatic parameters were measured: body weight, body stature, length of the head and neck, trunk length, lower and upper extremity lengths, shoulder breadth, biliocristale breadth, chest breadth, sagital diameter of the chest, head and chest circumferences. All parameters were normalized to mean and standard deviation of appropriate reference values of calendar and developmental ages (in sex groups). In parameters normalized to calendar age the statistically significant differences were found: for all parameters apart from body stature, and trunk length and biliocristale breadth and length of the head for boys; for body stature,

length of the head, and trunk length, and biacromiale and biliocristale breadth for girls. In parameters normalized to developmental age the statistically significant difference was found between boys and girls in shoulder breadth: in girls this parameter was higher than in boys. Key words: ontogenesis-somatic development-body proportions-newborns-premature infants.

Analysing Close Consanguinity and Marital Distances Within the Basque Territory of Spain

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The high concerns to analyse genetic diversity patterns in Basques and its subpopulations have paralleled -over the last decade- to studies dealing with consanguineous matings and inbreeding levels, registered within the Spanish Basque area. Both sources of information are leading to explain, in further detail, the genetic structure of its autochthonous population. We are currently carrying out consanguinity studies in the population of Guipúzcoa, the Basque province with the highest number of Basque -speaking people and genealogical Basques. Its industrialisation process – in the early years of the 20th century – entailed large-scale migration including both short- and long-range migration from other parts of Spain. From 1862 to 1995 (135 years) a total of 8388 cousin matings were registered and the weight of close consanguinity (including uncle-niece, M12; first cousins, M22 and multiple consanguineous marriages, MM) on the mean inbreeding coefficient is noticeable. The estimated preferentiality index (M22/M33, being M33 second cousin relatives) is 1.22 vs. 0.25 under panmixia. The present wok was aimed at estimating the relationships between close relatives (i.e.first cousins) and marital distances. When analysing distribution of matrimonial distances for consanguineous mates in Guipúzcoa province, data show that the selection of mate was intensely local (within the Basque area). However, frequencies of first cousins occurring at distances zero is significantly lower when compared to other types of kin marriages. Migrant population group represents an important component of close consanguinity recorded in this Basque territory.

Sedentarity and Nomadism, Cultural Parameters Generated by Ecosystems

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In the Sahara works in Prehistory let appear the nomad life as an answer to the constraint of environment. The Bas-Sahara is a desert land since 20 millenniums and the most of groundwater is deep. Here, sedentary and nomadic populations lived nearby during the neolithic period. They present different cultural characters but their relations are still unknown. They shared the same territory and have farmed in different ways different zones, which were cultivated or served as grazing grounds. This situation which appears to be also the same of historical times, stayed probably unchanged since Neolithic. In the central Sahara where the climate was better, the population was sedentary until the 3rd millennium. They changed to nomadism only with the climatic

degradation of this period. In this area, the present sedentary part of the population didn't arrive earlier than during the 19th century. So nomadism is not a stage toward sedentarity but it is an adaptation to a specific ecosystem, applied to optimize resources management when the land is poor and the vegetation cannot rapidly regenerate.

Caries in a Population of Croatian Recruits

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The focus of this paper is caries in military recruits. It is observed that in recent literature the notion of causation of caries is restricted to the biological process on the tooth surface. This may be sufficient to explain caries as a biological phenomenon, but insufficient in order to understand caries and its variations in populations. Our sample consisted of 190 recruits of the Croatian army at the ages of 19 to 27. This study of dental caries is carried out in accordance with the DMFT index with regard to residential community. Only 2.6% subjects indicated DMFT=0. The total DMFT value for all subjects is 7.76. A statistically significant difference for the DT and FT values was found between living areas. There were 54.76% of restored teeth in all subjects on average. The subjects from urban areas had a higher number of restored teeth. The majority of teeth comprised by the DMFT values were restored, and a smaller extent decayed teeth. In this study we identified the incidence of dental caries in military recruits according different social and economic status and the need for dental treatment.

The Hunchbacked Mummy of Venzone

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The fifteen Mummies are kept at the Cathedral of Venzone, a quaint little town in the northern Italy (Udine). There was such a strong curiosity at the time regarding the Mummies and the phenomenon of their natural mummification, that even Napoleon I went to visit them in 1807, as well as Francis I from Austria in 1819, and Ferdinand I in 1848. This study allows us to form a hypothesis regarding the most important Mummy, the so-called hunchback, probably belonging to the Scaligeri family. This Mummy is the oldest of all the Mummies, dating back to XIV century. The body was exhumed in 1647, during the first restoration of the Cathedral. The corpse weighed 25,5 libras, in 1829. Its length is 1,45 m. from the tibial malleolus, to the head vertex. We made 50 X-rays with the normal radiation tube. While with the CAT we made 212 radiograms with cranio-caudal haul, from the head to the malleolar tip of the tibias. Regarding the skull, the images show a deposit of earthy material, in the occipital external area, perhaps due to the collapse of the walls. In fact we can exclude that it could be cerebral matter because it is not possible to detect any morphology of the encephalon or paren-

cephalon. Our main focus was on the vertebral column's condition, which the CAT pointed out as a sort of disorder of the cervical vertebrae due to post-mortem trauma. Therefore, the theory of the hunchback, that was passed down for more than four centuries, was probably false. The hypothesis of the removal of the corpse was proposed in order to explain this vertebral disorder. First of all, it is necessary to emphasize that this is the only body that does not have the feet. It is probable that this lord was transferred from a temporary grave to a permanent one, and then exhumed in 1647. This grave could have been the only one available at the time, but smaller than was necessary. So the body was compressed causing a distortion of the neck, embedding it in the thorax, compromising the foot joint. Even now post-mortem manipulations are practiced. Through the CAT we observed some internal organs such as the heart, the intestinal mass and the bladder. We also pointed out a bony flow between the D2 and D4 vertebrae. On the whole, the general condition is fairly good. From the ossification centers, we can hypothesize that the age at death was between 45–50 years.

The »Closeness« and »Openness« of the Orbits

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For a quantitative estimation of a degree of »closeness« or »openness« of orbits it is necessary to pass to direct measurement of the deepening behind edges of an orbit in the field of its roof and a bottom. The more appropriate deepening, the »closeness« of an orbit to this attribute more is expressed. We developed a technique of manufacturing moulds with their subsequent measurement. It is investigated 267 female and 410 man's skulls concerning to various craniological series. For man's skulls size of the deepening it is negative correlated with the general corner of the opening of orbits in a horizontal plane. Negative and statistically significant correlation is observed also between size of the deepening and a corner of the orbit opening in a vertical plane. In this case the greatest contribution to correlation is brought only by one of components – a corner of an inclination of a bottom of an orbit. In a female series of skulls connection of size of the deepening with a corner of the orbit opening in a horizontal plane practically is absent. As to a vertical corner in female series the leading part of a corner of an inclination of a bottom of an orbit in formation of negative correlations with size of the deepening even more brightly comes to light. For female skulls significant negative correlations of size of the deepening with the orbital index come to light. Sharper edge of orbits it is combined with less deep deepening.

Studies of Body Mass Index as an Indicator of Adolescents' Nutritional Status in Gorenjska Region (Slovenia)

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A more plentiful diet, preventive care, reduced physical activity together with genetic factors have all been cited as influences responsible for the rapidly increasing prevalence of child obesity world-wide. BMI is an internationally accepted method for defining obesity in children and adults, but there is need to take account of special stan-

dards for different populations, with cut-of points depending on sex and age. The importance of BMI as a health indicator is reflected in the range of anthropological data available for Slovenia, but we do not as yet have sufficiently extensive data on immature individuals to define the cut-of points with precision. While some studies of BMI during puberty have been undertaken, most of these have been done on urban populations. In our study we measured BMI in 471 individuals aged 15–18 from the Slovenian region of Gorenjska. The data were collected in 1999/2000. We analyzed separately 245 boys and 226 girls. Among international comparators, our results demonstrate that the BMIs for male and female Gorenjska adolescents are closest to those obtained on US teenagers. The average values of BMI showed that the adolescents in our study have higher averages values than those sampled in previous Slovenian studies, demonstrating that average BMI in Slovenia has increased over the last decade. Whilst the index can, in principle, be affected by changes in either or both contributing variables (body height and mass), given that the secular trend of body height in Slovenia has plateaued in recent years, we conclude that BMI has increased because of greater body mass. The number of overweight and obese individuals among adolescents in Slovenia is growing, with implications for future health care provision.

Neanderthal Hip Morphology and Musculature – A Comparison of the Kebara and Krapina Fossils

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In recent years there has been renewed interest in Neanderthal post cranial morphology and proportions, and their likely biomechanical, behavioral and adaptive implications. In particular, while the Neanderthal hip and pelvis have long been recognized as displaying a distinctive pattern that differs consistently from that of modern humans, it was only with the recovery of the complete and undistorted Kebara 2 innominate, dating from around 60,000 years ago, that the pattern could be examined in full and its significance evaluated. The Krapina hominid collection represents the largest single sample of an early (c.130,000 years old) Neanderthal group, and contains post cranial elements, including partial innominates and femora. This paper reports the preliminary findings of a comparison of the Kebara and Krapina hip material, and discusses their implications for reconstructions of Neanderthal gait, posture, body form and behavior.

Application of GIS Program in the Evidencing of the Genetic Differentiation of the Albanian Populations by the Allelic Frequencies of ABO and Rhesus Loci

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In this article it is analyzed the genetic differentiation in the districts inhabited by Albanians (besides the Albanians who lives in Cameri and Montenegro). The analysis is

based only on ABO and RH loci. Cluster analysis and especially GIS program (the averages of the genetic distances of Albanian districts have been taken into consideration) showed that about 80% of the Albanian populations are homogeneous. This homogeneity is expressed among the far geographical areas as well. Also the isolines built according to the GIS program allow knowing the genetic proximity of each geographical point as well as the existence of the isolated populations. The presence of the map isolates shows the districts with small and big genetic distances in the geographical space. From the other side the map shows clearly the Albanian districts with the biggest genetic distance as the districts of the eastern part of Albania. Also the reflection of these isolines in closed form as concentric circles allow to think about the presence of (isolate) as well as their successive relation with the other districts. As a conclusion we think that the use of GIS program to make evident the genetic differentiation among the populations is an efficacious favorable technique.

Linguistic Linkage Among Six Villages of Gramsh (Albania) Using the Names for Phenotypic Profiles (Morphs) of the Domestic Goat (C. Hircus)

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The studies on the phenotypic profile of domestic goat have underlined that typical features that are connected with ears, corns, ear-ring and the hair length, and in special way with the kind oh skin pigment, are presented in different forms-morph-which have special name in the language of shepherds. The lexicon formulations of this kind find their issue not only in the usual names and surnames (cap-capore, bardhe-bardhoshe), but as well from the likeness of the morph of the goat with another animal (dallandyshe-swallow etc.) or from their likeness with objects (star etc). It results that the denominations based in the colors are all used excluding the colors that are not met to the goats. These data are studied as linguistic and cultural features. They can be used to stress the linguistic linkage between the villages of an administrative area-the district of Gramsh-where are included areas from four ethno-cultural divisions. The data have been identified using the method E.S. Smirnov (1963), which we considered more suitable in the case when there are taxonomic similar for the biological specimen.

The Biodemographical-Genetic Study of Human Population Using Genealogical Digital Codification and the Construction of Genealogical Trees Using This Codification GIS Program (Study Project)

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Genealogical digital codification, done in about 5000 inhabitants of Polis (Albania) consist in the construction of a code of every individual in human population. The code of

every individual includes village (01...99), sex (1,2), surname (001...999), generation (1...9) and the birth sequence from father line and mother line. Data such as: date of birth and death, age when married and some traits of inherited diseases etc. were collected for every individual. Using the GIS program, the genealogical digital codification is visualized in the form of genealogical trees. Genealogical digital codification and the construction of the genealogical trees from it gives the possibility of the analysis of the data for a time period as a century or longer and comprises a practical usage by the family medico.

The Relation Between Quality of Oral Hygiene and Health Condition of Periodontal Structures in Children With Disabilities

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In this research 160 children were examined, 80 children with disabilities (cerebral palsy, mental retardation, Down syndrome, autism, hearing and speaking disorders) and 80 healthy children within a control group. Mean age is from 3 to 17 years. Health condition of gingiva was established by clinical examination, and the presence of periodontal pockets and their depths by calibrated periodontal probe. Using PI index, health condition of paradontic structures were evaluated. Degree of oral hygiene was estimated by using OHI-S index. PI index values for children with disabilities at all age are from 2.02–3.78, which means that periodontium of all these children is in advanced state of periodontitis. PI index in control group is: 0.15 for age 3–5, 0.66 for age 6–8, 0.63 for age 9–11, 0.75 for age 12–14, and 1.01 for age 15–17, which means that periodontium of children between 3–5 years old is healthy, of all other children of age 6–14 is within gingivitis boundaries, and of 15–17 years old children is at the beginning of periodontitis. In all age groups, except 15–17 group the significant statistic difference between PI index values is noticed in benefit of healthy children. 3–5 years old $p < 0.001$, 6–8 years $p = 0.001$, 9–11 years $p = 0.001$, 12–14 years $p = 0.014$. OHI-S index is from 3.8–4.53 for children with disabilities, and 2.74–2.84 for healthy children, which means that children with disabilities have poor, and healthy children satisfactory oral hygiene. Comparing oral hygiene qualities of the examinees divided in age groups, it has been noticed significant statistic difference between control and examined group, for age group 3–5 $p = 0.0452$, for age 6–8 $p = 0.0001$, for age 9–11 $p = 0.0049$, for age 12–14 $p = 0.0009$ and for age 15–17 $p = 0.0089$.

ErSABA 4.2. – Computer Software for Automatic Determination of Human Anthropometric Measures

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In designing a workspace adequate to specific working posture characteristics, it is necessary to know the operator's anthropometric characteristics. Workspace dimensions should be matched to the operator's anthropometric measures. To determine an-

thropometric measures for each individual operator is a complex and long lasting task. Newly developed computerized methods make the determination of all key bodily measures quick and accurate, so that workplace and environment dimensions can be matched to the anthropologic measures obtained. A computer software ErSABA has been developed, in 4.2. version at the moment, which defines 22 characteristic anthropometric measures, using the input data of height, weight and gender, as well as the necessary requirements for accuracy and bodily postures at work. Knowing the anthropometric measures, fields of view and zones of reach in designing a workplace, it is possible, from the ergonomic point of view, precisely determine the dimensions of working environment for each individual operator. Knowledge of anthropometric measures and the application of computers and 3D graphic softwares, help in quick and effective development of ergonomic methods for modeling dimensions and shapes of workplace environment, so as to adapt them as much as possible to the operator in question. Applying the investigations of computerized workplace design help in ergonomic and functional defining and designing workplaces and their environment, which reduces operator fatigue, makes work more humane, and at the same time increases productivity and product quality.

»VatoSABA 1.2.« Motion Capture System for Computerized Movement Analysis

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Biomechanical analysis of human movements is a complex and demanding job, thus virtual 3D characters of computer-generated kinematics and locomotive man-like systems are used in practice. Human skeleton can be seen as a set of a closed kinematics chain (spine with chest) and five kinematics chains (head, arms and legs). A computerized kinematic model is developed based on the inner body kinematic model, to be used as an initial basis for the construction and character animation of a virtual 3D character. To accomplish a scientific visualization of 3D characters the following is necessary: to design and develop an animated skeleton model with accompanying data basis for movements, to design and model 3D model body and through computer animation achieve interaction of the virtual model and its environment. A traditional approach of 3D-character animation includes the usage of key frame animation. This approach is rather cheap, but time consuming, and offers rather good animation results. A mode modern, popular, fast and accurate, but much more expensive, approach is based on a »Motion capture (mocap)« system. Theses systems can automatically detect movements of real people. VatoSABA 1.2. Motion Capture system digitizes real movement recordings into adequate behavior of 3D characters, and constitutes a new approach to computerized character animation of 3D virtual humans, including both modest investments and ease of operation in animating key frames, together with a precise and quick work, as when using automatic motion capture digital systems.

Comparative Study of Genetic Markers and Anthropological Traits in Russian Gene Pool – The Cartographical Analysis

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Investigation of geographical variation of gene frequencies in Russian populations is crucial for analysis of gene pool structure and factors of its forming. We analyzed indigenous Russian populations inhabited the main area of ethno genesis. All published to date information of gene frequencies was collected into the »Russian gene pool« databank. For each of 42 alleles 17 loci, a gene geographical map of its frequencies was created (GGMAG program package). The map of each gene is accompanied by specific reliability map, in relation of the number of studied populations. Only two maps reveal clear clinal variation (HP*1, ACP1*A). Other maps demonstrate more complex genetic relief. To reveal the most common pattern in genetic variation we constructed synthetic maps (geographic maps of principal component values) based on the maps set of 35 alleles of 14 loci. The map of first principal component revealed clear trend in the Russian gene pool: latitudinal variation from north to south. Similar result came from anthropological data, when multidimensional statistical analysis was performed: values of the first canonical variate change gradually from northern to southern populations. Principal trends of genetic variation and variation of anthropological cover are very close to each other: correlation coefficient between these two maps is equal to 0.8. In conclusion, we demonstrated latitudinal variation to be the principal trend in Russian gene pool; methodologically, comprising of genetic and physical anthropological data is promising in gene pool studies. The work was supported by RFBR (01–06–80085, 02–06–06053, 01–07–90041).

Synthetic Maps of East Europe Gene Pool – Similarity of Geographical Distribution of DNA, Classical Gene Markers and Anthropological Traits

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Cartographical analysis of the geographical distribution of genetic markers and physical anthropological traits revealed the great similarity in principal patterns of its variability. We analyzed frequencies of 51 alleles of 6 DNA loci (15 ethnoses); 100 alleles of 33 classical markers loci (42 ethnoses); 22 anthropological traits, 253 populations. For each allele a map of its frequency distribution was created for East European area. Maps are accompanied by reliability map, corresponding with the number of populations studied. We created synthetic maps, revealing the main scenarios in total variation of alleles/traits. The map of first principal component (PC) for DNA data demonstrates longitudinal trend; the map of first PC for classical markers reveals similar trend directed from Ukraine to the Ural region. Correlation coefficient between these

maps is ρ=0.81. Maps of others PCs of DNA and classical markers data also demonstrate high correlation with each other (ρ=0.64 for second PCs, ρ=0.73 for third PCs). For anthropological data map of first canonical variate also reveals the west-to-east trend. This finding indicates possibility and perspective of comprising DNA polymorphism data with classical genetic and anthropological data in studying of a gene pool. In view of the dispute about the effects of false correlations in synthetic maps, we calculated some synthetic maps through analysis of maps and through analysis of raw data. Coincidence of these maps (ρ=0.96) indicates that, taking into account reliability of the mapping, the resultant PC maps have no errors of false correlations. The work was supported by RFBR (01–06–80085, 02–06–06053, 01–07–90041).

Virtual Anthropology – The Internal Characters of the 'Mojokerto Child' Homo erectus Calvaria Using CT Data

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Traditional and Virtual Anthropology use complementary tools to approach fossil hominids and their evolution. Since recent times the latter, based on Computed Tomography, gave access to internal features of the fossils. Though, virtual Anthropology studies dealing with the endocast were more oriented toward an estimate of the endocranial size than toward a morphological description. We successfully attempted to describe in such a way original fossils filled with a sedimentary matrix, which cannot be physically removed. Among them is the 'Mojokerto child' fossil skull, found in the 1930's in the eastern Java Lower Pleistocene beds. Its study is of the utmost importance, as it yields for the first time anatomical information on the endocast of a *Homo erectus* child. After appropriate setting, the 2D tomographic pictures document detailed characters of the cranial vault. Such pictures can yield also accurate three-dimensional computer-assisted reconstructions, resulting into replicas, which are dimensionally very similar to the original fossil. We can therefore trust the reliability of the endocast replicas, if available, when studying the anatomical characters. Completing the reconstruction needs first to perform the virtual removal of the sedimentary matrix: The fossilized bone and the sediment were bounded on each tomographic picture by means of local estimation of the attenuation thresholds. The computer-assisted 3D reconstruction of the endocast was eventually materialized into a replica by means of rapid-prototyping. These data allow to present a description of the 'Mojokerto child', which includes cranial bones internal characters as well as endocranial features. They open a new field to study the age of the specimen (estimate of the sutural synostosis state) and its taxonomic affinities (as seen for instance from the sinus drainage pattern).

Y Chromosome Polymorphism in Rural Population of the Island of Hvar

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The purpose of this study is to examine population structure based on the polymorphisms of biallelic (M9, YAP, SRY–1532, 92R7, SYR–8299/4064, 12f2, M20, M52, M70, M89, M124, M170, M201, M173, M175) and eight microsatellite markers (DYS19, DYS388, DYS389I, DYS389II, DYS390, DYS391, DYS392 and DYS393) in 91 randomly selected autochthonous males from rural communities of the island of Hvar. Genetic composition was assessed based on the allelic frequencies, whereas genetic variability based on haplotype and locus diversity. Phylogenetic relationships among microsatelite haplotypes within haplogroups were determined by using the reduced median network and median joining network, as suggested by Bandelt et al. (2000). Combination of biallelic markers yielded eight haplogroups (I-M170, G-M201, R-M173(xSRY_{10831b}, P-92R7, F-M89, R-SRY_{10831}, J-12f2, E-SRY_{4064}). European specific haplogroup I-M170 was found at the highest frequency, followed by haplogroups P-92R7 and R-SRY_{10831b} (14% and 8.7%, respectively). The remaining haplogroups were not very frequent in the investigated Hvar population. Despite reproductive isolation and high endogamy of the rural communities of the island of Hvar the analysis of Y chromosome biallelic and microsatellite markers did not reveal reduced genetic variability (reduced haplotype diversity). Moreover, the results showed high vales of assessed haplotype diversity (0.9839 ± 0.0049) indicated great heterogeneity of gene pool. The high values of haplotype diversity assessed by analysis of Y chromosome polymorphisms are in concordance with the results of previously conducted mtDNA analysis when island of Hvar showed greatest diversity index when compared with islands Brač, Korčula and Krk.

Morphological Variation in Middle Dalmatia, Croatia

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Populations of Middle Dalmatian islands of Brač, Hvar, Korčula and the Pelješac peninsula have been the subject of long-term anthropological research of local biological and socio-cultural differentiation. This study extends to the most distant island of Vis and the Middle Dalmatian coastal belt. Using morphological data on 14 head and 24 body dimensions, it aims to further explore the interaction of historical, socio-cultural and biological factors in populations with various degrees of isolation. Relationships and divergence among populations were assessed at the level of whole island (peninsular, coastal) populations and at the level of regional populations. Extensive morphological diversity exists at both levels which is interpreted as deriving from different micro-evolutionary pressures at various levels of population subdivision. Morphological variation corresponds to migration history, differential geographic isolation and socio

-cultural (linguistic) variation in the Middle Dalmatian area. The results confirm the strength of isolation in formation and maintenance of biological population differentation.

The Role of Mobility in Spatial Organization – Analysis of the Gravettian Station at Pavlov I (Czech Republic)

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Causes of mobility among hunter-gather groups are complex, involving a number of interrelated factors. These factors and relations at the Gravettian station were studied by several fields as ethnoarchaeology, anthropology of architecture and use-wear analysis (Gravettian project). Investigated area uncovers a system of the hearths and settlement units. The spatial analysis of the site structures used several methods including typology of artefacts, spatial distribution with graphic presentation (Surfer for Windows, Version 6 programme), use-wear analysis and analysis of the raw material. The spatial distribution of the artefacts in the southeastern margin reached the following results. There were uncovered four productive places, four working places, a bimodal model of the units VI, a centrifugal effect of the artefacts around the hearth 3. Sex-separate working places were also found there. The working places of the women were situated further from the hearth (endscrapers with the traces of the processing after soft material) while the men's working places were situated immediate around the hearth (blade, burin, backed implement with the traces of the processing after medium material). The analysis of the raw material provided information about mobility of the hunters with maximal distance 30 km per day (most frequently 15 km). Longer expeditions to the distances around 200 km from the settlement were also performed. In preference, the mobility and behaviour of the Gravettian hunters are necessary to be studied in interdisciplinary way.

Screening of Fixed Prosthodontic Appliances After Five Years of Use in Relation to the Material and Construction

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The aim of this study was to screen the patients with fixed prosthodontic appliances, being in mouth for a period of 5 years or more, for root caries, gingival recession, pocket formation and alveolar ridge resorption to find out the difference between different materials and construction, the difference between abutments and natural teeth and to find out the need for replacement. A total of 260 orthopantomograms were examined

with a total of 2265 teeth, 610 being the abutments of the bridges and 246 being crowns. The most frequent were metal + veneer crowns or bridges. Root caries was found under the abutments and crowns in 10–20%, with ceramic appliances with the lowest percentage of caries ($p < 0.01$). Alveolar ridge resorption, pocket formation deeper than 3 mm and gingival recession of various degree was found in 50% of cases, again ceramic appliances with the least percentage ($p < 0.01$). Pocket depth was significantly bigger on the metal + veneers crowns and bridge abutments than in natural teeth ($p < 0.01$), while there was no significant differences between pocket depth of ceramic crowns and natural teeth ($p > 0.05$). Almost 50% of ceramic crowns (or bridge abutments) had no pathologic findings and only 24% of other crowns (or bridge abutments) had no pathologic changes. Almost 30% of the patients needed replacement or some abutments to be extracted and the construction of a new prosthodontic appliance.

Xelaqué – Evaluation of the Social Impact of Development Aid in Quetzlatenango, Guatemala

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The global sustainability perspective determines also to include development aid programs in so-called developing countries. Thereby one major problem seems to be the final evaluation how the impact on local societies responds to the intentions at the beginning of a project. Often the participating organisations realise problems that prevented more sufficient results not until the sunset. A lot of projects therefore produce as their main result the wish to restart from the beginning. Not anybody would hence disclaim that there is an existing gap between the theoretical goals and the realisation of development aid. Due to this general suggestions an Austrian NGO, *Horizont 3000*, assigned the Institute for Anthropology with a social impact analysis of one of their projects in Guatemala, Central America. Since 1996 the project »*Xelagua*« attempts to reform the local drinking water supply of Guatemala's second largest city. The provincial capital Quezaltenango is situated in the western highlands (2300 m.a.s.l) and has about 250.000 inhabitants. The three main features of »*Xelagua*« consisted in designing a »master plan« for the water system which permits supply until the year 2018, the reorganisation of the concerned administration and of course a campaign to sensitise the population for sustainable water use. The paper presented reports the results of the social impact case study »*Xelaque*«, which attempts to evaluate how the three goals have been realised during »*Xelagua*«. We used a set of quantitative (questionnaires) as well as qualitative (interviews) methods tracing two main components: the impact of the »master plan« for the reorganisation of the local administration and the customer satisfaction of the inhabitants and small local companies. We are convinced that the instrument of social impact case studies is a needful tool not only to evaluate development aid projects but also to contribute the human ecological perspective of global sustainability.

Polymorphisms of Some Coagulation Factor Genes in Healthy Croatian Subjects

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Complex diseases are influenced by variation at multiple genetic loci and environmental factors. Different risks for such diseases can be seen in different ethnic and racial groups. Gene polymorphisms of factors involved in coagulation and fibrinolysis are potentially important in development of arterial and venous thrombosis. In our study we investigated the incidence of mutated alleles for Factor V Leiden, Prothrombin G20210A, Fibrinogen –455 G/A, –148 C/T and PAI-1 4G/5G in healthy population. Sequence variation in Factor V causes the resistance to activated protein C and variations in Prothrombin, Fibrinogen and PAI-1 are associated with increased gene transcription and may lead to their increased plasma levels and hypercoagulability. 120 subjects were studied (aged between 20–75 years). Genotypes were determined by PCR-RFLP (Prothrombin G20210A and Fibrinogen 455 G/A, –148 C/T) and PCR-SSCP (Factor V Leiden and PAI-1 4G/5G) analysis. The observed genotype frequencies were: Factor V 92.7% wild type, 7.3% heterozygotes; Prothrombin 98% wild type, 2% heterozygous; Fibrinogen 46.7% wild type, 38.5% heterozygotes and 4.4% homozygotes for mutated allele; the same distribution was observed for the Fibrinogen –148 C/T polymorphism; PAI-1 29.2% 5G homozygotes, 45.2% 4G/5G heterozygotes and 25.6% 4G homozygotes. Two polymorphisms of fibrinogen gene showed to be in complete linkage disequilibrium. The observed distribution of genotypes was consistent with that predicted by the Hardy-Weinberg equilibrium. The results were consistent with reported genotype and allele frequencies for other white populations.

The Effect of Grandmothers on Child Mortality? Evidence From Two Historical Populations

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The contribution of elderly women to their children's reproductive success is supposed to be one possible cause for the evolution of the long postmenopausal life span in humans (»Grandmother Hypothesis«). Contributions can be provided by supporting the children itself or their children's offspring. In our study we analyzed the effect of grandmothers on the survival of their grandchildren in the first five years of life using data from two historical agrarian populations: the Krummhörn population of Ostfriesland in North-West Germany (1720–1874) and the population of St. Lawrence valley in Québec (Canada, 1621–1760). Parametric event history models were applied in order to control for potentially confounding covariates. It could be shown that having a living maternal grandmother decreased the child's risk of dying at ages 6 to 12 months and 12 to 36 months for Krummhörn and Québec, respectively. In contrast, the parental grandmother had no effect in the Québec population and she had even a harmful effect in the Krummhörn population. This detrimental effect of the paternal grandmother

was prevalent only in the very first month of life suggesting that the child's increased risk of dying was caused mainly by conditions during pregnancy. A tensed relationship between the mother and her mother-in-law may be the reason for such unfavorable conditions. No effects were found concerning both grandfathers. The results show that older women – even after their reproductive capabilities have ceased – may still influence their inclusive fitness substantially. This gives support to the assumptions of the Grandmother Hypothesis. The results accord furthermore with theoretical considerations that emphasize the importance of investment by matrilineal kin for the evolution of the human life history.

The Roman Imperial Age to Early Middle Ages Transition – The Analysis of the Dental Fractures of the Skeletal Samples of Quadrella (I–IV sec.) and Vicenne-Campochiaro (Early Middle Ages) in Central Italy (Molise)

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The late ancient /medieval transition can be considered as an important process of political, social, economical and cultural transformations of the European and Italian societies. These changes are related to repeated 'barbaric' invasions, new subsistence models, famines and epidemic diseases that heavily affected these populations. Anthropological studies can be usefully compared with the information coming from historical sources, and can contribute to understand the biological and cultural frame of this transition. The dental fractures were observed in the samples of the necropolis of Quadrella (I–IV c. AD) and Vicenne-Campochiaro (Early Middle Ages), both of the same Italian area (Molise). A large variety of activities, cultural behavior or/and food processing may be the cause of these alterations. The grade and the position of the chippings have been collected. Different life-styles and patterns in the tooth use, related to both masticatory and extramasticatory functions, have been carried out by comparing the two skeletal samples.

An Endeavor to Define Skeletal Plasticity of Past Populations

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One of our main ambitions when studying human skeletal material is to explain how human variation depends on evolutionary and biocultural processes. In order to improve our understanding of past populations, a certain level of knowledge of the biology of modern populations is essential. Moreover new developments in methodological and/or technological analyses may enhance a critical evaluation of the interplay between human individuals and their environment in past populations. By studying the cultural history of a population, the discipline of skeletal biology may help to reconstruct or confirm the events during a certain cultural period or during a transition between periods. This will be demonstrated with examples from the various contributions of the

second volume in the series of biennial books published by the EAA. The authors were asked to keep to the theme »Ecological aspects of past human settlements in Europe«, and the various contributions display quite different approaches to relating biological data to the environment. It will be shown how they encourage us to consider alternative theories and to carry out further investigations in many fields. The studies should be seen as an inspiration for the ongoing, and hopefully never-ending, discussions on skeletal studies of past populations in Europe and their interaction with biology, cultures and physical environments.

A Three-Dimensional Shape Analysis for Studying the Ilium Growth in Apes, Humans and Australopithecines – Heterochronic Hypotheses

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The heterochronic processes involved in the post-cranium differ greatly from the paedomorphic process (neoteny) occurring in skull evolution. We try to understand evolutionary changes by comparing ontogenetic changes in the ilium shape of 95 *Pan troglodytes*, 100 *Homo sapiens*, and 4 *Australopithecus africanus-afarensis* (Sts 14, MLD 7, MLD 25, AL 288) of various stages of growth. The three-dimensional procrustes analysis is used to analyze morphological changes in terms of size, shape and ontogenetic ages (dental stages). The results indicate that the ilium growth pattern in humans differs markedly from that of the African pongids. Firstly, the appearance of new features in human growth (e.g. the acetabulo-cristal buttress) before or at the time of birth, allows the addition of traits, such as the attainment of a proportionally narrower pelvis, with more sagittally positioned iliac blades. Secondly, the comparison between australopithecines and humans suggests the occurrence of an accelerated evolution of the pelvic morphology in the human lineage (peramorphic processes).

Is Chronic Hepatitis B Infection Reflected on Some Anthropological Traits in Children?

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The influence of chronic hepatitis B infection on the growth of children is still discussed, especially at interferon (INF) therapy. The aim of this study was estimation of body height, body mass and % FAT (by bioimpedance method) in the sick children in comparison with population study. Material consisted of 64 infected HBV children (48 boys and 16 girls) aged 7,62–19,3 years. Treated with IFN for 4 mo was 30 boys and 12 girls. Healthy children were represented by 416 boys and 457 girls. Analysis was based on the scatter plots and chi-square test. In body height inside band M ± ½ SD was

about a 1/2 girls and 1/3 boys. Under this mean ± 1/2 SD was put 1/3 boys and only 1 girl. Over this area were about 30% boys and 25% girls. In zone M ± 1/2 SD of body mass was found 1/3 boys as well as 1/3 girls. Under this area about ½ boys was found but only ¼ girls. Higher body mass than M ± ½ SD demonstrated about ½ girls and only 1/5 boys. % FAT: inside M ± ½ SD was showed about ½ boys and in about 1/3 girls. Under this zone was put ½ boys and about ½ girls. Higher than inside of this band results demonstrated ¼ girls but only 1/10 boys. The comparison of frequency in 3 areas (M ± ½ SD, under and over this zone) treated and not treated with IFN children was not significant in both sexes. Conclusions: 1: Chronic hepatitis B infection influenced negative on the development of some children especially in relation to body height and body mass in boys and to % FAT in both sexes. 2. IFN therapy no reflected markedly on the growth of the treated children.

Relationship Between Tooth Mobility and Surrounding Bone Tissue Condition in Mandible of Elderly Home Residents

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Mechanical, metabolic, nutritional, hormonal and probably other, as yet unknown, factors are involved in alveolar bone atrophy, which occurs in elderly often following various periodontal pathological conditions and tooth extraction. The aim of the present study was to examine mandibular teeth status and mobility, and to evaluate bone height and density using orthopantomographic screening analyses. The sample consisted of 94 elderly home residents. Tooth mobility was measured by Periotest™ (Siemens, Germany) apparatus. Computer measurement software was specially designed for morphometric and optical density measurements of the mandible, with copper stepwedge as orthopantomographic measurement calibration tool. The results of the investigation showed significant correlation between tooth mobility and mandibular bone height ($r = 0.744$, $p < 0.01$), with mandibular incisors being the most mobile teeth (average mobility = 1.1 mm in horizontal plane), and canines being the least mobile (average mobility = 0.4 mm). However, no correlation was determined between optical bone density and tooth mobility ($r = 0.231$, $p < 0.05$). There was no statistically significant difference in tooth mobility relative to gender, while age of the subject was identified as significant factor, with older subjects exhibiting larger tooth mobility, but also greater alveolar atrophy. Although significant bone height reduction was observed in molar area, the corresponding tooth mobility was lower than that of incisors, which could be attributed to their morphological characteristics. It can be concluded that alveolar atrophy has significant negative influence on tooth mobility, while reduced bone density does not impair tooth stability.

Turkic Languages and the Genes of Turkic-Speaking People – No General Correlation in Maternal Lineages

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It is quite expected to see that linguistic and genetic proximities overlap. Here, one should ask whether an observed correlation is indeed between genes and languages – or does it reflect geographic closeness. However, what's about people, belonging linguistically to language families, spread over vast distances? As an example, we took the Turkic language family within the Altaic macro family of languages. It is spoken from southwest Anatolia to eastern Siberia, in a distance covering nearly 8000 kilometers. We have studied about 3000 mtDNAs from 14 populations: Turks, Azeris, Nogays, Tatars, Chuvashis, Bashkirs, Kazakhs, Uzbeks, Kirgizis, Alataics, Shors, Tuvinians, Dolgans and Yakuts and we used published by others data available for Uighurs. MtDNA HVR region sequencing and extensive RFLP typing allowed to identify virtually all studied mtDNAs according to their phylogenetic position in a global tree of human maternal lineages. We found that the western Eurasian variants of mtDNA vary from about 95% (Turks, Azeris) to about 5% (Yakuts, Dolgans) and the gradient of the variation is nearly linear, except one more abrupt increase in South Urals. The conclusion is straightforward: there are no »Turkic« maternal lineages shared by Turkic -speaking people: their maternal lineage pool is determined by spread of languages over populations, carrying different ratios of eastern and western Eurasian mtDNA lineages, likely originated and separated deep in Palaeolithic.

Sex Related Differences in Behavior Between Early Bronze Age Groups of Central Europe – The Bone Biomechanics

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It is well established that Early Bronze Age burials in Central Europe have sex related differences shown for example by the orientation of skeletons or their different burial goods. Such archaeological differences have also been linked to several biological parameters such as stature, overall metric differences, etc. However, sex related differences could reflect established behavioral differences in activity patterns between both sexes. Therefore three different Bronze Age groups of Lower Austria – Únìtice, Wieselburg and Unterwölbling – have been selected. Computer tomography sections of humeri, femora and tibiae of 70 individuals were obtained. Eight biomechanical proper-

ties (CA, MA, TA, Ix, Iy, Imax, Imin, J) of each cross section were calculated by specially developed software. The biomechanical will be discussed with regard to the culture, biology and behavior of the three groups.

A Comparison of Ectocranial Shape Morphology in Hominoids Using Geometric Morphometrics

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In this study we compare overall ectocranial morphologies between five different hominoid species: Homo sapiens, Pan paniscus, Pan troglodytes, Gorilla gorilla, Pongo pygmaeus. We analyzed the 3D-coordinates of 47 ectocranial landmarks of 210 adult as well as 57 sub-adult specimens (the latter in various ontogenetic stages). A principal component analysis of Procrustes coordinates shows a marked separation of Homo sapiens from all other species. Adult Orang Utan specimens separate from the other adult Pongids, but the sub-adults ones do not, demonstrating that hominoid growth trajectories during sub-adulthood are consistent throughout all investigated species. We present arguments as to why prognathic growth during ontogeny may be the major factor that leads to a clear differentiation between adult and non-adult hominoid cranial shape morphology.

Aging of the Reproductive System – An Ecological Approach

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Increasing adiposity along all phases of vital cycle is one of the main secular trends detected in the biology of current wealthy populations. This alarming trend is related to a burgeoning problem of obesity, which contributes to increasing risk in chronic and non -communicable diseases late life. This increase in adiposity and overweight, is affecting more women than men, particularly middle-aged Mediterranean women of poor economic level. Is secular trend in body composition affecting the process of reproductive ageing in women? Our hypothesis is that populations experiencing secular increase in adiposity, also show a change in the dynamics of their reproductive ageing, having a menopausal transition delayed, prolonged in time and more symptomatic. The mechanism could be explained thought the action o the subcutaneous fat as a peripheral gland secreting estrogens, affecting the hypothalamic-ovarian axis. We present some evidences for testing this hypothesis and discuss to which extent delayed ovarian ageing is generating differences in the patterns of health and disease during the menopausal transition and latter in life. The possibility of monitorize the ecological factors involved in this secular trends is discussed.

Ecological and Genetic Aspect in the Study of the Native Inhabitants of Pamir

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A role of the genetic and environmental factors in variabilities of levels of the testosterone, estradiol and somatotropic hormones in Pamirs populations was examined in relation to the place of residence above sea level. Testosterone and estradiol levels reduced in males and females with the altitude of their permanent residence in the studied populations. The variability in testosterone levels diminished with the altitude of locality. Blood O group (ABO system) residents of plains and low-altitude mountain regions had lower concentration of the estradiol and testosterone. With increase environmental extremeness (at 3000 and 3640 m.) there was no association between sex hormones and ABO system. An increase in various estradiol concentrations was noted in women living in high-altitude regions of Pamir. Heterozygotes TFC-C2 are characterized by the high concentration of the hormone of growth in comparison with its concentration in gomozygotes TFC1-C1. Shown that level of series hormones has significant correlation with phenotype of locus Gc and there is tendency in this association. These facts are given as the reason of the connection between level of hormones and genetical polymorphism.

Race – A Pre-Scientific Paradigm in Anthropology

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Physical anthropology has been affected by an epistemological error from its origin as an independent discipline during the 18th century. In fact, physical anthropologists stated the biological racial paradigm disregarding the fact that empirical validation of a scientific hypothesis is part of the construction of the paradigm itself. The existence of races was considered the basic principle of physical anthropology instead of just being a hypothesis amenable to empirical investigation. All scholars who dedicated themselves to that futile classificatory exercise unintentionally contributed to demonstrate that they were involved in a false paradigm, because of the problematic aspects in explaining human biological variability using the taxonomic sub-specific category of race. The difficulty in identifying human races was proved by the high number of subdivisions suggested (from two to sixty-three), and differences in the traditional definition of race (as synonymous of species, sub-species, ethnic group, and population). From the 1970s the concept of race was falsificated by the development of molecular anthropology.

The Biological Role of Ethnicity by Surnames in the Italian Ethnic Minorities

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Ethnicity as a cage to preserve the cultural and biological »purity« of a community is nothing but pure abstraction, though consequences of such an illusion may be dreadfully real. A way more consistent with the real life of human beings to think of ethnic boundaries should be to imagine them as patterns of biosocial interactions among communities rather than as tools to isolate people. The Albanian-Italians, Croato-Italians, Greek-Italians, and Provençal-Italians ethnolinguistic minorities living in Italy, are now open and biologically mixed society, and indicate the common breaking off of the genetic isolation of the populations.

Matiegka's Method for Calculation of Body Composition in Obese Children Compared With the Modern DEXA Method

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Introduction: One of the modern visualizing methods is X-ray densitometry DEXA. We used values of body composition components in a group of obese children assessed by the DEXA method as the »golden standard« to compare them with values of body composition assessed by methods of classical anthropometry. Material and methods: 10 obese boys, 13.19 ± 2.62 years and 19 obese girls, 11.24 ± 3.51 years were assessed by anthropometric and densitometric methods. The body composition components were calculated according to Matiegka's equations. The DEXA method was used to assess bone mineral content, fat and lean body mass. Statistical analysis was based on regression analysis and analysis of variance (ANOVA) testing. Values obtained by classical anthropological methods were regressed on DEXA measurements. Systematic inter-sexual differences were assessed in the ANOVA context. Results: If we take as the »golden standard« values obtained by the DEXA method – the body fat ratio assessed by Matiegka's equations correlates significantly with the body fat ratio assessed by DEXA, the values being underrated when expressed in absolute values (kg) as well as when expressed as percentage of total body weight. No correlation was found between body fat assessed by DEXA and the WHR index. The ratio of the skeleton assessed according to Matiegka's equations is markedly overestimated as compared with the results of the DEXA method. Correlation coefficient (r) of the body fat ratio according to Matiegka is 0.8918, r of WHR is 0.0820, r of BMI is 0.8410. Summary: As apparent from what has been presented above, it is possible also in obese subjects to estimate the body fat ratio based on caliper methods of classical anthropometry, which however

underestimate the body fat ratio. The submitted results must be considered preliminary due to the small number of subjects in the groups. This research is supported by Internal Grant Agency MofH of CR, registration number NB6597–3/2001.

Multifactorial Nature of Adolescence

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Adolescence is a hormonally unstable, critical period of life, with dramatic dimensional changes and fast rate of sexual development. It is during this period that previously established structures become consolidated following transitory phases of more or less instability. The complexity of human ontogenesis embraces biological growth and maturation as well as mental, affective and cognitive progress, and adaptation to the requirements of society called socialization process. All these spheres of development are intimately related in the formation of personality. To accept our morphological constellation as part of our gender may prove a problem even to a child of average rate of maturation. Adult self-assessment, a never ceasing process, has its roots in pubertal development. Any disharmony perceived affects adult self-acceptance and sense of identity, our emotional, cognitive and social development as well as our cognition. The main rules of maturation that govern the interrelations between hormonal, physiological and mental processes as well as the sequence of developmental stages are common and universal for our species. However, the rate of maturation can be very different and its inter- and intraindividual variability is most conspicuous in adolescence.

Pubertal Change in Body Composition

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Human growth and maturation implies not simply greater dimensions or a maturation of functions. They proceed by preserving a delicate balance between stimulatory and inhibitory, anabolic and catabolic processes, evolution and devolution. Pubertal endocrine changes have a strong impact on both the direction and rate of metabolism and on the proliferation of bone, muscle and fat tissue. The goals of this study were to analyze body composition in children belonging to the same age group, but to different stages of maturation as well as displaying the same level of maturation indicators, but varying in age. The chronological age of the girls (N = 2769) and boys (N = 2873) ranged between 10.0 and 16.0 years. The girls were subdivided by using menarcheal status and stages of breast and pubic hair development, while the factors for grouping the boys were spermarche, and stages of genital and pubic hair development. Sexual maturity was rated by Tanner's stages (1962). Body composition was estimated by using Durnin and Rahaman's (1967) and Siri's methods (1956). Our results have strongly confirmed the inference that maturation status was reflected by body composition and also the age change of body fat depended on it. Fat content was greater in both sexes in the early maturers. Also the developmental rate of prepubertal fat accumulation was faster in the early maturers when compared to those maturing later. Standards for the age change of body composition can therefore inform us not only about the develop-

ment of bone, muscle and fat in childhood, but also allow a short-range prediction of pubertal events.

Burial Rite of Wartime

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In the present paper we describe the burial rite of wartime from the Paleolithic up to this day. Men killed in war used to be buried to the soil or it used to be disposed of them otherwise. The inhumation used to be mostly to the mass graves without the weapons after the dead were robbed. Rarely the killed men have been buried to the single graves with their weapons. There are the graves of killed warriors in battlefields, in ditches, less often in grave-fields – in the New Ages in cemetery, or in the cases of the great warriors in monasteries. In many cases the killed warriors have not been buried at all, they have rested in the places where they have been killed. It used to be disposed of the dead bodies in accordance with different customs: burning bodies on a dump, eating of the killed enemies (Polynesia), throwing dead men into the sea. Extant the camouflage of war crimes gave in to the burials in war by putting the mines on the mass graves with the casualties which have marks of the torture, being cut into the several pieces mixed up with the animals remains (Bosnia, Serbia, Kosovo).

Transition Analysis – A Means of Estimation Age at Death From Systematic Osteological Observations

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The estimation of age at death has been one of the grate problems both for forensic anthropology and for anthropological demography. As a matter of fact, palaeodemography has been declared dead several times precisely because of this problem. Three key problems have been identified, the estimates are usually rather inaccurate, they are often poorly characterized, and they are biased. Transition analysis has been developed to overcome these problems. Transition analysis is a statistical technique designed to estimate the likelihood for a given combination of anatomically defined stages as a function of age. The resulting statistics and graphs describe the likely age at death under the assumption of a flat distribution of age of death. This is of course an unreasonable assumption but the statistics can be used to give acceptable individual ages estimates by convolution with appropriate probability density functions (pdf) for the distributions of age of death or they can form the basis for the iterative estimation of sample specific pdf. In its present form transition analysis age estimation is based on transformation series in the public symphysis, the iliac auricular surface and sutures of the skull. The statistical technique facilitates the inclusion of other anatomical structures. Transition analysis age estimation has managed to reach at an unbiased and well-characterized description of the likelihood for having died at given ages. The estimates are – particularly for the middle age range – still somewhat less accurate than desirable.

Age Related Anatomical Variation in the Human Skeletons – Towards an Extension of the Osteological Basis for Estimating Age at Death

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Excavated human skeletons are rarely complete and it usually impossible to estimate age at death by applying one single method. The experienced osteologist, however, relies on a large number of usually informal observations in the subjective assessment of age of death. Transition analysis has recently been established as a general method for extracting unbiased information on age from standardized osteological observations. This method makes it easy to combine information from a large number of anatomical features from all parts of the skeleton in a formal way. The present paper describes possibly age related osteological variation in a number of places on the skeleton. Variation in more than 40 different places on the skeleton is describe and scoring schemes for each of them are described. All parts of the skeletons, from the feet to the vault, are explored for possible age related variation. Variation assumed to contain information an ages from around 10 to over 80 years is described. Both developmental and degenerative characters are used. It is hoped that this presentation and manual distributed with it can contribute to establish osteological method for age estimation based on incomplete material. The aim of this project is – in a larger context – to establish methods which can stand up to the scrutiny of both national and international courts of justice and further the scientific analysis of human demographic evolution.

Osteological Research, Why?

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There are two reasons for studying the remains of people from the past – the need to know our own past to create and maintain out identity and the need to get knowledge about human adaptability under conditions of living which often were radically different from any thing seen today. A peoples understanding of its own history is at the heart of nearly all political arguments. Consciously manipulated images historical grandeur or misery have created powerful arguments for many political decisions. The unique quality of human bones gives the osteologist an obligation create true reflections of life in the past. History is in many instances as a natural experiment. This makes systematically collected and well documented samples of human skeletons a unique source for health science research. However, the fact that human bone are found in not on its own a justification for carrying our osteological research. If the bones are studied mindlessly, with no specific questions (hypotheses) to guide the research they can only tell us that there were human beings in the past. Providing such conformation of age-old knowledge can not justify the financial and human resources used on the examination of bones. There might be good reason to curate the bones for storage or exhibition but with no question there is no justification for research. This paper presents and discusses guidelines for scientific research based on historic and

prehistoric human skeletons. In this connection ethics pays a dual role. It is unethical to use sparse research resources to carry out mindless analyses and it is equally unethical to refrain from seeking the unique insights which skeletal research with a proper design can provide.

Anthropology Takes Control of Geometric Morphometrics – Tools for Today, Tools for Tomorrow

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Anthropologists have a long history of asking the right quantitative questions about human form, and statisticians first invented much of the morphometric toolkit over the period 1850–1950 in response to the paleoanthropologists, auxologists, and forensic anthropologists who speculated about quantitative image averaging, shape averaging, and discrimination or classification among groups. Today the questions that generate the best new morphometric methods continue to arise from physical anthropology: they deal with data not only from points but also from curves or surfaces; with ontogeny and phylogeny, and their interrelations, at the same time. They can concern localized characters as well as large-scale factors or features of form, and the statistician's responses do not stop with mere arithmetic but also extend to the reports back to the larger scientific community. I will sketch the areas of general agreement, the themes I have previously called the Morphometric Synthesis for points, curves, grids, and multivariate analysis of shape coordinates from specimens in 2D or 3D, as they have arisen over the last few years in work by anthropologists and statisticians. The collaboration depends on several characteristics of the community of physical anthropology, including a wide range of plausible biological models, the possibility of experimental confirmation by biomechanical or auxological studies, eager pursuit of steadily better instrumentation, and a refusal to let any empirical issue ever be closed. I will also sketch some of the new tools that are still under development in these collaborations: tools for missing data, ontogenetic models, and more complex geometric structures such as shells. These tools promise to make tomorrow's morphometric arguments even more precise and suggestive than today's.

The Relationship Between Different Occlusal Conception and Frequency and Severity of Noncarious Cervical Lesions

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The teeth with most noncarious cervical lesions (NCCL) are the premolars, which also have the largest percentage of higher index numbers, indicating the greater severity of lesions. Many authors suggest that excentric lateral forces, which arise at occlusion and articulation, are one of the causes of NCCLs. Due to that, and since at group function the most leading teeth are premolars, and at canine guidance the most leading teeth are canines, we want to investigate if there any differences in the frequency and severity of NCCLs at premolars according to the type of occlusion. Methods: This study

included 807 inhabitants of Rijeka with 4154 premolars, chosen at random in four dental practices. In these subjects 1032 premolars with NCCL were found. NCCLs were recorded according to the Tooth Wear Index (TWI) by Smith and Knight. The type of occlussal conception was established by clinical examination and clasificated as canine guidance or group function, for both sides separately. Results: The most interesting index level for clinical practice is 2, 3 and 4, which represent well-formed cervical lesions. At the canine guidance level 2 was found in 9%, level 3 in 8% and level 4 in 0.8%. At the group function level 2 was found in 5.8%, level 3 in 7.3% and level 4 in 1.6%. Level 2 was found in higher percentage in subjects with canine guidance. Level 4 was found in higher percentage in subjects with group function. Conclusion: Our findings suggest that subjects with group function have more premolars affected with the higher levels of NCCLs.

Fluctuating Dermatoglyphic Asymmetry in Neuromuscular Diseases

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Fluctuating asymmetry of finger ridge counts, fingerprint patterns, palmar »*a-b*«, »*b-c*« and »*c-d*« ridge counts and palmar *atd* angle are studied in 44 Gypsy patients with three neuromuscular diseases: Hereditary motor and sensory neuropathy – Lom (HMSNL), Congenital cataracts facial dismorphism neuropathy syndrome (CCFDN) and Congenital myastenic syndrome (CMS). Comparison with a control group of healthy Gypsies are made. The investigated three diseases are spread mainly in Gypsy populations. The data obtained show higher level of fluctuating asymmetry in CCFDN and HMSNL patients compared to the controls. In CMS patients the opposite tendency is observed. Analyzing the data, higher level of fluctuating asymmetry is found in CCFDN and HMSNL patients compared to CMS ones. In CCFDN patients highest is the fluctuating asymmetry for palmar »*a-b*«, »*b-c*« and »*c-d*« ridge counts and ridge counts on IV th homologous digits. In HMSNL patients highest is the fluctuating asymmetry for palmar »*a-b*« ridge counts and ridge counts on III-rd and V-th homologous digits. This finding corresponds to the seriousness of the clinical symptoms of the investigated diseases.

Bipedality in Behavior of Primates and Problem of Bipedality Origin in Hominid

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Origin of bipedality remains a very controversial topic in human evolution. The occurrence of bipedal standing was 0.175% of total postural time among Papio hamadryas, in Macaca nemestrina – 0.03%, in Pan troglodytes – 0.115% and in Hylobates lar – 0.25%. Frequency of bipedal walking in P. hamadryas included 0.69% from time of moving activity, in M. nemestrina – 0.15%, in Pan troglodytes – 0.6%, in H. lar – 4.065%. Index of bipedal running in baboons was 0.33%, in M. nemestrina – 0.03%, in gibbon –

1.73%; in chimpanzee (in captivity) bipedal running was not noticed. Frequency of bipedal jumping was 0.005% in baboons and 0.31% in gibbons. P. hamadryas and M. nemestrina used bipedality for orientation on a large open space as well as transporting children. They also utilized bipedality while running with food in their hand from the dominant individuals. P. hamadryas used bipedal postures and walking while feeding. Chimpanzee used bipedality while transporting various items and for aggressive display. Gibbon – as intermediate between brachiation series. Bipedal jumps were used during games. These contexts are proposed as stimulating the development of bipedality among Hominid ancestors. Bipedal locomotion was preceded by quadrupedal standing, running and walking as well as sitting among the terrestrial quadrupeds such as P. hamadryas and M. nemestrina. Knuckle-walking species, chimpanzee, transfer to bipedality from quadrupedal motions, brachiation and sitting while holding a vertical rod. In specialized brachiator gibbon bipedality followed brachiation, climbing, various hanging, jumping and different standing and sitting. Research has shown that Chimpanzee can transfer to bipedality from both terrestrial and arboreal locomotion. It seems to be more universal and therefore I prefer it as a locomotor model of Hominid ancestor. The study was supported by RFBR, grant # 02–06–80258.

Conceptual Clustering and the Study of Human Variation

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The study of human variation has been one of the most controversial fields or research in the field of biological anthropology. One of the major points of disagreement among modern anthropologists interested in biological variation concerns the question of usefulness of the concept of race. Combining research of Dobzhansky and methods from the computer sciences we argue for the use of an approach which incorporates elements of both racial and non-racial approaches. We suggest that application of conceptual clustering, which has a wide use in object-oriented analysis and design, may be useful in the study of human variation. Conceptual clustering allows anthropologists to use different classifications relevant to the problems they study, provided the purpose and basis of classification are clearly defined. This approach makes the infraspecific classification of Homo sapiens a matter of convenience and undermines the importance of the concepts of race and subspecies.

Statistical Modeling of Children Growth

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In the paper, we will introduce several alternative ways of statistical modeling of children growth data arising from longitudinal or semi-longitudinal studies. We will compare relative merits of two approaches: i) based on a typical mixed model framework, ii) based on a state-space model framework (using Kalman filtering). While both of them decompose total variability into measurement error and structural variability (inter-individual variability of growth), the state-space approach gets to more detailed

and subtle features. We will show how different models can be useful in various situations, providing different insights into the growth process. Both model types are applied on a rather large Czech height dataset coming from a recent semi-longitudinal children-growth study. While mixed models provide excellent tool for testing and modeling influence of various covariates upon the growth process, the state-space model approach yields more individualized fit, suitable for monitoring growth tracks and even for short-term predictions. Moreover, we will show on a real data, how the filtration can be used to address some further theoretical questions like those about how frequently growth tracks cross quantile lines. While the state-space approach is computationally more demanding, it provides simple and easily understandable data description potentially useful for practical growth assessment of individual children.

North African Populations in Time and Space – Facial Morphology, Computed Models and Geometric Morphometrics

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In a scenario of sub-Saharan origin and subsequent diffusion of modern humans, North Africa represents an area of special interest. Here, extant human populations are the result of different genetic influences that, in turn, overlie a deep evolutionary background. The Neolithic transition and recurrent contacts with both sub-Saharan and Mediterranean »environments« produced the most visible effects. Such a complex pattern of admixture is blended with strong isolation phenomena (especially in the massif of central Sahara) and provides a useful case study. Variability of North African human populations is investigated here by a geometric morphometric approach to facial skull, a skeletal district that is proved to be discriminant for human diversity on a worldwide scale. Facial landmarks are collected in 3 dimensions on a sample including representatives of prehistoric and recent populations from the Mediterranean African coast, East Africa, Canary Islands, and Oases of northeastern Sahara (Libya). All the populations are well characterized by the analysis, although variability does not appear polarized, but distributed among several components. Among them, the first Principal Component identifies a vector of sub-Saharan vs. Mediterranean characters, such as (towards the sub-Saharan pole) face enlargement and shortening, nasal broadening and flattening, maxillary expansion and prognathism. In this framework, a few groups segregate from larger and widespread populations, clustering together and suggesting a common as well as hypothetical Late Pleistocene substratum. Among prehistoric specimens that have been considered, the skull from Nazlet Khater (Egypt, 30–35 ka), has been CT scanned and preliminarily analyzed in this comparative perspective.

Use of the Oral Contraceptive Pill by Austrian Adolescents With Emphasis on the Age of Onset, Side Effects, Compliance and Life-Style

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In teenage years relationships are generally not long-term. Planning a family and its size are not yet considered as important factors. According to that, adequate and safe contraceptives like the pill have to be provided for adolescents. Moreover, the pill is not only prescribed as contraception, but also as therapy for acne, irregular menses and other menstrual disorders. The present study investigated the use of oral contraceptives in 880 Austrian high school girls aged between 14 and 18 years (mean age 16.2 ±0.9 years). All participants filled in a questionnaire on life-style and menarche. Furthermore, subjects on the pill were asked about their preparation, age at first use, reasons why they take it, side effects and oral contraceptive compliance. As recommended for adolescents, all 139 subjects on the pill used low dose monophasic preparations, most of them containing gestodene as their progestagenic component. The girls started the pill at a mean age 16.0±0.9 years for contraceptive and therapeutic reasons. The minimum age for the first ever use was 11.4 years while the maximum age was 17.6 years. The most commonly noted side effects were weight gain and an increase in breast size (significantly often mentioned together), fatigue and depression. The results also indicate that most users comply sufficiently. Regarding life-style, it can be stated that girls on the pill are more likely to smoke, consume more alcoholic drinks and do less sports.

Growth of Mentally Retarded Children – A Longitudinal Study

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In one of the Hungarian institutions there have been measured twice a year the body sizes of mentally retarded children for almost thirty years. The number of the measured pupils was between 180–220 year by year. With the aim of evaluating the personal measurements, the subjects were grouped according to etiology of mental retardation into three groups: i. intrauterin and perinatal, ii. postnatal and iii. unknown damages. Because of the limited number, the known gametopathias (syndromes, like Down syndrome and also some undifferentiated aminoacidurias) were excluded from the present study. The subjects were also grouped according to the seriousness of mental retardation. In the most serious group (moron) more growth disorders were found.

Neanderthal Extinction Scheme and Complex Tectiform Geometric Proto-Writing in Altamira, La Pasiega, and El Castillo Caves are Decoded as 3 Ice Age Global Sea Gyri and Coast Navigation Maps all 3 Showing a Central Atlantic Island of an Integrative Magdalenian Azores Plateau (MAP-) Culture of Cro Magnon Constrained by a Neanderthal Extinction (Bullman-Minotaurus-Bullfight) Eliminative Cult. Littoral Theory of Hominid Evolution, Tectural Phase

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Selected for problem solving, homo specific paleo-socialisation with flat rank order is established predominantly by the »integrative problem solving-capacity« that is communication with the problem instead of repressing it. Integrative problem solving ethology is based on the inborn »gene-ritual« of at first self-referential play-behavior, then evolutionary successful in reproductive flirt behavior through at last the outer most competitive »play-aggression« (initiative, plasticity, creativity, curiosity) mirroring the subjective inner Isodynamic ™ play algorithm (access, accept, express, experience) for authentic communication and integrative problem solving that guarantees an ultimately (proto-) scientific reality construction. Homo culture selectively institutionalizes the relaxed play-field precondition even for extreme threats and beyond puberty and testosterone-aggression. This »meta-play«. of culture is achieved initially not by architectural, legal or moral, ethic and aesthetic constraints, but by the homo specific »meta-ritual« of therapeutic or traumatic trance. It is stabilized with reliable and instant aggression-frustration suppression by the serotonin based Rest and Fulfilment response (Bujatti and Riederer, 1976) e.g. from ritualized aerobic diving response elicitation. Homo-culture is thus paradoxically taking recourse to the maximal threat of suffocation by hypo-metabolic diving (= dying) response physiology elicitation to enforce ultimate peace (Transcendence, Self). This is achieved by symbol-conditioned release of diving physiology originally with a diving meta-meme as first logical syntactical phoneme structure of language as self-referential tool for integrative management of Fight or Flight conflicts. Homo regression as neo-socialization to a steep predominantly agonic-hedonic primate rank order as dual problem solving institution is established by the »eliminative problem solving capacity« utilizing threat or violent-aggression for blocking off, repressing, denying, killing to solve the problem of resources distribution. The establishment of a stratified society in the first civilization is brought about by »eliminative problem solving« increasingly ritualized in the Neanderthal -bullman-human sacrifice in the cave architecture as eliminative terror cult. It progressively constrains paleo-culture in a co-evolution and is documented in the earliest complex visual symbolic communication like the »Neanderthal extinction scheme« in the cave architectural space. As creative results of this constraint in paleo-culture – neo-cult co-evolution, relevant up to present civilization, the »tectiform« geometric proto-writings in Spanish caves of Altamira, La Pasiega, El Castillo were decoded as 3 global sea gyri and littoral navigation travel-maps with a sea-current, traveltime-ship

and island code. As proto-science all 3 documents surprisingly show since 18 kybc an Atlantic island at the now 2 km submersed North Atlantic-Ridge triple junction plateau, the center of the Magdalenian Azores Plateau (MAP-) Cro-Magnon culture driven by its eliminative Neanderthal- (Bullman-Minotaurus-bullfight-) human sacrifice terror-cult into later neolithic dys -socialization and present day eliminative drugs and fear based psychosomatic patho-socialisation.

The Effect of Electromagnetic Field in Dentistry

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The data about measurements, values and use of magnets in dentistry are still scarce and show many dilemmas yet to be solved. Therefore we decided to measure magnetic fields in the environment of dental equipment. Our study samples consisted of instruments currently available in dental procedures, and a specifically constructed instrument with Hall probe was used for this measurement. The instrument for the measurement was calibrated so that the ground magnetic field and magnetic field of disturbances caused by different conductors were annulled. Then the spot, with the greatest magnetic field power was defined and the obtained value was designed as the initial point, and the measurements were repeated instrument moved away by 5 cm from the initial point, and the measurements were repeated for a long as the null value of magnetic field power for the investigated instrument was obtained. These are some of our conclusions magnetic field spreads through space in ISOTROPIC manner and decreases with increasing distance form the source. The dental equipment produces negligible effects on dental staff and patient, specially the newly designed and produced instruments. The greatest frequency obtained at the smallest distance was 100 kHz, while the sensitivity of instruments was 0.0001 μT. The instruments producing stronger magnetic field are located for enough from the persons on whom they act.

A New STR of the D7S1530 Locus – A Useful Marker in the Human Groups Genetic Profiling

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D7S1530 is an STR located on human chromosome 7, containing a tetranucleotidic repetitive motif (GATA). Allele length for this locus ranges between 187 and 227 bp. The main objective of this work is to test the efficiency of this marker in differentiating among the major human groups. After PCR amplification and molecular separation have been carried out, genotypes were determined by means of a fluorometric detection system, using an ALF Express II Analyzer. 606 chromosomes have been analyzed from six different populations belonging to European, Near East, Western Asian, Northern African and sub-Saharan geographic areas. He values ranges between 81.9% and 71.2%.The common alleles 211,215, 219, which are represented in each of the human

groups under study, suggest a common ancestry. The presence of alleles with a low and high number of repetitions characterizes sub-Saharan and West Asian populations respectively, whereas Caucasian-substrate populations display intermediate genetic profiles. In conclusion, this marker appears to be an useful genetic tool and may possibly be added to the set of markers currently available for human genetic characterization studies. In addition, technical aspects and high levels of heterozygosity render this marker a potential candidate for forensic purposes as well.

Grooming and Dominance Styles in Macaques Societies

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Grooming is one of the characteristic patterns in macaque's societies. Macaques are known as one of the most active groomers among non-human primates. In this paper I am going to discuss a grooming structure in species with different dominance styles. The following parameters are used for a cross-species analysis: uni-directed grooming, reciprocal grooming, mutual grooming, frequency of active and passive grooming, number of active and passive grooming partners. Seven species are compared (Macaca tonkeana, M. arctoides, M. sylvanus, M. nemestrina, M. fascicularis, M. mulatta and M. fuscata). It is demonstrated that species with rigid social relationships have a particular model of grooming relationships are characterized by: 1. direction of grooming relations up the hierarchy; 2. positive connections between grooming and kinship; 3. low level of grooming in male-female pairs outside reproductive periods; 4. low level of grooming interactions in male-juvenile pairs. On the other hand, species with relaxed dominance relationships are characterized by: 1. personal preferences in grooming relationships irrespect of individual dominance ranks; 2. absence of direct connections between grooming and kinship; 3. relatively high level of grooming interactions in male-female pairs outside reproductive periods; 4. high level of grooming interactions in male-juvenile pairs. Supported by RFBR # 99–06–80346, Grant of the Presidium of RAS for the outstanding scientists.

Genetic Composition and Diversity Patterns of Autochthonous Basques From Northern Navarre – Data and Assessments Based on Protein Polymorphisms

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The significant accumulation of classic allele frequencies in Basques and its subpopulations has enabled to set up inferences on its genetic structure, heterogeneity levels, evolutionary history and peopling of the Basque area. Most of these approaches have been developed over the last ten years and, the recently published studies dealing with DNA molecular diversity of Basque genome, not only have enhanced those goals but also are allowing to understand the causes of the genetic variation that characterizes this European population. We presented allele frequency data and genetic struc-

ture analysis concerning to ten classic polymorphisms (serum proteins: A1AT, GC, TF and HP and red cell enzymes: ACP, ESD, AK, PGM1, CAII and PGD) in Basques from Northern Navarre (Spain). Our knowledge of the variability of these polymorphic markers in Navarrese Basques, is inexistent or rather limited. However, previous surveys undertaken by this research group have already characterized this population in terms of immunoglobin allotypes together with other HLA and Y-chromosome molecular markers. Navarrese Basques show lower average heterozygosity when compared with other Basque subpopulations. The common rare deficiency S and Z alleles segregating in the PI genetic locus of A1AT are observed as Western Europeans markers and the allele frequency of PI*S reaches in the Iberian Peninsula the highest values (0.08 – 0.15) while PI*Z gene does not occur in polymorphic frequencies (<0.01). Basques share these particularities as well (PI*S come to 0.075 and PI*Z is absent). TF and GC rare variants have not been detected in our study population. The genetic diversity within Basque subpopulations and relationships with other human groups from the Iberian Peninsula are analyzed. The observed genetic heterogeneity is evaluated in terms of population genetics background.

A Pentanucleotide Repeat Polymorphism in the Apolipoprotein (a) Gene – Its Distribution and Its Association With Coronary Heart Disease

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Apolipoprotein (a) is a component of lipoprotein (a) and it is molecularly homologous to plasminogen. Numerous studies have shown the association between risk of coronary heart disease and the size of Apo(a) isoforms, although this issue is still controversial. Recent researches focused the attention on the pentanucleotide (TTTTA), located 1.3 kb upstream of the first exon in the apo(a) gene. These studies highlighted a statistical correlation between low Lp(a) levels and high repeat numbers. In the present study we investigated the possible association of the pentanucleotide repeat polymorphism of Apo(a) with serum lipid levels in two samples from Corsica (France): one comprises patients or individuals with high risk of future coronary heart disease and the other is a control sample. No significant differences between the two groups in the distribution of allele and genotype frequencies have been found and yet, the analysis of variance showed a significant association between different genotypes and cholesterol, LDL and ApoA serum levels. At the end, we studied the distribution of the Apo(a) pentanucleotide polymorphism among populations to verify its usefulness in population genetics analysis

Biomolecular Study of the Human Remains From Tomb 5859 in the Etruscan Necropolis of Monterozzi, Tarquinia (Viterbo, Italy)

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Archaeological excavation in an Etruscan room tomb, from the Monterozzi necropolis in Tarquinia led to the recovery of four individuals. It was hypothesised that the four could be part of a family group. As both archaeological data and classical anthropological analysis provided little information in this direction, ancient DNA was extracted from bone and tooth fragments of the individuals. For each subject HVR-I of the mitochondrial DNA (mtDNA) was cloned and sequenced. Amelogenine and SRY genes were analysed to define sex and STR characterisation was also performed using AmflSTR Profiler Plus Kit (Applied Biosystems). DNA studies were preceded by the evaluation of amino acids racemization extent and thermo gravimetric analysis (TGA), to evaluate, respectively, degradation and quantity of organic matter preserved in the samples. Results show that two subjects are males, whereas two are females. Furthermore three of them share, the same mtDNA sequence, according with the hypothesis that they could be related by maternal lineage. These evidences support the hypothesis that the occupants of the tomb can be considered members of a family group composed by two parents and their son and daughter. Molecular study supplies new data to better define the reconstruction previously proposed, based only on a morphological and archaeological approach.

Strategies of Subsistence of European Human Populations During the Middle and Upper Paleolithic

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We compare the data about subsistence strategies of the European human populations during the Middle and Upper Paleolithic. *Homo neanderthalensis*, evolved from the European populations of *Homo heidelbergensis*, shows some specialistic morphological traits, probably due to an adaptive answer to a particular climatic condition. Also in the alimentary behavior it seemed to be specialized: the diet was mostly carnivorous. Anatomically modern humans of the European Upper Paleolithic seem to differ from the alimentary behavior that has characterized Neanderthals; the diet is more varied, with a greater contribution from fresh waters alimentary resources (mollusks and fishes). The comparison between the various strategies of subsistence adopted by the two species allows us to make a hypothesis about the extinction of *Homo neanderthalensis*.

The Diet of Paglicci 25 From an Upper Palaeolithic Site of Italian Peninsula

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We present the evidence about the diet of this important Upper Palaeolithic woman from Paglicci Cave (Puglia, Italy). The specimen has been analysed through AAS. Dental micro wear traces on the buccal and occlusal sides of Paglicci 25 crowns have been analysed in order to record various patterns of micro wear. The specimen has been analysed using a metallographic microscope (Leica DMLP-200) at 200 magnification and SEM at different magnifications. Dental surfaces data have been recorded on a floppy disk and analysed through a semiautomatic image-reading program (Microwear 3.0-Ungar, 1994).

Y-Chromosomal Microsatellite Haplotypes in Basques From Navarre (Spain) – A Comparison With Populations From the Mediterranean Space

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Basques are one of the European populations in the forefront of the dynamic process of investigation, in which Molecular Anthropology has become involved the last few years. The selection of DNA markers that denote major demographic signals (from mtDNA and Y-chromosome) represent a central issue of Basque population genetic studies today. Its application to learn how Basque genetic characteristics can provide insight into the peopling of Europe and the Mediterranean space, represents a priority approach. We report the genetic variability at seven Y microsatellites (DYS19, DYS389I and II, DYS390, DYS391, DYS392 and DYS393) among 73 autochthonous male Basques from Northern Navarre (Spain). A total of 34 different Y-haplotypes were observed (only two reached frequencies higher 10%) and 24 were each found in a single male (unique haplotypes). Population haplotype-diversity value was 0.9433 and it agrees to that found in other continental populations. When comparing our results with Y-haplotypes constructed from DYS19, DYS388, DYS390, DYS391 and DYS392 microsatellites in other Basque samples (e.g. from Guipúzcoa) we observed that the two most highly frequent haplotypes registered in Navarrese Basques also showed the highest incidence in that Basque subpopulation. Both Basque samples (N = 122) share seven Y-haplotypes and it represents a significant proportion (68%) of the whole characterized sample. The geographical variation of Y-haplotypes within Iberian and other Mediterranean populations, is interpreted in terms of evolutionary history. We attempt to throw some light on the importance of historically recent migratory movements, the main corridors of gene flow and demographic sizes and their variations in shaping gene frequency patterns in contemporary human populations particularly, on the Mediterranean space.

A View From Across the Atlantic – Changes in the Race Concept in American Anthropology

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The influence of the race concept on the development of American biological (or physical) anthropology cannot be underestimated. From its role as a major theoretical foundation of anthropology, to its so-called »demise« and beyond, the race concept continues to inform theory in biological anthropology and the relationship between the sub-fields of anthropology. This paper examines the complex relationships between the race concept, biological anthropology and anthropology as a holistic discipline and the extent to which the »demise« of the race concept changed the field. The race concept includes assumptions about the existence of races as natural categories, essentialism and biological determinism. Through biological determinism, race originally provided the theoretical link between biology and culture that initially made anthropology a four-field discipline. In American anthropology, the race concept was challenged by a number of factors including the rise of the modern synthesis and population genetics, the growth of the »Boasian School« in cultural anthropology and the changing social climate, particularly through the civil rights movement. The rejection of the race concept (and the concomitant mistrust of biological approaches to the study of culture) has been related to the fragmentation of four-field anthropology. However, among biological anthropologists, it is unclear if the race concept is really »dead.« Although current evolutionary understandings of human variation provide the basis for non-deterministic, biocultural theories that may contribute to the maintenance (or perhaps reconstitution) of anthropology as a holistic discipline, anthropology's struggle with the race concept is far from over. The race concept, and the essentialism underlying it, continues to influence many studies of human variation.

Morphometric and Densitometric Analysis of Lower Jaws in a Group of Elderly Home Residents

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There has been increasing interest in the interrelationship between oral bone and tooth loss in elderly population. Because the severity of alveolar bone loss increases with age, it has long been hypothesized that it may, in part be related to local, but in part also to systemic conditions. The aim of the present study was to examine lower teeth status and evaluate surrounding bone by orthopantomographic screening followed by morphometric and densitometric analyses. The sample consisted of 94 elderly home residents whose results were compared to control group of 20 adolescents. Morphometric and densitometric measurements of the lower jaws were performed by specially designed computer software, using copper stepwedge as orthopantomographic measurement calibration tool. The most commonly missing teeth in lower jaws were first molars. Morphometric results of the lower jaw in elderly were on the average 35% lower than the results of the control group. The lowest measured distance was deter-

mined to be in first molar area / absolute = 13.45mm; average = 17.24mm. Female morphometric values of subject group were 7–10% lower than those of males, with statistically significant difference ($p < 0.05$). The results of densitometric analysis showed highest values for eminentia piriformis, 0.4, and the lowest values for molar area, but were not statistically significantly correlated to absence of teeth. Loss of teeth has significant influence on bone height, but is not correlated to bone density. The influence of tooth loss with bone resorption determines the state of stomatognathic system.

Comparison of Satisfaction With Removable Dentures Between Complete and Partial Denture Wearers

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The aim of this study was to compare patients' overall satisfaction with their dentures as well as satisfaction with denture retention, speech, chewing ability and the comfort of wearing dentures between complete denture (CD) and Kennedy Class I removable partial denture (RPD) wearers. A total of 156 CD and 103 RPD wearers took a part in this study. Patients graded their satisfaction by using an analogue-visual scale from 1 to 5. The statistical analysis was made (descriptive statistics, Mann-Whitney test) and the following conclusions were made: 1. Both, CD and RPD patients were mostly satisfied with their dentures (the distribution of the scores of the patients' assessments was skewed towards the highest scores; more than half of the patients scored all the examined variables to the best score category (5). 2. Variables were ranged from the best to the worst grades in the group CD wearers as follows: retention of upper CD, comfort of wearing upper CD, speech, aesthetic, overall satisfaction, chewing ability, retention of lower CD and comfort of wearing lower CD. Variables were ranged from the best to the worst grades in the group RPD wearers as follows: aesthetics, retention of upper RPD, comfort of wearing lower RPD, speech, retention of lower RPD, overall satisfaction, chewing ability and comfort of wearing lower RPD. 3. The difference of the satisfaction between RPD and CD wearers was significant ($p < 0.05$) for the comfort of wearing lower denture (higher scores RPD wearers), for the retention of lower denture (higher scores RPD wearers), and for chewing ability (higher scores CD wearers).

Influence of Occlusal Interferences on Prevalence of Masticatory Muscle Disorders

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Temporomandibular disorders (TMD) is a cluster of analogue disorders that are characterized by pain and symptoms of dysfunction of the stomatognathic system (masticatory muscles, temporomandibular joints, or both). The aetiology of TMD has been considered to be one of the most controversial issues in clinical dentistry. One of the conflicts that has attracted most attention has been the role of occlusal intereference in

TMD. The aim of this study was to investigate a possible association between the masticatory muscle disorders and occlusal interferences in a young male nonpatient population. A questionnaire including data from history and clinical functional examination was used in the study. All subjects (a total of 230) were male, from 19 to 28 years of age (mean 21.3). Pain and tenderness of the masticatory muscles (temporal, masseter, medial pterygoid and lateral pterygoid muscles) were found in 25% subjects by the palpation and functional manipulation. Statistical analysis (Chi-square test) showed that certain types of occlusal interferences were correlated with masticatory muscle disorders ($p < 0.05$). Significant relationships were found between centric interferences and tenderness of masseter and temporal muscles; working interferences and tenderness of lateral pterygoid muscles; and nonworking interferences and tenderness of medial pterydoid muscles. We concluded that pain and tenderness of masticatory muscles were associated with occlusal interferences, but their association, can not be considered unique or dominant. Supported by Ministry of Science and Technology. Republic of Croatia, Project No. 065010. Ćelić, R., Pandurić, J., Dulčić, N., Knezović Zlatarić, D., Badel, T., Kraljević, S. School of Dental Medicine, Department of Prosthodontics, University of Zagreb, Croatia.

Man, Nature and Ethics

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Religious ethics, medical ethics, environmental ethics, business ethics, bioethics: people have been joining adjectives to the word »ethics« ever since Adler, calling to account Christianity and Judaism for the control they were exercising over moral dogma, founded in New York at the end of the last century the Society for Ethical Culture. Two innovatory factors should be added to the crisis, or ideological renewal, which occurred during the first half of this century: 1. The ecological impact of man on the environment, beginning with the Industrial Revolution in the West in the 18th century, but becoming more evident as a problem during and following World War II and 2.The innovatory impact of science, first through nuclear physics, which made possible the splitting of the atom, a basic building-block of matter, and becoming more concrete subsequently through the development of molecular biology and biotechnologies, which made possible the breaking of the genetic code and the advances in genetic engineering. By definition, because of its historical background and as a discipline, bioethics must focus on the problems involved in determining the best way for Man to survive individually and as a species and on the relationship between Man and the natural environment. It is therefore a science that, through an interdisciplinary approach, links information originating not only from traditional biological sciences, but also from ecological science and etiology.

The Demographic Aspects in the Aromanians Ethnicity

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The present study is about a part of the Aroumanian population from Dobrogea, Romania, and our approach is a demographic one. We considered the demographic structure

(the repartition by sex, age and marital status) and the main demographic parameters: the frequency of marriages, birth rate, mortality, and migrations. The study is on 48 families of Aroumains, 208 people from the town Kogalniceanu. Of these persons only 5 are of Romanian origin. The others came from Greece. They are »farseroti« with the origin in Albania. Sex ratio: of the 208 persons alive 111 (53%) are women and 97 (46%) men. The young population represents 18% of the entire population, the adults 55% and the old population 27%. The married persons prevail: they represent 55% of the population. There are very few divorced persons – 0,96%; the widows and widowers represent 5% of the population. Single persons are represented by 43%; in most of the cases people are under 20, however 37% of the unmarried population is over this age (34 cases). 93% (more then 3 quarters of the population) do physical work. The rest are intellectuals. High-school graduates prevail: 37%. The frequency of marriages between 1948 and 2001 was 55%. Regarding the migrations: over half of the interviewed persons were born in Kogalniceanu; 41% came from other localities. The description of the population: the *activity* – the physical work is prevalent, being imposed by tradition; the *education level* – the high school graduates prevail 37%; about the *marital status* the married persons are predominant.

Disorders of Lipid Metabolism in Children at Adolescence

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In human organism constant and functional lipidemia exists and it may undergo both qualitative and quantitative disturbances which are then called dyslipidemia. The most frequently met disorders of lipid metabolism are hyperlipoproteinemias which often accompany other diseases. To diagnose lipid metabolism disorders, a lipid profile should be performed and then compared with valid standards. The objective of the study was the evaluation of concentrations of selected lipid metabolism parameters in children with simple obesity and encumbered family history and hypertension. The study was carried out in two groups: 1st group – 32 children (16 girls and 16 boys) aged 8–14 years with diagnosed simple obesity and encumbered family history; 2nd group – 28 children (16 girls and 12 boys) with hypertension, aged 7–18 years. In all of the studied children the following parameters were assayed in the blood serum: concentration of triglicerides, total cholesterol and its concentrations in LDL, VLDL, HDL fractions. The obtained values of lipid metabolism parameters in the studied children and youth were compared with earlier developed standards. Approximately higher concentrations of triglicerides and total cholesterol, LDL and VLDL cholesterol were confirmed and decreased values of HDL cholesterol were stated. The studies indicated that disorders of lipid metabolism accompany various conditions of pathology still in children and youth. Hyperlipoproteinemias favour early development of atherosclerosis, one of the most dangerous civilisation diseases of our times and therefore it is important to diagnose these disorders early enough to treat them and apply prophylactics.

The Analysis of Variation of mtDNA Hypervariable Region – 1 Suggests an Independent Origin of Eastern and Western Pygmies

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The Eastern Pygmies from Zaire and Western Pygmies from Cameroon, Congo and the Central African Republic represent the two principal groups of African Pygmies. Their evolutionary relationships are the object of a debate centred on Hiernaux's and Cavalli-Sforza's hypotheses. The first one sustains that Western and Eastern Pygmies adapted independently to the humid forest climate, whereas the alternative view postulates a common process of adaptation and a subsequent separation. To shed new light on this problem we have analyzed the variation of the hypervariable region 1 of the mitochondrial DNA in the Mbenzele Pygmies of the Central African Republic and in the Bamileke and Ewondo of Cameroon. Our results are those expected under Hiernaux's hypothesis. The analyses of haplogroup composition, haplotype sharing and genetic distances suggest that the differentiation between the two Pygmy groups is a consequence of their distinct evolutionary history rather than a consequence of differential admixture and genetic drift. Our study also suggests there exists a Pygmy-to-Ewondo gene flow of mtDNA lineages. This supports the ethnographic notion that gene flow of maternal lineages may occur from African Pygmies to non-Pygmies but not *vice versa*.

A Study of Y-Chromosome Microsatellite Variation in Sub-Saharan Africa

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Seven Y-chromosome microsatellite loci (DYS19, DYS389I, DYS389II, DYS390, DYS391, DYS392, and DYS393) were analyzed in three populations from sub-Saharan Africa, the Bamileke and Ewondo populations from Cameroon, and the Hutu from Rwanda. Complete typing was obtained for 112 individuals and a total of 53 different haplotypes was observed. The diversity among Bamileke, Ewondo, Hutu and other sub-Saharan populations selected from the literature was analyzed using both a classical (F_{st}) and a stepwise based (R_{st}) genetic distance method. The pattern of interpopulational diversity based on F_{st} was congruent with anthropological knowledge, while that based on R_{st} revealed unexpected and unconvincing population affinities. As a practical implication, our study indicates that Y-chromosome microsatellite data may provide useful information for analyses of interpopulational diversity among sub-Saharan populations

if an adequate number of loci and individuals along with an appropriate genetic distance method are used. On a theoretical ground, we propose that the lesser performance of R_{st} than F_{st} could be explained by the important role of genetic drift in shaping the relationships among examined populations and/or by the inability of R_{st} to account for the homoplasy generated by the high mutation rate and the presence of constraints on allele size at microsatellite loci.

Inter-Population Relationship by Isonymy Regarding Ethno-Social Groups and Illegitimacy in Pocho, Argentina

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Inter-population relationship coefficients calculated from surnames may be biased by reduced size, by the subdivision of the population in ethno-social groups and by the presence of individuals born out of marriage. The present analysis attempts to prove the validity of the isonymy method in populations where the above conditions exist. In base to 1730 marital records (1766–1840) from six Pocho parishes (Cordoba province, Argentina) the Rij relationship coefficients were calculated (Lasker, 1977). Three endogamous ethno-social groups were considered: Spanish, American Indians and »Mestizos«. A fourth group, combining mates of the three previous groups, was also included. For each group, taking into account paternal surnames, maternal surnames (both for mates born in or out of marriage) and whole surnames merged, Rij inter-parish relationship matrices were derived. By means of the Mantel test all these matrices were correlated. Within each ethno-social category, maternal surnames in both cases of mates show a pattern similar to each other as well as to the »all surnames« group. In every parish, groups with larger sample size inter-correlate regardless of the ethno-social category. Moreover, in groups having a high rate of illegitimacy (Indians and »Mestizos«) inter-population relationships could be established both by means of the paternal lineage and by the maternal. Since groups including larger number of individuals inter-correlate, it is concluded that to increase the sample size by using maternal surnames in populations with high illegitimacy may provide more reliable results.

Testing Methodological Approaches in the Study of Sexual Dimorphism in Human Skeletal Samples – Application to the Turin Documented Collection From Italy

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A serious problem that confronts osteological studies of human growth is the lack of a consistent methodological approach for sexing non adult cohorts. The pelvis is com-

monly considered as providing the most significant criteria that allows the establishment of skeletal sexual dimorphism of adults. For the children, the reliability in the results is still low and DNA results are not very efficient. New attempts are explored to define morphological traits on children that may contribute to a better understanding in the sexual dimorphism of immature skeletons. Studies have focused attention on the hipbone or the skull in search of well-defined sex differences. The purpose of the present study is to test morphological methods applied to the skull of the documented skeletal collection curated in the Department of Anatomy, Pharmacology and Forensic Medicine of the University of Turin. Within this collection, dated to the 19th century, the immature material exhibits a correct sex ratio and the age distribution is really original compared to other European reference samples. Several regions of Italy are represented and a catalogue is available with date and cause of death, short life histories, lists of discrete traits. Moreover, the collection includes adult individuals; it is then possible to evaluate the degree of sexual dimorphism, independently of geographical and diachronic variability.

Assessing the Senescent Phenotype

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Since their beginnings, physiological and biophysical anthropologists have measured health related aspects of human somatic variation over the life span. Blumenbach, Morton, (who trained as physicians before turning to anthropological studies), and Boas led anthropology into an appreciation of population variation as an area for comparative research. In the beginning, biophysical anthropologists borrowed methods from physiology, population genetics, and clinical medicine; later, techniques borrowed from epidemiology, public health, and preventive medicine were included in developing the paradigm that quantitative human variation was an important determinant of reproduction and survival. As with gerontology in general, early studies of late life survivors in anthropology concentrated on »normal aging«, estimates of »biological age«, and documenting dysfunctional alterations over the life span. Damon and Sheldon were among the first to apply anthropological concepts of variation to the areas of chronic disease morbidity, senescence, and life span. Early assessments of phenotypic variation over the life span concentrated on aspects of external phenotype such as body shape (i.e.: ectomorphic, mesomorphic, endomorphic) and biological age estimates such as those developed at the Boston VA Longitudinal Study. Analysis of risk factors (e.g.: body mass index, blood pressure, sex, age, skinfolds) and profiles of risk factors followed. In some studies, a physician's assessment turned out to be as good a predictor of future mortality as were profiles of selected risk factors. In recent decades new measures have been added to this list including activities of daily living, frailty indices, allelic variation, and allostatic load. These appear to more accurately differentiate between rapid, moderate, and slow senescing phenotypes across populations and are reviewed herein with application to Samoan and African American samples.

Biodemographic Profile of an Isolated Population – Marriage Patterns in the Parish of Ponta Delgada (Flores Island, Azores, Portugal)

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Flores is one of the smallest and more isolated Islands of the Azores Archipelago (Portugal). Nowadays with 3992 inhabitants, the island was settled in the beginning of the 16th century. Presently, Flores Island is the target of a detailed Population Genetics study, using molecular markers. Simultaneously, it is being extensively studied from a biodemographic perspective, so that information obtained from DNA can be adequately interpreted. A biodemographic study was conducted in Ponta Delgada, one of the Flores parishes. Ponta Delgada is located in the north shore of Flores Island. Its isolation and reduced population size make this parish a suitable subject for this kind of studies. A total of 1326 marriage records were studied, comprising the period between 1675 and 1880. The quality of these records was evaluated. Biodemographic variables analyzed were: evolution of the number of marriages, Endogamy and Consanguinity. In general, the records presented a fair level of quality. However, age at marriage was referred in only nearly 11% of the records. The mean number of marriages by decade was 67. A strong variation of this variable along the period analyzed was observed. Endogamous marriages (both members of the couple born in the parish of Ponta Delgada) represented 62.3% of the total unions, with a minimum of 47.9% and a maximum of 92.6%. From all the exogamous unions only 15.9% corresponded to the import of individuals from outside Flores. Using the information contained in the dispensations, levels of consanguinity observed varied from 1.2% to 29.2%. The most frequent consanguineous union occurred between 3rd cousins. The highest value obtained for the coefficient of consanguinity was 210.4×10^{-5}. Although no decrease with time of this variable was observed, the general values are considered low and suggest an under-registration of consanguinity. Furthermore, the variation in the frequencies of consanguineous marriages was independent from the frequency of endogamy. Results from this study should improve our knowledge on the population structure of Flores Island, providing the adequate background for population genetic studies.

The Spread of the Overweight and Obesity in Croatia

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Obesity and overweight represent complex conditions affecting all ages, both sexes and various socioeconomic groups. Overweighed adults are at an increased risk of developing a variety of chronic diseases including diabetes, hypertension, osteoarthritis, coronary heart disease, sleep apnea, hyperlipidaemia, stroke, certain forms of cancer and overall mortality. Overweight and obesity have reached epidemic proportions worldwide and become the main public health problem. The aim of the investigation was to

determine the prevalence of the overweight and obesity in sample of 12 Croatian localities included both coastal and continental counties. Body mass index (BMI) was calculated according to the classification of World Health Organization (the weight in kilograms divided by the square of the height in meters). A BMI of 25 or above is generally considered overweight (grade I) while a BMI of 30 or greater (grade II, III) is generally considered obese. 5.769 adults, both sexes, aged between 18–65 years, formed the sample. The prevalence of obesity and overweight rises with age, higher in males than in females sample. As much as 18.13% of population is obese (grade II, III), 21% males and 15% female, total (N=046). Almost half of the males are overweight (grade I) 48% (N=1.375), and 34.9% (N=1.018) of females. Obesity grades I+II+III have 69% males and 49.9% females. The highest prevalence of obesity was observed in Zagreb county (males 26% and females 18.6%), while the lowest prevalence recorded in males (15.5%) of Rijeka county, and females (10.6%) Split county. On the basis of high prevalence of overweight and obesity in Croatia, there is urgent necessity to improve levels of knowledge and skills in understanding obesity by increasing public awareness of diet and physical activity. The health care services and government facilities need to implement comprehensive national strategy for action on obesity to improve prevention and management.

Physical Development of Village Children From Pomerania in the Light of Selected Development Factors

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The material for research on the development of children and youth living in villages of Pomerania was collected in the years 1986–1990 and 1996–1999. At the first stage 2593 children aged 7–15 (1270 girls and 1323 boys) were examined altogether while at the second stage, data concerning 2154 children aged 6–15, including 1026 girls and 1128 boys, were collected. Two basic body size features – body mass and body height – were analyzed. The main purpose was to present somatic development of examined village children from the western and central parts of Pomerania inhabited after 1945, and how it proceeds depending on selected factors of biological development: father's age, mother's age, parents' body height, birth order, birth body length and birth body mass. The following statistical methods were used: variance analysis (MANOVA), factor analysis and canonical analysis. It was also estimated whether there was any dependence between variables through the use of different statistical tests. The physical condition of Pomeranian children from two cohorts who were examined in the last fifteen years has changed very little. Factors taken into account, influencing biological development, affect body height more intensively than body mass of the examined. Variance analysis (MANOVA) and canonical correlation show that body height and mass of children from Pomerania are features determined mainly by parents' body height whereas factor analysis distinguishes groups of features acting comprehensively: 1 – parents' age and birth order, 2 – phenotypic variables, 3 – birth factors. It was proved that parents' body height is a specific feature which accounted for the main constituents in the slightest degree.

Morphological Diversification and Social Factors in a Group of Women After Mastectomy

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The main aim of the study was establishing the relation between morphological features and the social factor in a group of women after mastectomy. The study material is anthropometrical measurements of somatic features in a group of 550 women after mastectomy, associated in the »Amazons« clubs all over Poland. The age of the subjects was from 30 to 79 years. Average time elapsed after the operation was 2.5 years. As a result of the analysis it was found that in order to prove the significance of selected social factors in the risk of contracting breast cancer activity of differentiating social factors on morphological features characteristic for this group of women is required (weight, all circumferences except for thigh circumference, and chest depth and width of hips; the consequence of the demonstrated differences in weight and depth of chest and width of hips are differences in the calculated indicators – hips, chest and Rohrer's indicators) – with the lack of differentiating effect on other features. It was found that work (education and nature of work) indicate strong activity differentiating the studied Amazons in terms of features typical for them, without displaying such a role in case of other somatic features. The analysis of non-work related factors indicated that a factor which plays an important role in the risk of contracting breast cancer is the fact of looking after children and the need to bring them up, and the fact of being married is not among factors of risk.

Application of Iterative Newton-Euler's Dynamics Algorithm to Specifying Values of Joint Loads on the Driver's Arm at Spatial Movement

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Workload on a driver and, in consequence of it, his tiredness, represents one of the major problems to be resolved recognizing ergonomic principles and harmonizing the driver-vehicle-environment system. This work describes the method of specifying values of joint loads on the driver's arm at spatial movement when the driver operates a vehicle. For this purpose, a dynamic model of the arm is displayed to demonstrate spatial movement, the Newton-Euler's dynamic algorithm being applied to it. This algorithm may be employed to reckon the joint loads if one knows the values of generalized co-ordinates in function of time which are reckoned in this work on the ground of results received upon measuring kinematics values by means of Elite's measuring system. Values of forces and the moment are reckoned in all joints of the arm at the said movement by applying the above-mentioned algorithm.

Molecular Anthropology and Genetics of Complex Diseases

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During the past century, the disciplines of Physical Anthropology and Human Genetics have evolved from a steady 'classical' to a revolutionary fast 'molecular' approach witnessed only during the past two decades. Throughout this time, investigators from both fields have pursued a common goal of understanding the distribution of variation among human populations. With the recent handing of the human genome sequence, a new challenge has emerged – unraveling of genes associated with complex diseases and traits. While much success has been attained in identifying genetic basis of single-gene disorders, mapping complex disease genes has thus far been largely illusory! Family-based linkage strategies have not yet identified a genetic variant. Of late, there has been greater advocacy for population-based association studies using linkage disequilibrium (LD) mapping. On this issue, however, a critical question is: which population – inbred or outbred – is more suitable for LD mapping. The distribution of LD in the genome is to a great extent a population-dependent phenomenon, which can be understood only through rigorous analysis of evolutionary and demographic histories and structures of the populations in question. This is an area, none other than the anthropologists can better understand and their contribution will be critical in identification of genetic determinants of complex diseases.

Migratory Flows in Apulia (Italy) – A New Index for the Evaluation of Socio-Anthropological Stress

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The evaluation of the socio-anthropological stress of every ethnic group which has recently immigrated to Apulia, (South Italy), is part of the attempt to quantify some aspects of the migratory phenomenon and to offer an overall picture in a large territory such as that of Apulia. This analysis was carried out thanks to the proposal of multifactorial index (IDN) elaborated to start from a series of key questions brief and easily understood administered to individual immigrants in Apulia, represented as follows: $I_n = \Sigma p_i\ w_i\ /\ \Sigma\ p_i$ where p_i is the weight given to the i-esima reply, and w_i is a dummy or convenience variable, that assumes the value 0 if the reply is yes, 1 if the reply is no, 0.5 if the reply is in part. The index of synthetic stress, the theoretical parameter that measures the overage stress in the whole population, is, therefore, given by the overage of the n indexes of the units forming the sample: $I_{DN} = \Sigma I_n\ /\ n$ In this way we have obtained an index that varies between 0 and 1, assuming the value 0 in the absence of socio-anthropological stress and the value 1 in the presence of maximum stress.

Human Migration and Social Integration

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The new migratory flows no longer respond to the need for labor but are, in general, determined by abnormal political, economic and social conditions in the country of origin. Consequently, the impact on immigrants of the new reality becomes extremely traumatic and is very likely to be psychological destabilization. The mass flights we witness today must be viewed in this context, above all in Italy. All the studies of stress linked to migration should be approached with this mind. To this end a new index has been proposed for the evaluation of socio-anthropological stress (A. De Lucia et al., 1999). Also in order to contrast any attempt to find in migratory flows a possible source of contamination at the level of hygiene and health, an exhaustive study is being carried out on the causes of hospital admission to some hospitals in the south of Italy in the period 1991–2000. As it emerges from an initial investigation there are almost no differences, with regard to infectious diseases, between the immigrant and indigenous populations, we believe we can propose further scientific research in order to evaluate the degree of integration of those populations. Until now it has always been said that the level of civilization of a population is to be measured by the attention it offers to its non-productive element (children, old people and the handicapped), we feel this affirmation should be applied not only to the indigenous population, but also to that of immigrants.

The Reasons of Hospitalization of Young Immigrant People, Between 1991–2000 in Bari (South Italy) and its Districts

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The causes of disease and stress effecting immigrants, have been studied, in Apulia, by monitoring schedules, in order to estimate the index of social-anthropological stress (A. De Lucia et al. 1999). The present research wants to evaluate the state of illness concerning the children of the immigrants. Thanks to the doctors working in the hospital structures in Bari, we have obtained some data relative to the years 1991 – 2000. However, they are completely anonymous and without any identifying element. Later on the same data have been employed, still in an anonymous form, only with a statistical purpose. The total number of people admitted to the hospital structures is 2651 and can be divided in 11.8% for neoplastic pathologies, 7.3% for genital – urinary pathologies, 19.1% for respiratory pathologies, 4.5% of people who were suffering from malnutrition and metabolic diseases, 7.4% not exactly classified or not exactly transmitted. The number of people affected by neoplastic pathologies, chronic renal failure is very high, consequently we can assume that such pathologies are not always connected with immigration causes but, probably they concern people affected by such pathologies, who have come to Bari in order to find a better assistance. The high number of people affected by genital – urinary and respiratory pathologies of infectious nature and the large number of people suffering from malnutrition, suggests conditions of great pov-

erty and deprivations which were already present in their native countries, and have been made worse by the difficulties of the travel and the precarious accommodation in Italy.

The New Guinea West-Side Story – The mtDNA Approach

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Scientific research in New Guinea has been mostly concerned with the eastern part of the island, Papua New Guinea. A first in-depth study of human mitochondrial DNA (mtDNA) variability in West New Guinea (Indonesia) performed by our research group was focused on the hypervariable region 1 (HVS1) of 202 subjects, belonging to 12 different ethnic groups of the central and south-western region. The 9-bp deletion (intergenic region COII-tRNA^{Lys}), a marker of Austronesian expansion in the Pacific, was also investigated and found to be absent in all these Papuan-speaking study subjects. A follow-up of this research has now been undertaken and the preliminary results are presented here. The hypervariable region 2 (HVS2) of the mitochondrial genome of 194 subjects belonging to the same population sample has been analyzed. The HVS2 sequencing identified 52 polymorphic sites, defining 84 haplotypes. The results of statistical and phylogenetic analyses applied to the study of HVS2 haplotypes mostly confirmed what had previously been evidenced by HVS1 study. Haplotypes are largely shared among groups, showing a transversal distribution of genetic variability transmitted through female descent lines, in agreement with women mobility among groups through marriage exchange. The dichotomy between mountain and coastal regions, which was observed in Papua New Guinea (the eastern side of the island), was absent here. Three main sequence clusters, which resulted by HVS1 analysis, were confirmed when HVS 2 was considered, alone or in conjunction with HVS1. The same population sample was also investigated for the M haplogroup and preliminary results are here presented.

T-Factor Analysis in Researching of Individual Growth of 8–17 Year Old Children

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The main feature of individual growth patterns of 8–17 year old children is stability of morphological status, resulting in the stable structure of distribution of morphological indices though the ontogenesis. The 1st T-factor and covers 80–90% of variation of different indices describe such stability. 2nd and 3rd T-factors describe the disturbance of this stability: stochastic influence of the complex of affects and cyclic changes of morphological status connected with peculiarities of puberty – acceleration or retardation. 2nd and 3d T-factors jointly describe only 2–11% of variability of indices and should be considered as secondary.

Peopling of Mediterranean Area – New Perspectives From Molecular Anthropology

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The Mediterranean region is unique in our planet. It is made up of parts of three different continents -Africa, Asia and Europe- and saw the passage and settlement of the various hominid migrations in the Pleistocene. Furthermore, its archaeology and history are known in greater detail than those of any other region in the world. Over the last decade, Molecular Anthropology has applied modern approaches to the study of the genetic history of Mediterranean populations. However, a most integrated study is necessary to analyse, in deep, the genetic relationships between the three Mediterranean continental groups; to evaluate the amount of admixtures with sub-Saharian populations that migrated across the Nile river and the Sahara desert and, finally, to weight the importance of the Straits of Gibraltar and the Cartage-Rome links in the peopling of Europe. The long period of hunting-gathering, the introduction and development of agriculture, the multi-focus pre-Roman period, the era of unity under imperial Rome, the Middle Ages and the modern and contemporary epochs, could show relevant differences to the formation of the Mediterranean population gene pool, through differential variations in population sizes and displacements of groups of people over long-range distances. Since human populations are characterised for their high capability for movement and growth, *genetic corridors* may well have been more important than *boundaries* in shaping the current distribution of human gene frequencies in a continental level. This Symposium will discuss some of the different and central focuses in the analysis and integration of Mediterranean genetic data into a single, multivariate scenario, with the archaeology, history, geography, demography, linguistic and mating patterns. Integrated molecular DNA markers (from living and skeletal populations) and other protein polymorphisms will be the basis of further research.

Serum Protein Polymorphisms (PI, TF, GC and HP) in the Cayapa Indians and Afro-Ecuadorian Populations of North-Western Ecuador

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The distribution of common and rare genetic variants of protein polymorphisms have been widely studied in human populations to set up the amount of their genetic variability as well as to examine their genetic relationships. In spite of the introduction of new powerful methods and DNA based technologies, intra- and inter-population variability of serum protein polymorphisms is still highly informative mainly in function of those markers with physiological and anthropological interest sub typed by isoelectric focusing (IEF) techniques. In this paper the results of the study on the genetic variability of the four main serum polymorphic proteins PI, TF, GC and HP in two populations (the Cayapa Indians- N=114- and a population on African ancestry- N=161-) settled in a geographically isolated area in the province of Esmeraldas, North Western Ecuador

(figure 1) are presented. None of the four analyzed systems show significant deviations from H-W equilibrium. Results show that gene frequencies between Cayapa Indians and African Ecuadorians statistically differ for PI, GC and HP systems. Cayapa Indians lack of the PI*M2 allele, while PI*M3 allele frequency is rather high (.524 ± .039) with respect to other Amerindian populations; besides, GC*1S and GC*1F frequencies are different either from Central American or from Brazilian Indian populations. In the African Ecuadorian sample the gene frequencies of the four polymorphic systems fall within the range observed in all other African American populations so far taken into account. Correspondence analysis was applied in order to set up the relationships among these populations and their putative ancestral populations.

Mitochondrial DNA Variability in Talayotic Population (Iron Age) From Majorca, Spain

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The necropolis of s'Illot des Porros is located on a small island in front of the northwest coast of Majorca island (Spain). The only evidence of human activity found on the small island is the necropolis; the corresponding settlement is unknown. There is a radiocarbon date of 2430 +– 200 years B.P., which places the necropolis in the Talayotic II period, the later part of autochthonous Iron Age. Morphological analysis showed the presence of brachymorphous typology that was hypothesized to have resulted from incoming people from foreign groups, as Armenoids or other Near East populations. In order to clarify the origin of this population, molecular analysis was conducted extracting DNA from dental pieces from forty-four individuals. To characterize the European mtDNA haplogroups two methods of analysis were used: sequencing of D-loop overlapping fragments, and RFLPs of coding regions. The authenticity of the results was evaluated following the criteria previously developed in our laboratory. Using the information from each method, a partial mtDNA characterization was obtained, although combining the results from both systems a complete haplogroup determination was achieved. Furthermore, this combination allows us to detect contamination not detected with other experimental controls. The main trait of the population analyzed seems to be a relative high frequency of haplogroups W and U5. This result could support the hypothesis of a Near East contribution to the Talayotic people, since lineages from the U5 group are especially concentrated in the Kurds, Armenians and Azeris. Another characteristic trait of this population is the absence of haplogroup T. This haplogroup is relatively common in modern European populations. However, the meaning of these results must be evaluated considering factors like endogamy and/or genetic drift.

Y Chromosomal Diversity in Continental Italy and Greece

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We explored the pattern of Y chromosomal diversity in South-western Europe by typing 525 males (17 locations) from Continental Italy, 156 (7) from Continental Greece, 165 (4) from Crete and 71 from Aegean Islands, for 8 lineages defined by markers DYS257, SRY10831, YAP, DYS221, M170, P12f2, M172 and DYS413 (YCC nomenclature): 1.) P*(xR1a), 2.) R1a, 3.) DE, 4.) G2, 5.) I-M170, 6.) J2-(DYS413≤18), 7.) J2*-(xDYS413≤18), 8.) J*(xJ2). The chromosomes showing the ancestral state are classified as Y*(xDE, G2, I, J, P). Lineages 6 and 7 are based on a multirepeat deletion at DYS413 locus. The data are analysed by AMOVA and AIDA. Both methods reveal a high level of structuring in both countries, with complex geographical patterns. The haplotype distribution in Crete displays a clear founder effect. On the other hand, Mitilene and Chios reveal a pattern similar to the Greek verage, probably resulting by multiple repopulations. Many lineages show a patchy distribution with no evident regression as a function of latitude and/or longitude. These patterns can be interpreted as an older background represented by the clinal continent-wide distribution of the lineages P*(xR1a) and DE, followed by the recent overlay of the younger lineage J2-(DYS413≤18). This lineage establishes a clear similarity between Greece and Southern Italian regions. It most likely experienced a demographic expansion in the Aegean area and was later introduced in Southern Italy by recent immigrations. Supported by grants Agenzia 2000 to A.N. and P.M. and 01.00646PF36 to L.T.

Dermatoglyphics in Aroumun Population in the Republic of Macedonia

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A study was performed on the prints of palms and fingers of 213 persons of Aroumun population (140 males and 73 females) from east Macedonija (Dorfulia, Stip and Vinica) and the city of Krusevo. Arches, loupes and whorls are found in following percentages in males: 11.86; 62.50 (57.57 [u], 4.93[v]); 25.64 and in females: 15.48; 63.29 (60.14 [u], 3.15 [v]); 21.23. The total ridge count in males is 107,7 and 98.5 in females. Line D most frequently ends in the field 11 (61,43%) field 9 (24.64%) and the field 7 (12.50%) in males, and 51.37%: 30.14; 18.49% in females. Line C most frequently ends in the field 9 (46.07%) and field 7 (18.93%) in males, while in females these percentages are as follows: 41.78 5 and 20.55%. Line B most frequently ends in the field 7 (55.00%) and 5« (32.14%) in males and 49.31% and 30.82% in females. The type 3 is the most common type of line A (62.50%) then comes type 5 (30.36). Corresponding values for females are 57.53% and 33.56% respectively.

Human User Interface for Multimedia Equipment

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The growing use of multimedia equipment of every kind, sets up more advanced demands for users in order to use them properly. The user interfaces must be designed to make the equipment easy to use even by users with no special training in operation of the equipment. The referent model of user interface is given. This model is composed of three dimensions: media, abstraction and quality of interface. Each dimension is discussed separately. The media dimension depends on feedback media of equipment that are used. The abstraction dimension classifies user interfaces by the abstraction of interactions. The quality of interface describes the level of skills needed to operate the equipment. The advantages and disadvantages of different media are compared. The choice of the most appropriate media depends upon the conditions during operating the equipment. However, the combination of chosen values on all three dimensions gives the final ergonomic value for user interface.

Pattern of Age Related Changes in Vertebral Body

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Age related changes in vertebral bodies were first depicted by Albert, A. M. and Matles, W. R. (1995). The material used in their study was limited to young individuals and therefore only different stages of epiphiseal ringunion were described. During post -mortem examination of the remains in Bosnia and Herzegovina other specific age related changes of vertebral body were observed. These changes can be seen in three as-

pects of vertebral morphology: epiphisealring, upper and lower surfaces and the edge of vertebral body. Epiphisealring is fused firstly and then sucked into horizontal surface, morphology of which changes from well organized, and ridged in young individuals, toamorphic and porotic in the older ones. After the fusion of epiphiseal rings completed the edge of vertebral body become wavy and in older individuals sharp lipping is visible. As a result of degenerative process characteristic osteoarthritic structures may be formed. The material used in this study represents skeletal remains of victims of war recovered in exhumation activities on the territory of Bosnia and Herzegovina. Skeletons of different age (adolescent, young, middle and old adults) are present. Pattern of age related changes in vertebral body is similar in both, male and female skeletons. Specific pattern of changes in morphology of vertebral body observed in Bosnia and Herzegovina skeletons as related to age gives opportunity of constructing new and useful method of estimation age at death in adult individuals. Additionally described changes in specific junctions between vertebra became very helpful in process of re-association of skeletal remains.

Aging in the Time of Science and Technique

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The subject of present day history is technique, not man. Technique has made man free and has become his own world and essence. However, if by the term »technique» is meant »rationality», with man the actor and technique the instrument and means, then this concerns the past, whereas if it is meant as a domain -or rather as a domination- then this concerns the present: as Bacon said, *scientia est potentia*. Technique and its progress are based on the repression of death and on the illusion of a disease-free life. As a matter of fact, nowadays the researchers, and not the priests, talk about immortality. The impossibility to drive death away from the horizon of medical science, and at the same time the technical effort required for facing death, represents the main paradox of modern biomedicine. And here is what this is leading to: ethical problems are being turned into technical ones. As a consequence, the 'normal' individual has become unable to accept pain and death as components of reality. This is a serious anthropological problem, especially as far as the elderly are concerned, who are often abandoned by the system. The universalism of technique is absorbing civilization: the elderly know that it is perfectly useless to want either to stop or to shift such a trend, and that complete submission is the price to be paid for the progress of technique. Anthropology today is faced with the task of counterbalancing the hegemony of the technological monster. When the current malaise became the measure to medical advance, anthropological research discovered that only the individual as such is fully conscious of its needs and of what is necessary to its well-being.

Human Skeletal Remains From the Necropolis of Gonur (South Turkmenistan)

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The Gonur necropolis is one of the most representative and the most thoroughly studied by prof. V. Sarianidi graveyard. Being situated in the ancient delta of Murgab river and dated by C^{14} from the last centuries of the 3rd – middle of the 2nd Millennium B.C., it occupies an area of about 10ha, were more then 2500 dead have been buried. The first analysis of this series was published by Babakov, Rykushina, Dubova, Vassiliev, Pestryakov, Khodzhayov (2001). New skeletal material was collected during 2001–2002 yrs. The general cranial parameters of about 200 skulls are typical enough of the synchronous (Bronze Age) population from Mesopotamia in the west to North-western India in the east. But in many of cranial and angle characteristics the Gonur series exhibits variations from the smallest to the greatest values of the traits which is an impressive fact in favor of its heterogeneity both from the point of view of the more archaic and more developed forms registered in it, and of the presence of a Veddoid admixture which evidences participation of this component in the formation of the anthropological type of this population. Considering the mosaic state of knowledge in the complexes of anthropological characteristics of both modern and ancient populations of the Fore-Asian area, it should be pointed out that the Gonur population exhibits an unique complex of characteristics which might either be a consequence of some processes of mixing (which case seems to be less probable) or represent the most ancient population of the Middle East incomparable by the degree of differentiation of its traits with the modern inhabitants. In the variations of the basic parameters of their skulls these people find their nearest parallels with the Bronze Age population of the southern regions of Uzbekistan, North Pakistan and North India.

Complex Morpho-Functional, Odontological and Genetic Investigations Among Gagauz Population of Moldova Republic

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In November 2001 Institute of Ethnology and Anthropology RAS have organized a Complex anthropological expedition to the southern part of Republic of Moldova, to Gagauz Republic, which can be possible thanking to RHF (NN 02–01–00297; 01–01–00375). More than 1300 persons presenting 3 different Gagauz populations by cephalometry, somatology, odontology, dermatogliphics, serology (A1A2BO, Rh, MN, Kell systems) were studded. The program of investigation was supplemented by receiving of cardiograms of the main part of inspected people and the blood samples for DNA analysis. The analysis of gene frequencies demonstrates genetic homogeneity of Gagauz total population. Statistically reliable differentiation is observed only by Rh system. It is possible now to suppose that hematological type of modern Gagauz population has developed in an outcome of interpenetrations between North-Balkan-Carpathian and East European populations, partially transformed under influence of a

gene flow from probably Central Asian or another eastern centers. Cephaloscopic traits doesn't confirm this suggestion, because of absence of specific Central-Asian characteristics. The significant distribution of such tooth pathology as fluorosis and enamel hipoplasia at children and adolescent can be noticed in two northern Gagauz populations. These pathologies are closely connected with the ecological situation in the region. The abdominal-muscular, muscular-abdominal and indefinite types among males and mesoplastic and picnic types among females are predominated. The thoracal-muscular and thoracal types among males are absent. Some heterogeneity in body proportion of males can be mentioned: small individuals with short legs are more frequent, but massive and tall ones are also present.

Orofacial System Anomalies and Detection of Idiopathic Scoliosis

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Idiopathic scolioses or lateral deviations of the spine are very common deformities in school children, occurring in 11% to 19% of this population. As the cause of development of idiopathic scolioses remains unknown, no causal treatment can be used. Therefore, detection of any additional developmental anomalies associated with scoliosis is a useful contribution to the efforts made to elucidate the etiology of scoliosis. The present study included 202 children with idiopathic scoliosis, where the deviation angle measured according to Cobb exceeded 20 degrees. Analysis of the orofacial skeleton in children with scoliosis revealed a significantly greater percentage of congenital anomalies than in the children without scoliosis. Hypodontia of one or more teeth was the most common anomaly, found in 10% of children with scoliosis. Scoliosis was identified by the so-called touch-toe test, spinal x-ray, and degree of deviation according to Cobb. Oral status included clinical examination, x-ray orthopantomogram, and study models as required. Control group comprised of 640 children without spinal deviation, in whom partial anodontia was diagnosed in only 0.8% of cases, and congenital deformities of orofacial skeleton in a negligible percentage of subjects. We report on a 9-year -old girl who presented for upper central incisor traumatism. Clinical examination of the oral cavity revealed hypodontia of upper second premolars. The traumatized incisor was endodontically treated by a preparation of calcium hydroxide to the completion of apexification, followed by filling and reconstruction with composite material. The child was referred to an orthopedist, who detected idiopathic scoliosis of the spine with 24-degree deviation according to Cobb. The child has since been on conservative therapy for idiopathic scoliosis, consisting of wearing a Milwaukee brace for 16 hours a day and pedodontic control visits to make up on time for the loss caused by anodontia. Our results suggest that the identification and detection of orofacial skeleton anomalies may prove useful in the early detection of idiopathic scolioses. We are inclined to believe that there is a genetic predisposition for both congenital anomalies of orofacial system and idiopathic scolioses, based on the common mesenchymal origin of the bone and teeth. Our studies pointed to the association of hypodontia and idiopathic scoliosis. As orofacial system anomalies occur and manifest at a younger chronologic age than idiopathic scoliosis, which becomes manifest only at the time of intensive osseous growth of a child, timely identification of congenital dental anomalies (mostly anodon-

tia in our studies) could play an important role in the detection of possible development of idiopathic scoliosis in a given patient.

Incidence of Internal Derangement of the Temporomandibular Joint in a Younger and an Elderly Adult Population

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Elderly patients often suffer from many systemic diseases so that their problems in the masticatory system are neglected. Internal derangement of the temporomandibular joint is a part of temporomandibular disorders that is associated with changes in the function of the intracapsular part of the temporomandibular joint. The purpose of the study was to determine whether there were differences in the incidence of symptoms and internal derangement of the temporomandibular joint between a younger and an elderly population. The study was conducted on 72 younger subjects (35 to 50 years) and 48 older subjects (65 to 80 years). Manual functional analysis comprising specific techniques of dynamic compressions and translations was used as a diagnostic procedure. Chi-square test for independent samples was used for statistical processing of the achieved results. Symptoms of functional disorders in the temporomandibular joint was found in 14% of the subjects, and 40% of the subjects had internal derangement of the temporomandibular joint. A statistically significant difference both in the occurrence of symptoms of functional disorders in the temporomandibular joint ($p < 0.05$) and in the occurrence of internal derangement of the temporomandibular joint ($p < 0.01$) was found between the younger and older group. The most frequent tissue-specific diagnoses were complete anterior disk displacement without reposition and osteoarthrosis. A statistically significant difference in the occurrence of complete anterior disk displacement without reposition ($p < 0.01$) was found between the younger and older group. Analysis of the masticatory function is an important diagnostic procedure in prosthetic treatment of elderly patients.

Obesity and Physical Activity in the Elderly

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Obesity is defined as an excess of body fat. Regular physical activity may influence the daily energy expenditure, weight maintenance and weight loss with body composition and fat distribution changes. Physical exercise is an important fact in a chain of understanding of a development of obesity and in a reduction of body mass. A reduction of a body mass and modification of fat distribution in obese persons is associated with a diminishing of some health complication in the elderly such are insulin resistance in diabetes mellitus, arterial hypertension, high serum lipoprotein level, atherosclerotic heart disease, stroke, some forms of cancer etc.

Body Height Estimation Based on Tibia Length in Different Stature Groups

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Long bone length is one of the best-known indicators of human stature. However, even though the long bone length/height ratio differs in tall and short individuals, no detailed study has investigated whether specific formulae should be used to calculate height in different stature groups. This study proposes a new and more accurate height estimation method. Body height and tibia length were measured in 121 male subjects aged 18.0–34.3 years. Three subgroups were established according to body height (short, medium, tall), using the 15th and 85th percentiles as cut-off levels. The general formula and a group-specific regression formula were used to estimate height in each subgroup. A control group with the same properties as the study group was analyzed in the same manner. Particularly with short and tall subjects, the difference between true height and the height predicted by the group-specific formulae was smaller than the difference observed when the general formula was used. These discrepancies were statistically significant. In conclusion, when estimating height based on tibia length, the individual's general stature category should be taken into consideration, and group -specific formulae should be used for short and tall subjects.

Association of Stu I Restriction Fragment Length Polymorphism in the Low Density Lipoprotein Receptor Gene With Hypercholesterolemia

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The LDL serum cholesterol level has been determined by production of LDL particles and their elimination, which goes beyond high affinity LDL receptors of all cells and the macrophage receptor scavengers. DNA fragment length polymorphism around or within the LDL-receptor gene is in association with some parameters of lipid status. On the basis of the knowledge for the role of LDL receptors in the appearance of atherosclerosis as the most often cause for coronary arterial disease, in this study, we determined the association of Stu II RLFP in 3' end LDL-receptor gene with the coronary artery disease in three defined group with myocardial infarct: low cholesterol group, high cholesterol group, and a group with familial hypercholesterolemia. These groups differed in relation to cholesterol and LDL cholesterol levels, but there was no difference in relation to triglycerides, and HDL cholesterol. Statistically significant differences occurred in the allele frequencies for Stu I polymorphic restriction site between the control patients and those with increased cholesterol levels. Patients with myocardial infarct, who lost Stu I polymorphic restriction site, at least on one allele, had statistically significant higher cholesterol and LDL cholesterol levels, in relation to those who had it on both alleles.

Social Changes and Growth of Children – The Hungarian Case

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The position of the children and youth in our changing Europe is not satisfactory: In several countries, the unfavorable effects afflict the young peoples, the odds are in many cases against them. In the 1990s, in some Eastern-Middle European countries, also in Hungary, social inequalities became more marked. This region of Europe was called »countries-in-transition«. The health status was unsatisfying, public health care and nutrition became worse, poverty and unemployment rose, etc. All these were a tragic, paradoxical backward step on the road toward democracies. Some socio-demographic data show the changes very clearly. Number of birth, child mortality, as well as morbidity and mortality in general, and life span illustrate the effects of political and economical changes, also in Hungary. The author's growth studies document many human biological effects of unreproducible social events and/or changes exactly and with a very quick and sensitive response.

Mobility and Marriage Distances at the Ebro Delta Region

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The Ebro Delta (Tarragona, Spain) is a rural region that for its characteristics didn't been occupied until XVIII century. The distance between five Ebro delta region parishes (la Cava, Jesús i Maria, Amposta, Sant Jaume d'Enveja i els Muntells) are analyzed, taking into account the spouses origins in the parishes' registers, since 1819 until 1995. We only consider the marriages with al least one of the spouses is of the Ebro's delta. To measure the marriage distance we used the squared Euclidean distance calculated using the standard frequencies. With the distances a cluster analysis using an UPGMA algorithm was calculated, and a principal components analysis was done. All the analyses were repeated using only these marriages between two individuals borne in the Ebro delta. All the results show the existence of a clear differentiation between the parishes of each Ebro riverside for the endogamous marriages (marriages between two deltaic people), as long as Amposta differs from the rest of the parishes for the great incidence of marriages between its people and individuals borne out of the delta. We repeat the analysis taking into account only the marriages registered from 1939 until 1995 (we dispose of all registers in this period) and the results are the same. We divided this period in four sub periods to analyze the distances evolution through time. The results show that the Amposta separation only appears from 1951 until 1980. Before (1939–1950) and after (1981–1995) these years the main division is between the parishes of both sides of the river, with a new separation of Amposta from the other two parishes of the south hemi delta (Sant Jaume d'Enveja i els Muntells).

The Roman Imperial Age to Early Middle Ages Transition – the Analysis of Health Status Markers of the Skeletal Samples of Quadrella (I–IV c. AD) and Vicenne – Campochiaro (VII c. AD)

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The late ancient/medieval transition is an important process of political, social, economical and cultural transformations of the European and Italian societies. These changes are related to repeated 'barbaric' invasions, new subsistence models, famines and epidemic diseases. These factors are considered as the main causes for the spread of many nutritional and infectious diseases. Some palaeo-pathological skeletal markers were analyzed in two osteoarchaeological samples of Central Italy (Molise) (Quadrella, I-IV c. AD, and Vicenne – Campochiaro, VII c. AD) to reconstruct the life stile and health status during this transition period. In particular porotic hyperostosis (*cribra orbitalia* and *cribra cranii*) and linear enamel hypoplasia (LEH), considered as good markers of health conditions have been analyzed. The prevalence of these features and a comparison with other Italian osteoarchaeological samples have been carried out.

Human Variations – Synthetic Analysis

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Variation represents the richness of each species in its adaptation to the environment, because it ensures survival and evolutive capacities. Differences among individuals and populations are to be considered as quantitative and qualitative variations of the biologic characteristics of the species. In the case of Humans, to variations due to cultural behavior are to be added those due to interactions between genotype and environment. The causes of human variations are brought back to factors of genetic, environmental, and cultural order, that act variously among them. The analysis of human variability can be performed through biometric methodologies, that make measurable and comparable not only quantitative traits, but also qualitative, with continue or discontinue variation, ones. This has to be pointed out whether for the study of living beings or for the skeleton. Individuation of hereditary traits, to the genotype and DNA levels, and of hereditary modalities, their quantification in populations, separation of the hereditary component from the environmental component for quantitative traits, allometric relations, analysis of shape, overall valuation of variability within a group or among human groups are to be faced with specific methodologies of study (among which photogrammetry, biostereometry, tomography) and statistical analysis. Studies on human diversity in relation to the environment highlight adaptative variations and variations not considered adaptative. Particular attention has to be paid to those connected to peculiar behaviors (kind of nutrition, life habits, etc.) that constitute answers either to external stresses or to performed activities and can also have a biological significance. Biologic diversities and cultural diversities characterize the human species.

They can influence each other and represent an enrichment if, without any prejudice, the biological and historical significance of diversity is understood.

Y Chromosome Perspective on the Genetic History of the Middle Eastern Populations

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The analysis of variable loci in the non-recombining part of the human Y chromosome, which contains a record of many past mutational events, facilitates tracing of paternal lineages. In the present study, a sample of 526 Y chromosomes representing six Middle Eastern populations, mostly from Israel (Ashkenazi, Sephardic and Kurdish Jews from Israel, Moslem Arabs from Israel and the Palestinian Authority Area, Bedouins from the Negev and Moslem Kurds) was analyzed for 13 binary polymorphisms and 6 microsatellite loci. The investigation of the genetic relationship among three Jewish communities revealed that Kurdish and Sephardic Jews were indistinguishable from each other, while both differed slightly, yet significantly, from Ashkenazi Jews. The differences in Ashkenazim may be due to low-level gene flow from European populations and/or genetic drift during isolation. Admixture between Kurdish Jews and their former Moslem host population in Kurdistan was undetectable. The three Jewish groups showed high genetic affinity to Palestinian Arabs. More than two thirds of the Jewish chromosomes and half of the Arab chromosomes belong to the same Y chromosome gene pool. Nevertheless, in comparison with data available from other relevant populations in the region, Jews were found to be more closely related to groups in the north of the Fertile Crescent (Kurds, Turks and Armenians) than to their Arab neighbors. Palestinian Arabs and Bedouins differed from the other Middle Eastern populations studied here mainly in high frequency of specific Eu 10 haplotypes not found in the non -Arab groups. These chromosomes might have been introduced through migrations from the Arabian Peninsula over the last two millennia. Two haplogroups, Eu 9 and Eu 10, constituted a major part of the Y chromosome pool in the analyzed samples. Our data suggest that Eu 9 originated in the northern part and Eu 10 in the southern part of the Fertile Crescent. Genetic dating yielded estimates for the expansion of both haplogroups during the Neolithic Period in the region. This study contributes to the elucidation of the complex demographic history that shaped the present-day genetic landscape in the region.

The Physique and Physiological Characteristics of Cystic Fibrosis Children

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Cystic fibrosis is a genetic disease affecting most of the organs: lungs, pancreas, intestinal mucous glands and sweat glands, leading to abnormally viscous secretion, blocking the ducts and air passages. The presentation is about some selected anthropometric and respiratory parameters of cystic fibrosis (CF) children measured at Children's

Hospital Szabadsaghegy. By the antropometric variables indices of the physique and the body composition of the children were characterized. The body measurements were taken in 13 boys and 8 girls took part in control sessions at the hospital. Physiological parameters – respiratory test values – were taken in another group of cytic fibrosis children (n = 38) registrated when participating at follow-up control measurements. The chronological age was calculated and biological age of the children also was assessed. The results showed that CF children were somewhat physically underdeveloped compared to the reference data, their biological maturation level were behind the chronological age. It was supposed that they had more pycnomorphic body shape, because of the labored breathing. It could not be proved by our results, because of the low subject number. The respiratory capacity results were far behind the normal values showed an obstructive airway disease though the results varied by the fact if the children had or had not used medication before the respiratory control measurements.

The Role of Arch Width in Late Lower Arch Crowding

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There is a strong tendency for the untreated lower arch to became more crowded in the postadolescence period. The cause of this late increase in crowding is obscured by its multifactorial nature. This study was undertaken to investigate the influence of anterior and posterior arch width to late lower arch crowding. A group of 123 subject with lower arch crowding was compared with a group of 51 subject without crowding. The distance between distal surfaces of the lateral incisors, the lower intercanine width, and the upper intermolar width was smaller in the group with crowding, while the lower intermolar width didn't show statistically significant difference. The anterior arch width was correlated with crowding much more than the intermolar width. Our results suggested that narrow arches, particulary in the anterior part, is an important characteristic of late lower arch crowding.

Arch Length in Late Lower Arch Crowding

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Late lower arch crowding is a problem encountered frequently in orthodontic practice. The controversy about the etiology of late lower arch crowding has not yet been satisfactorily resolved. The aim of this study was to examine arch length in two groups of subject, with and without crowding in the anterior part of the lower arch. The experimental group of 123 subject shown statistically significant shorter lower arch in comparison with 51 subject of the control group. Moreover, significant correlation was found between arch length and crowding. Our results indicate that arch length is a strong factor that can affect crowding in the anterior part of lower arch in the postadolescent period.

A North American Contrast to the Last 25 Years of European Forensic Anthropology

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Since its origin, the American Board of Forensic Anthropology, Inc. has collected forensic anthropology data on case diversity and geographic employment. It has provided instructional activity for various fields of forensic medicine and law enforcement for about the same time as the existence of the European Anthropological Association. As such, the accomplishments of board certified and other practicing forensic anthropologists in North America serves as an excellent contrast to the last 25 years of forensic anthropology in Europe. The range of case work, case origin and the principle employers of forensic anthropologists is rapidly growing, as is the general interest in forensic anthropology as a field of study. Employment possibilities of forensic anthropologists is quantified and educational institutions with programs in forensic anthropology or closely associated studies is presented. Casework type and volume is documented with summary statistics. The development and diversity of new techniques and methods is reviewed and their place in the future development of forensic anthropology is suggested. The changing geographical distribution of forensic anthropologists is presented. The current popularity of forensic anthropology, and the forensic sciences in general, is documented by statistical and anecdotal means. Finally, the need for increased and extended education opportunities for law enforcement officers, forensic laboratory personnel, medical examiners and investigators of death is documented.

The Development and Application of Non-Metric Traits in Europe

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Non-metric analysis is a significant tool in the study of the skeletal biology of earlier human populations. While descriptions of non-metrictraits had their origin world-wide and the first published statistical approach was North American, the refined and most used trait list and distance statistic are European. The work of Berry and Berry (1967) served as the seminal work for population studies on world-wide samples. A number of other selected papers Strouhal (1979), Rosing (1982) and Hauser and De Stefano (1989) have had considerable influence on the development and use of non-metric traits globally. Reasons for the growth and development of non-metric traits include 1) traits appear to be highly genetic in nature; 2) populations vary in frequencies between even closely related populations; 3) some trait consistency is seen without regard to environmental variation; 4) traits do not vary significantly with age (after puberty); 5) traits show little sex dimorphism; 6) traits show little correlation between the traits used; and 7) traits are easily defined and large samples can be studied in a short period of time. Side and sex dimorphism and age dependency can usually be tested on known study samples or on archaeological specimens where sufficient material (often infra-

cranial remains) for ascertainment of sex and age are present. Relevant research is presented for the development of non-metric traits criteria, biological distance statistics and population comparisons in human and non-human population studies.

Prevalence of Overweight and Obesity in Urban Sardinian Children

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The aim of this study is to evaluate the prevalence of overweight and obesity in children (6–10 years) of Cagliari (the capital of Sardinia) divided by sex and social status. The sample consisted of 1000 children, 500 males and 500 females, between 6 and 10 years old, attending elementary schools in Cagliari in the 1999–2000 school year. In each subject, we measured body weight and total height. For uniformity with similar studies conducted in Italy, we considered as obese all subjects weighing more than 20% in excess of the value of the 50th percentile for age, sex and height in the standards of Tanner et al. (1966). In general, there are a higher percentage of obese subjects in the southern regions of Italy than in central and northern Italy. Moreover, from the Italian studies, it seems that for the same large zones, there has been an increase of the prevalence of obese individuals in time. With regard to Cagliari, comparison of the values of body mass index (BMI) of children measured in 1935 and in 1999–2000 reveal an increase of BMI in time due to a greater increase of weight than of height. The prevalence of overweight and obesity in the considered socioeconomic categories indicates that both males and females show an increased percentage of overweight and obesity as the socioeconomic level decreases. In addition, males present a higher prevalence of overweight and obesity than females of the same social level. The results suggest that the phenomenon of overweight and obesity is tending to become a serious social and health problem also in Sardinia.

Nakovana Cave Sanctuary and the Illyrian Cultural Identity in the First Millennium B.C.

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The recent decade has witnessed a steady growth of interest in archaeological investigation of ethnicity, cultural identity and acculturation. While a coherent theoretical framework regarding these complex social phenomena in contexts of prehistoric archaeology remains elusive, it is already clear that multifaceted and detailed archaeological data are a prerequisite for addressing these issues successfully. One of the places where we may hope to recover such data are sites that have been preserved unusually well. The recently discovered cave sanctuary in Nakovana (Dalmatia) is an example of such a site. The cave was sealed soon after the sanctuary had been abandoned some two thousand years ago. During the last four centuries BC, it was used by local Illyrians as a ritual focus and a place of worship. It provides us with a unique insight

into the autochtonous Illyrian spiritual world, and illustrates changes of Illyrian cultural identity that took place during the final period of their contact with, and integration into, the classic Graeco-Roman world.

Phylogenetic Star Contraction of Asian and Papuan mtDNA

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We reanalyze published mitochondrial DNA variation (mtDNA) of 826 East Asians and Papuans to date periods of significant colonization and demographic increase. Living human mtDNA variants, which are maternally inherited, are related by an evolutionary tree, the ancestral nodes of which can be reconstructed and dated assuming a molecular clock. Our phylogenetic star contraction algorithm identifies starlike nodes (clusters) diagnostic of prehistoric demographic expansions in the Asian and Papuan mtDNA tree. The analysis dates the out-of-Africa migration of the ancestral mtDNA types that founded all Eurasian (including Papuan) lineages at 54000 years. While the proto-Papuan mtDNA continued expanding at this time along a southern route to Papua New Guinea, the proto-Eurasian mtDNA appears to have drifted genetically and does not show any comparable demographic expansion until 30000 years ago. By this time the East Asian, Indian, and European mtDNA pools seem to have separated from each other, as postulated by the weak Garden of Eden model. The east Asian expansion entered America about 25000 years ago but was then restricted on both sides of the Pacific to more southerly latitudes during the Last Glacial Maximum around 20000 years ago, coinciding with a chronological gap in our expansion dates. Repopulation of northern Asian latitudes occurred after the Last Glacial Maximum, obscuring the ancestral Siberian gene pool of Native Americans.

Climate and Craniofacial Variation in Humans – New Data Using 3D Morphometrics

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The purpose of this study is to investigate possible effects of climatic conditions on the craniofacial architecture in modern and fossil populations. In this study, different mechanisms, such as volume to surface ratios and relative facial flatness, are observed using a 3D geometric morphometric approach. The primary goal is to assess climatic variation among a broad range of living humans. The observed variations are then used to derive a general model that is then applied to fossils. Data were acquired using a 3D laser surface scanner and collected from modern human crania as well as casts of fossils hominids such as Neandertals, H. heidelbergensis and H. erectus. The results support the hypothesis that modern human craniofacial variation can be linked to mechanisms described by Bergmann's rule, whereas among fossil populations, in particular Neandertals, the picture is only partly consistent with such an assumption. The ad-

vantages of the geometric morphometric approach are illustrated using Neandertal craniofacial features as an example.

Is Human Morphological Variation Adapted to Environment? A Case in Human Ecology

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Human ecology is the study of the interactions between the human species and the environment. These interactions are part of a complex biocultural process, but the role of culture has become increasingly predominant since the appearance of modern humans. However, biological evolution has continued to occur, and the study of morphological microevolution is one of the main research areas of physical anthropology. As our view of evolution is mainly based on darwinian theory, most of the physical differences between human populations, like skin color, hair, skull and body shape and size, have been attributed to adaptations to local milieu. When very distant populations display similar physical characters in comparable environments, those resemblances are explained by convergence, not common ancestry. For instance, nose measurements and body proportions, which are discussed in the paper, are given as classical examples of climatic adaptation. Boas' historical studies on cranial plasticity of immigrants have been accepted for nearly a century, but are now questioned. A closer look at the classical interpretations based on the selection/adaptation process is then necessary. Alternative explanations, also based on population genetics, might be more relevant; in some cases the characters are in fact neutral, and not subject to selection; in others, a cladistical approach may account more parsimoniously than sequential mutations for the resemblance between remote populations. Human ecology, as a multidisciplinary discipline, provides the appropriate theoretical framework to define adaptation, and to evaluate the relative contributions of the cultural and biological components to the process.

Morphological Evolution of Populations in Europe and Africa, Between Late Paleolithic and Neolithic

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The end of the glaciations provoked a dramatic change in climate and ecology in Europe. Two transitions are observed: from Paleolithic to Mesolithic, and from Mesolithic to Neolithic way of life. Two potentially selective constraints were involved: climate, which changed first, and diet, later. The purpose of this study is to compare the skeletal morphology of West European peoples from Upper Paleolithic to Neolithic, and to test some of the effects of climatic and dietary changes on skeletal biology. Two aspects will be addressed: body proportions and skull shape. Diet changes have been claimed to be responsible for profound modification of the face. A less harsh diet would lessen the masticatory forces, and allow a gracilisation of the skull. Studies done in Nubia have documented a morphological change since the Mesolithic, and attributed it to local evolution rather than population migrations. However, it can be shown (this paper),

that the facial morphology evolved in the opposite direction to that which could be expected as an adaptation to climate. With the opposite occurrence of more arid conditions, a narrower nose would have been expected, while in fact nose breadth is enlarging in Nubia. In Europe body proportions did not change during the period considered, despite dramatic climate modifications. Knowing that limb growth is deeply influenced by nutritional status, alternative explanations can be sought, for instance an impoverishment of the diet at the end of the Neolithic, while protein and caloric intakes were satisfactory during earlier periods. A general gracilisation occurred, but some trends, such as dental reduction, were already at work before the Mesolithic-Neolithic transition, and are probably long-term evolutionary tendencies of modern humans.

A Challenging Field for Ergonomic Design – to Satisfy the Elderly Requirements

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From an ergonomic point of view, a consequence of the ageing process of the European population, and particularly of the Italian one, is the creation of a large group of users with special needs. Industries are showing an increasing interest toward this target group, because it can be quite wealthy and demanding a certain quality of life. It is necessary to consider that, since humans are ageing with different ways, speeds and age thresholds, the elderly population is extremely heterogeneous. In addition the ageing effects affect people in unequal ways, as shown by the dissimilar life expectancy of different social and professional groups. This high variability, joined with the limited adaptability of the elderly, makes particularly challenging the ergonomic design of products and services that can fit their requirements. We started to survey samples of elderly population to get anthropometric and biomechanical data on people over 50, to get information about their health conditions and to analyze the problems that they can face in the use of some quite spread products. We verified that, although the elderly have specific necessities related to the impairment of numerous functions, they don't want to buy products that could be labeled for the old. However, since there is also for younger people an increasing request for systems and services easy to use, in many cases a design caring the elderly problems will fit also the young. Technological developments can have a strong impact on the quality of life of old people only if they aren't too demanding in terms of requiring new knowledge and if they encourage the users to easily develop new skills suited to compensate for their loss of competencies and abilities.

Geographical Patterns of mt-DNA Diversity in South America

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We analyzed the mt-DNA variation in South Amerindian populations to make inferences about the evolutionary factors that have shaped their genetic structure, with particular attention to the Andean populations, which have been seldom studied. The HVRI of 106 individuals from 3 Andean samples were sequenced and compared with 854 published sequences, considering geographic and phylogenetic information. Comparison of different estimators indicates that rural populations of the Andean region show the highest within-population diversity among South Amerindian. On the contrary Brazilian Amerindian isolates exhibit the lowest diversity. The level of variation and the spectrum of alleles of the whole Andean region and the entire Brazilian area are similar, but the Andean area shows lower between-population differentiation than the Eastern area. Altogether, these results suggest that similar level of among population differentiation exist in the Andean region and in eastern South America. However, different combinations of genetic drift and gene flow have probably determined population diversity in the two regions. In the former case, populations show a higher long -term Ne values and levels of gene flow among them. In the second case, lower long -term effective population sizes have been accompanied by limited genetic exchanges among populations. This pattern of variation is highly consistent with those observed considering Y-chromosome and classical markers data, and matches very well patterns of linguistic differentiation in South America. Incidentally, we reported that in South America, unlike the other continents, the between-population differentiation is higher for mt-DNA than Y-chromosome.

The Structure of Consanguineous Marriages in Spain – Socio-Economic, Demographic and Geographic Related Factors

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The structure of consanguineous marriages -uncle-niece or aunt-nephew (C12), first cousin (C22), first cousin once removed (C23), second cousin (C33)- is related to the inbreeding coefficient α as well as to temporal, geographic, demographic and economic factors, using published information corresponding to urban and rural areas from Spain. Whatever the rural or urban condition and the period considered, close relationship (C22) always determines significantly the inbreeding coefficient. A different pattern between rural and urban areas is that in the first case the frequency of second cousin marriages (C33) was about 5 times more common than in cities. Besides, in cities these marriages do not contribute significantly to α When the different degrees of consanguinity previously selected are considered as the dependent variables and as in-

dependent geographic, demographic and economic factors, multiple regression analyses indicate that the structure of consanguinity in Spain was more determined by these three variables than the inbreeding level α (coefficient of determination comprised between 0.22 and 0.72; for $\alpha < 0.35$). I addition, a regional pattern was found for Spain regarding close and remote kinship: close relationships appear more associated with economic variables while C33 corresponds largely to rural regions.

The Khan Project (Kazakhstan Health and Nutrition Examination Survey) – A New Electronic Case Report Form (CRF) for Data Collection for a Long – Distance Research Project

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The KHaN research project (Kazakhstan Health and Nutrition Examination Survey) involves two different teams: an Italian one, settled in Bologna, and a Kazakh one, in Almaty. The project aims to study the effects of the process of modernization on the growth of children and adolescents-Kazakh and Russian- belonging to either an urban or a rural environment. The CRF has been developed by the two teams in order to cope with the various topics to be examined, taking into account the cultural contest. The first version of the CRF had been agreed in English, then translated into Russian to write down the paper copy, and again back translated into English in order to validate linguistically the instrument. Some of the information asked in the CRF has been derived from International validated questionnaires, according to the local situation of Kazakhstan. One example of this is in the Wealth Section: the Income Table used was derived from the WHO one (Health interview surveys, WHO Regional Publications, European Series n°58) and adjusted to fit the real situation of the people that were going to be interviewed. The structure for data entry has been devised as totally based on the paper CRF. In order to perform data quality control some automatic controls on the data entered have been added to avoid common mistakes of misspelling or inversion in numbers. Besides, automatic controls on the range of all the anthropometrics measurements have been inserted in the software. To further maximize the quality of data in some items of the data entry, conditional jumps are performed automatically according to the answer given, i.e. the system automatically jumps to another field far from the one just filled in. The field investigation has started in February 2002 and will last, for children of urban environment, until autumn 2002.

Marriage Analysis in the Population of Easter Island

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We analyzed the evolution of the nuptiality in the population of Easter Island (Rapanui), the most geographically isolated inhabited island in the world. Rapanui is situated in the middle of the South Pacific Ocean, forming the Eastern vertex of the Poly-

nesian triangle. Chile took possession of the island in 1888. The 1992 census gives a total of 2764 inhabitants. The choice of spouses is an event with a strong social influence and great biological consequences. Marital systems include an enormous variety of forms, but are majority those in which almost the totality of the reproductive process happens in a common-law marriage or in a stable union. Sexual relations between unmarried people are tolerated in Rapanui, and in many cases marriage takes place later when the couple has been consolidated and possibly when they have already had children. This permissive attitude, common in Polynesian societies, might have conditioned some of the features of recent nuptiality found in Rapanui´s population. From 1917 to 1996 the number of marriages registered (Civil Register) was 652, with a distribution that reflects the three periods followed by the population in its process of opening to the outside, initiated in 1966. Until 1966 in 96% of the marriages both spouses are native of the island, whereas in period 1967–1996 only 46% of the marriages were endogamous. This change in the origin of the spouses has surely influenced the other variables related to the nuptiality. Thus, seasonality of marriage is only significant in the period 1917–1966, with most weddings occurring in the autumn-winter months, during which fishing, the main activity, diminished. Also mean age at marriage is increased during the time, whereas the average difference of age between the spouses diminishes. A significant correlation between both ages is observed.

Mitochondrial DNA Analysis of a Catalonian Site From Neolithic and Bronze Age

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In this work we present preliminary results of mitochondrial DNA (mtDNA) analysis of human remains from prehistoric site of Mas d' en Boixos (Penedés, Barcelona) in order to characterize the populations. 5 Neolithic skeletons and 39 from Bronze Age were recovered. DNA from 18 individuals (4 neolithic and 14 bronze) was extracted from teeth and diagnostic restriction sites of mtDNA were analyzed by PCR / RFLP in order to examine the distribution of European mtDNA haplogroups. Also, a segment of region HVI (16190–16420) of the D-Loop has been analyzed amplifying three overlapping fragments. The obtained data will serve to understand the variation in time and space of the mtDNA in old populations of the region of Catalonia, as well as the phylogenetic relationships with other populations.

Y-Chromosome-Specific Microsatellite Variation in a Population Sample From Sardinia (Italy)

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Over the last decade there has been a number of different definitions given to the Y Chromosome, »Functional wasteland«, »Non-recombining desert« and »Gene-poor chromosomes« are some of the examples. Unique in many aspects, the Y chromosome has demonstrated to be extremely informative in disentangling the history of human variation. In this work we used the properties of the non-recombining portions on the Y-chromosome to investigate the genetic structure of the Sardinian population. The frequency distributions of 7 highly polymorphic Y-chromosome specific microsatellites (DYS19, DYS389I/II, DYS390, DYS391, DYS392, DYS393) were observed in 120 unrelated males from several areas of Sardinia. We compared the allelic and haplotype frequency distribution between our sample and from the available data literature on Mediterranean and European populations. As a result, the Sardinian samples showed a very high allele frequency in the DYS19*17, a rarity in the rest of Europe, probably due to the founder effect. Genetic distances between populations were estimated and neighbor-joining trees were applied to the distance matrix. On the basis of all seven loci haplotypes a median joining network was constructed. Preliminary analyses have shown an intra-population genetic heterogeneity and genetic differentiation from other Mediterranean and European population deal with.

The Diet of Nomadic and Settled Scythians From the Eastern and Southern Ukraine in the Light of Chemical Analyses of Teeth

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Teeth coming from Scythian remains found in the region of today's Ukraine were analyzed. The basic objective of the study was to point out differences in the mode and quality of diet of nomadic and settled Scythians. The sedentary way of life was represented by groups that settled the areas of the Peninsula, which had been under the influence of Greek colonizers. Nomadic groups are represented by the remains coming from archaeological excavations in the area of the Lower Danube. The Scythian groups under study had been in a close contact with neighboring tribes of different culture, which might have had substantial influence on the development of social structure and biological diversity of the newcomers (Scythians). In order to examine the biological condition of the studied groups of Scythians, the content of strontium (Sr), calcium (Ca), zinc (Zn) and barium (Ba) was determined in teeth. The concentrations of the tested elements and the proportions between them permitted us to assess the condition of nutrition of the groups under study against a background of other historic populations from the territories of Iraq and Poland.

Seasonal Patterns of Somatic Changes in Moscow Schoolchildren

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In 1994–1998 two groups of Moscow schoolchildren were measured longitudinally four times a year. The first group consisted of 12 boys and 16 girls with average age at first examination 7.0 years. The second group consisted of 65 boys, aged 11.0 and 12.0 years. The program included height and weight measurements, arm and chest circumference, shoulder and hip widths, skinfolds thickness (subscapular, biceps, triceps, abdominal, suprailiac); BMI and arm muscle diameter were estimated. Individual and average increments were calculated for different seasons, for boys and girls of the first group, for two subgroups of boys in the second group depending on their sexual maturation stage. Seasonal changes are shown: body height increases twice as much in summer than in winter. The corresponding figures for the younger group are 23.33 versus 12.87 mm for the boys and 20.86 versus 13.14 mm for the girls. Body weight follows the same pattern increasing mostly in summer for boys and girls from 7 to 11 years. The increments of arm circumference are greatest in summer, mainly due to muscle development, while subcutaneous fat reveals the opposite trend. For older boys there is an association between seasonal increments for body height and weight, muscle diameter and skinfold thickness, and the level of their sexual maturation. Thus, changes in height in summer are bigger for the boys with more advanced stage of puberty ($p < 0.05$); the same is true for weight but the pattern is the opposite with maximal increment apparent in winter.

Proportionality of Genetic and Phenotypic Distances and the Effect of Morphological Integration in the Human Skull

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Proportionality of phenotypic and genetic distance is of crucial importance to adequately focus on population history and structure, and depends on proportionality of genetic and phenotypic covariance. Constancy of phenotypic covariance is unlikely without constancy of genetic covariation if the later is a substantial component of the former. If phenotypic patterns are found to be relatively stable, the most probable explanation is that genetic covariance matrices are also stable. Factors like morphological integration account for such stability. Morphological integration can be studied by analyzing the relationships among morphological traits. We present here a comparison of phenotypic correlation and covariance structure among worldwide human populations. Correlation and covariance matrices between 47 cranial traits were obtained for 28 populations, and compared with design matrices representing functional and developmental constraints. Among-population differences in patterns of correlation and covariation were tested for association with matrices of genetic distances (obtained after an examination of 10 ALU-insertions) and with Mahalanobis distances (computed af-

ter cranial traits). All matrix correlations were estimated by means of Mantel tests. Results indicate that correlation and covariance structure in our species is stable and that among-group correlation/covariance similarity is not related with genetic or phenotypic distance. Conversely, genetic and morphological distance matrices were highly correlated. Correlation and covariation patterns were largely associated with functional and developmental factors, which probably account for the stability of covariance patterns, proportionality of genetic and phenotypic distances and the effect of morphological integration in the human skull.

Paleoamerican and Archaic Remains From Patagonia as Viewed From Modern Variation

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During the last decade, a thorough study of Paleoamerican series led to the observation that non-mongoloid human populations first entered the Americas. Nevertheless, an important number of individual remains are dispersed over the archaeological map of the Americas. Here we focus on the remains of the Palli Aike skull (PA, 8,639 ± 450 ybp) and three Archaic crania, Punta Santa Ana (PSA, 6,500 ybp) and Cerro Sota 1 and 2 (CS, 3,755 ± 450 ybp). Patterns of morphological variation were evaluated by means of Principal Component Analysis and a modification of the Mahalanobis distance. This modification enables the comparison of single specimens with reference samples when an appropriated variance/covariance matrix is available. We used the W.W Howells data as well as the Lagoa Santa series and modern Patagonian groups as reference samples. Results indicate that Palli Aike shares no clear affinities with neither Amerindian groups, nor East Asiatic groups, but falls near Paleoamerican remains from Brazil. Conversely, Punta Santa Ana and Cerro Sota skulls show clear associations with the Fueguian/Patagonian reference samples, with Punta Santa Ana being more strongly associated. Results tend to confirm the existence of two very different morphological stocks in South Patagonia, represented by Palli Aike and Punta Santa Ana. Admixture, as well as local adaptation can be the main causes of the position of Cerro Sota specimens. The age of the Punta Santa Ana skull is coincident with climatic changes in Patagonia that could have been advantageous for the expansion of the Monogoloid groups that largely occupied the Americas during the Late Holocene.

Alu Insertions in the Iberian Peninsula and NW Africa – Genetic Boundaries or Melting Pot?

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The Western Mediterranean Basin joins a set of ethnically different populations as Iberians in the North and Berbers and Arab-speakers in the South. In spite of this differentiation, they have maintained historical contacts since ancient times. The existence of a possible common genetic background (specially for Berbers and Iberians) together with the genetic impact of the Islamic occupation of the Iberian Peninsula during 7 centuries are some of the intriguing anthropological questions that have been studied in this area using several classical and DNA markers. The aim of this work is to present preliminary results on a survey of polymorphic Alu elements in 10 human populations of the Western Mediterranean. Recent Alu subfamilies include a significant number of polymorphic Alu insertions in humans. The polymorphic Alu elements are neutral genetic markers of identical descent with known ancestral states. This fact turns Alu insertions into useful markers for the study of human population genetics. A total number of 14 Alu insertions were analyzed in 5 Iberian populations, 3 Berber groups from North-Western Africa, an Arab-speaker population from Morocco and a sub-Saharan ethnic group from Ivory Coast. The results of this study allow the genetic characterization of Berber populations, which show a certain degree of differentiation from Arab-speaking groups of the same geographic area. Furthermore, a closer genetic distance between South Spain and Moroccan Berbers as compared with other Spanish samples support a major genetic influx consistent with some (but not all) previous genetic studies on populations from the two shores of the Gibraltar Straits.

Body Composition in Large Samples – Comparison of Methods for the Assessment of Total Body Fat Content

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It needs outpation methods to analyze body composition in large samples. Which one is the best? We tested the total body fat content resulting from different kinds of bioelectric impedance analysis (BIA) against values resulting from skinfold measurements. Triceps-, sub-scapular and hip skinfolds were measured and total body fat calculated. Concerning bio-impedance we used at first a body composition analyzer BIA 2000-M and tested the influence of the factors body position, electrodes position, filling of stomach and bladder, alcohol consumption, skin temperature, and wearing of jewelry with a sample of 6 men and 13 women. The position of electrods had the strongest influence on the results. We tested 7 impedance equations with a sample of 211 young adult and 497 elderly persons. The results differed up to 9% fat compared with results from skinfolds and up to 12% fat between the different equations. Compared with the results from skinfolds the fat mass of the elderly persons was overestimated by all equations

because of the lower water content of the elderly body. Two samples of young adult persons – non-sportsmen and sportsmen – were investigated in the same way but with different types of leg to leg body composition analyzers additionally. The simple analyzer brought good results. The expensive analyzer which allowed to distinguish between the types standard and athletic clearly underestimated the total body fat content. The carefully measurement of skinfolds is also today a good basis for the calculation of the total body fat content.

Chinese Women in Italy – Pregnancies and Maternity

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An increasing migration of Asiatic people to Italy took place from 1970. In 1998–2002 a sample of immigrate women coming from China were interviewed in the »Health Center for Foreign Women and their Children« located in Bologna. Most of the women come from Zhejiang (south-eastern China). Since these newcomers do not speak Italian, the questionnaire was administered in Chinese by an interpreter with respect to their pregnancies and maternity. They were also asked to report when they had started to menstruate (retrospective method). The mean age at menarche was 15.7 years. Observations on mean age at first pregnancy, number of pregnancies, gestational age, increase in weight and working activities of woman during pregnancy, were also analyzed. These data, in addition to other ones on the living conditions of subjects, may be useful in order to identify the health and quality of life in the Chinese immigrant population of Bologna. These findings have evident implications for future health strategies for female immigrants and their children.

Migration Matrices Analysis in Italian Mountain Populations

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The analysis of matrimonial distance distributions allows an estimate of gene flow between populations. In fact, there is a close relationship between geographic mobility of the spouses and genetic admixture. Using data from civil and religious registers of marriages we investigated the patterns of gene flow over the last two centuries in Italian mountain populations from three geographic areas with different levels of isolation: the alpine Sole valley in Trentino, the Apennine Lima valley in Tuscany and the Italo-Albanian ethnic minority of the Pollino area in Calabria. A multivariate approach to the analysis of marital mobility was utilized. According to the parish of birth/residence of the spouses, migration matrices were computed using the software BIODEM. Unrooted neighbor joining trees and multidimensional scaling methods were applied to the matrices to represent the dissimilarities in geographic provenance of the spouses. The results obtained in geographic areas characterized by different isolation and

mobility patterns show that migration matrices are useful tools in assessing gene flow between populations. Trees and bi-dimensional maps are always in agreement with geographic, economic and social structure of the investigated areas. Moreover, migration matrices are fully in agreement with the isonomic relationships obtained in the same populations.

Socio-Economic, Clinical and Genetic Characteristics of Subjects Over 98 Years of Age Residing in the Province of Mantova (Northern Italy) – The MALVA Project

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The MALVA project aims at analyzing socio-economic, epidemiological and genetic features of very elderly people residing in the province of Mantova (Northern Italy). The study is part of a nationwide research project. Several on-going parallel studies in various Italian provinces and regions are adopting a common methodology in order to obtain comparable results among the very elderly and share the following objectives: to get information about the number, territorial distribution, socio-economic characteristics, health conditions and quality of life; to devise a protocol that will establish the criteria to classify their health status; to analyze, by setting up a longitudinal study, morbidity and mortality trends; to establish a biological bank containing cells and DNA of centenarians to investigate the immunological and genetic bases of longevity. This communication presents the methodology of the MALVA project and the first results on the socio-demographic, physical and cognitive characteristics of the very elderly people in the province of Mantova.

Approaches to Missing Data in Anthropology

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Although there is a subfield of statistics concerned with missing data, there is no corresponding subfield of anthropology. Missing data problems in anthropology ought to be founded on the biologist's intuition of form factors. Modern morphometrics make possible a hybrid approach blending statistical and biological reasoning for the completion of forms that are missing pieces or regions. For data that are not under the control of strong form factors or other a priori biological hypotheses, one can use nonmissing points to interpolate missing points by warping from a single template form. (This clearly improves on the substitution of the missing landmarks from that mean form.) This thin-plate spline, though a smooth grid consistent with local shape variability, has

no access to any biological information. One way of adding biological knowledge is via a covariance matrix of shape coordinates built from the complete specimens. All the missing points can be estimated at once by maximizing the likelihood of the resulting configuration in a model of a multivariate Gaussian distribution or, if there are fewer cases than landmarks, a low-dimensional version of that model. Known covariation patterns, such as size allometry, sexual dimorphism or symmetry can be explicitly incorporated into the missing data estimation. These techniques all extend to data that include semilandmarks, points that represent discrete samples of homologous curves or surfaces. The extension is straightforward for missing landmarks and more complicated for missing pieces. All these issues will be demonstrated using crania from modern anthropoids. The methods are intended to be supplemented by others correcting for taphonomic deformation, if necessary, and are intended to be combined freely, not used in isolation. (Project grant of the FWF-Austrian Science Foundation, number P14738.)

Body Mass Index or Lean Body Mass Index?

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Obesity is one of the major risk factors of many serious diseases such as hypertension, cardiovascular diseases, stroke, diabetes and several kinds of cancer. The health status of the Hungarian population – especially of the males – is one of the worst all over in Europe. In Hungary the major part of mortality (more than 50 per cent) is caused by the cardiovascular and cerebrovaccular diseases, which appear almost year-by-year in younger and younger age groups. Therefore, from the point of view of the prevention, it is necessary to conduct the health survey – especially for males – already in early adult ages. National representative samples of young males can be taken first of all on the occasion of the military conscription, because it is obligatory for all males above 18 years of age in Hungary. Our sample was taken from the cohors of the 18 year-old -males born in 1980. The sample consists of more than 8000 conscripts and anthropometric, psychologic, medical and demographic data were collected from them. Altough, several methods are at disposal for assessing obesity, but for epidemiological survey the body mass index (BMI: height/weight^2) is suggested by the WHO. Since, the distribution of BMI is not normal, therefore another measure of obesity, the lean body mass index (LBMI: height^2/weight) has been introduced recently. The LBMI is both symmetric and normally distributed. In this sample of young Hungarian males the prevalence of obesity, and the effect of some socio-economic factors on the obesity are analyzed and comparison is made with the data of Hungarian university students.

Relations Between Some Exogenous Factors and Anthropometric Indexes of Growth and Development of Male Children and Youngsters in Tuzla Region

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The impact of some exogenous factors on dynamics of growth and development of male children and youngsters in Tuzla Region was tested by corresponding analysis of the sample involving 751 subjects, aged 11 to 17 years. The performed analysis of the gathered data was primarily based on scientific elaboration of the registered state in the frame of two time points (1996 & 1999) in the tested part of broader population. This research involved the period of four-year aggression on Bosnia and Herzegovina, taking into consideration the fact that the subjects spent one period of their growth and development in extremely bad wartime living conditions. The following exogenous factors were tested: propagation mobility, the parents' age, birth sequence, number of family members, nutritional factor, physical activities, socio-economic status. The following anthropometric variables were tested: body height, body mass, circumference of (thorax, upper arm, upper leg), sitting height, and index of sitting height, length of arm and of leg, width of shoulders and of pelvis, length and width of head and index of head. By quasicanonic correlative analysis it was established that the next factors participated in connection of variables of both sets (initial and final measurements): total mother's and father's standard of living, father's standard of living, total family financial income, mother's age and sequence of births participated to somewhat less extent in connection of both sets of variables. Significant impact on the most increase of anthropometric parameters for the period of 2,5 years had the following factors: sequence of births, mother's standard of living, total family income per month, mother's age, total father's and mother's standard of living. Variables like number of meals a day, going in for sports and walking, acting together with other exogenous factors, had the least impact on anthropometric properties. Anthropometric variables that had most significant impact on connection of both sets of variables are: length parameters, body mass and width parameters.

Muscle-Fat Index and its Correlation to Oxygen Consumption

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The muscle-fat index, as a ratio between relative muscle mass and relative fat mass, could be incorporated, together with body height, in sports somatotype and could be used as a predictable factor in selection model of athletes. On the other side, its correlation with some functional parameters, as maximal oxygen consumption and oxygen consumption per kilogram muscle mass, could be different, depending on type of sport. The group of 209 basketball players, 139 male and 70 female, 72 handball players, 39

male and 33 female, and 50 volleyball players, 18 male and 32 female was recruited for this cross-sectional study. Using anthropometry, we calculated absolute and relative muscle mass and fat mass by specific prediction formulas of Mateigka. Using treadmill and indirect protocol of Bruce, we measured relative VO_2max (ml/kg/min) and VO_2 (ml/kg) as a ratio between VO_2max and absolute muscle mass. We used descriptive statistic, t-statistic and correlations. There were gender significant differences in muscle-fat index, VO_2 and VO_2max in each sport. Positive significant correlation between muscle-fat index and VO_2 were noticed in basketball players, independent on gender, and in handball male players. Positive significant correlation between muscle-fat index and VO_2max were noticed only in male basketball players, who had the biggest VO_2max.

Models of Inter- and Intra- Specific Morphological Variation, and Their Application to Neanderthal – Modern Human Comparisons

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Paleoanthropologists disagree widely on the Neanderthal taxonomic position. While some authors consider this fossil group to represent a different species, H. neanderthalensis, others see it as a subspecies of H. sapiens. Numerous metric and non-metric studies have demonstrated the marked morphological differences between these two taxa, but have not succeeded in resolving the issue. An approach based on analogy to well established, living primate biospecies is recommended in attempts to resolve problems of species recognition in the fossil record. Such models should evaluate both inter-, as well as intra-specific, differences. Although this approach has been advocated strongly, it has not been systematically undertaken with regard to the Neanderthal -modern human question until recently. This study developed two models of morphological variation to be applied to a comparison between Neanderthals and modern humans: modern human populations provided a measure of intra-specific variation, while the species and two subspecies of Pan provided measures of both intra- and inter-specific differences. The techniques of geometric morphometrics were used to collect data in the form of 3-D coordinates of cranio-facial landmarks, which were processed using Generalized Procrustes Analysis and analyzed by an array of multivariate statistical methods (PCA, CVA and Mahalanobis D^2). The morphological distances between Neanderthals and modern humans, and between Neanderthals and Late Paleolithic/early anatomically modern specimens, are greater than the distances between any two recent human populations, and greater than the distances between the two chimpanzee species or subspecies. Furthermore, no strong morphological similarities were found between Neanderthals and Late Paleolithic Europeans.

Aging With Quality of Life

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This study reports variables which appear to influence living conditions and consequently quality of life in the ageing. Between January 1999 and January 2001, 140 free living (77 females, 62 males, mean age 71.6 years and 61 geriatric elderly Viennese (37 females, 24 males, mean age 82.2 years)) were investigated in a study of aging. The geriatric group was significantly older but in both groups there was no significant difference between ages of males and females.The freeliving subjects lived on their own in Vienna and surroundings and and did not need care while the geriatric group investigated at the same time, consisted of hospitalised patients. The subjects were recruited by broadcasting and words of mouth. Data collection started with a medical examination and people with mentalhandicap were excluded. The data on variables reflecting social state (companionship), habit and emotion were obtained by assisted questionaires. The comparison of the two groups, freeliving and geriatrics showed are markable parallelism in the direction of the differences in these variables. Thus the percentage of persons without a companion is significantly higher in the geriatric group, and particularly so with females (86.5%) in comparison to only 62.5% in the freeliving group. However also with the latter the difference between single freeling males (19.7%) and females amounts to more than 40%. Differences in dietary habit concern consumption of fruit and vegetables, more pronounced in females and meat in males the consumption of which are significantly lower in the geriatric group. It may well be that this is to some extent attributable to the significantly higher proportion of geriatric persons wearing dentures (87%) often claimed to be ill fitting, compared to only 65% of the freeliving. Significantly lower in the geriatric group are also variables related to emotion as bad sleeping quality, and interest in hobbies but a significant predominance of feeling of loneliness. This work projekt Nr. 7136 was supported by the Jubiläumsfonds of the Austrian National Bank

Dermatoglyphics of the Nogai, North Dagestan

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The Nogai inhabiting the North Caucasus belong to the Kypchak circle of Turkic peoples. For many centuries the Kypchak nomads possessed the vast territory of Eurasia from Irtysh river (S. Siberia) up to Danube and from the Crimea up to Volga Bulgaria/ The Nogai arose as a result of mixing of many Turkic and mongolian tribes. In XIIIth century the part of a population of the Golden Horde headed by the Temnik (General) Nogai migrated to the North Caucasian Steppe. Contemporary Nogai are the descendants of the medieval Nogai influenced by many neighboring groups including Tatar, N. Caucasian aborigines etc. In 1967 and 1984 I have collected finger and palm prints among Kara-Nogai of Daghestan (92 males, 100 females) and AK-Nogai of Karachay

-Cherkessia (76 males, 101 females). The Key traits values (FPII, MZI, t, Hy, AIT, Th/I) in AK-Nogai and Kara-Nogai males, resp., are the following: 14.23 versus 13.71; 8.24 v. 8.18; 65.8 v.73.9; 27.6 v. 28.2; 23.6 v. 16.8; 9.9 v. 8.3. In females: 13.13 v. 12.4; 8.06 v. 8.03; 60.3 v. 70.0; 33.7 v. 29.0; 12.9 v. 8.0; 10.4 v.4.0. Two independent methods of multivariate analysis (extragroup scale method and PC's) were applied at different taxonomical levels. In all cases of a comparison the Nogai took an intermediate position between two clusters which consisted of the Mongoloid and the Caucasoid taxons, corr. (Simultaneously the Nogai were maximally close to the Southern Caucasoids of Turkmenistan, Uzbekistan and Tadjikistan who contain a perceptible share of the Mongoloid component. At the ethnic level the Nogai are the most similar Astrakhan Tatars, then Uzbek, Turkmen, Bashkir, Uyghur, Kalmyk, Siberian Tatar. In a full correspondence with their ethnic history, AK-Nogai differ Kara-Nogai slightly, due to the increase of the Caucasoid admixture.

Dermatoglyphic Taxonomy of Human Races and Populations

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The aim of our paper was to investigate the dermatoglyphic differentiation of the Mankind at two taxonomic levels: a) major races level, by arrangement of data in the framework of somatological classification; b) at population level, considering populations as independent taxons. Finger and palm dermatoglyphics have been analyzed. Firstly, 1322 worldwide samples (756 male and 566 female groups) were distributed among five major races (Caucasoids, Negroids, Mongoloids, Australoids, Americanoids). Secondly, the fully comparable data of 50 populations (25 male and 25 female, i.e. 10 samples a race) have been used. At both levels two independent methods of multivariate analysis (intergroup scale and PC's) have been applied. Only key traits (FPII, MLI, t, Hy, AIT, Th/I) were used. The same formative factors have been revealed which caused the stabile clusters and resemblance in taxons position at both taxonomic levels. Each race has a peculiar traits combination, traits values and is quite distinct in a taxonomic field. The most specific forms are Caucasoids and Negroids. The other three races have some mutual resemblance and may be considered as a heterogeneous but unity. Thus, the results have confirmed our concept of three major subdivisions of Modern Mankind, i.e. Western (Caucasoids), Southern (Negroids) and Eastern (Australoids + Mongoloids + Americanoids) (Heet, Keita, 1979; Heet, Dolinova, 1990).

Nasal Bone Hypoplasia-Aplasia in Osteoarcheological Samples From Hungary

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The nasal bones are products of the triangular area of the frontonasal process. Developmental delay of this area can result in hypoplasia or aplasia of the nasal bones. This can be unilateral or bilateral, symmetrical or asymmetrical. Sometimes this anomaly is associated with premaxilla hypoplasia and appears as a part of the syndrome. In this study the authors present different nasal bone defects on skulls caused by developmental malformations (bilateral aplasia, unilateral aplasia, unilateral hypoplasia of nasal bones). The nasal bones defects have been studied in the skeletal collection of the Department of Anthropology (University of Szeged, Hungary). The palaeopathological investigation has been carried out using gross morphology supported by radiographic and metric data.

Temporal Relationship Between Treponemal Infection and Leprosy in Medieval and Early Modern Northern Europe

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Temporal relationship between treponemal infection and leprosy is analyzed. In a medical historical literature early Modern epidemic of syphilis is well documented and the paleopathological literature gives a rich description of a medieval epidemic leprosy. The basic hypothesis is that due to differences of temporal distribution the marks of the two diseases rarely if ever appear on the same skeleton. The skeletons used for this research are a sample from the Blackfriar cemetery in Odense. This cemetery dates from about AD 1240 to around 1600. A case-control design is used. The cases consist of 20 skeletons showing signs of treponemal infection. The control group consists of twice as many randomly chosen skeletons. Both case and control skeletons are scored for seven leprosy related osteological signs. The scorings on the seven leprosy related signs and on a composite leprosy score (l) are compared among the case and the control skeletons. Any statistically significant difference between the two groups will indicate asynchrony among the two sets of osteological signs and, thus, a difference of the temporal distribution of the two diseases in Northern Europe. Leprosy was a very common disease in Medieval Northern Europe. Point prevalence at death among adults found on ordinary rural cemeteries range as high as 35 per cent or more in the 13th and 14th centuries whereas it appears that this disease had vanished by AD 1500. This makes leprosy and the osteological signs it laves on the skeleton ideal »Medieval markers«. The results will contribute to an widening of the understanding of European disease history.

Monthly Variation of Secondary Sex Ratio, Twinning, and Illegitimacy in a Rural Population of Catalonia in the Nineteenth Century

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Tortosa was in the nineteenth century one of the most populated municipalities of Spain, and the socio-economic and cultural county town of the south region of Catalonia. The economy was centered in the dry-farmed crops (wheat, olive, carob). It was important river port, and the north hemi delta of the Ebro river belonged to Tortosa during the 19th century and the beginning of the 20th century when the Delta of the Ebro river consolidated their settlement with the crop of the rice. Data from of 43.526 births (22,323 males and 21,203 females), recorded at the Cathedral of Tortosa Archive from 1801 to 1900, have been analyzed. The illegitimate births are the 5.02% of the total. The moving averages show a trend to increase the illegitimate births at the end of the spring and the beginning of the summer. The secondary sex ratio in the nineteenth century is 105.28. In September, October and December the number of the male births is statistically significant higher than the female births. The multiple birth frequency observed is 8.08 (349 of 42,825 maternities). These 349 twin maternities are 226 like -sexed, 120 unlike-sexed, 1 like-sexed triplet, and 2 unlike-sexed triplets. The twinning rate is low. According to the sex of the twins the rates obtained are 2.5 for monozygotic twins and 5.6 for dizygotic twins. The distribution of the moving averages of the monthly rates of twins shows a peak in autumn. The seasonal distributions of births of the dizygotic and monozygotic twins show differences: while the monozygotic twins have higher frequencies in spring and summer, the dizygotic twins births are more frequent in autumn and winter.

Somatotype and Cardiovascular Risk Factors Among Older Venezuelan Adults – Project Conicit S1–98003275

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Relationships between cardiovascular risk factors and Heath-Carter anthropometric somatotype components were considered in 327 healthy older institutionalized adults: 141 males and 186 females, aged 60 to 102 years. Risk factors included body mass index (BMI), systolic (SBP) and diastolic (DBP) blood pressures, fasting glucemia (GLY), triglicerides (TG), plasma cholesterol (CHOL), and the high (HDL-C) and low (LDL-C) density lipoprotein cholesterol fractions. A t-test was used to evaluate the significance of differences of the variables between sexes. Correlations between risk factors and each somatotype components were calculated. A Kappa test between the variables was applied to establish the degree of association between them. Males are significantly taller and heavier than females. In each age group, females are more endomorphic

than males, but only more mesomorphic in the first age group. Males are more ectomorphic than females. The BMI was higher in females. SBP, DBP, TG, CHOL, HDL-C and LDLC-C are significantly higher in females than males. GLY is higher in males than females. Correlations were generally low and at best moderate, with significant correlations ranging from –0.33 to +0.48 in males and –0.22 to +0.27 in females. The association was more apparent in females than males and more so in those 80 years and older of age than in the younger group.

Maturational Effects on Body Composition During Adolescence

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The rapid growth during adolescence is accompanied by rapid advancement in maturation. Understanding the effects of normal maturation is important because variation in maturational timing is associated with variation in body size and composition, even within fairly small chronological age groups. Although the total amount of variation in size and composition that is maturation-related is not large, it is systematic in direction so that there are predictable effects of maturational status on body composition variables during the adolescent years. Using data primarily from a US national study and other smaller US studies, data will be presented regarding the effects of maturational status and timing on fatness and other body composition variables during adolescence. Comparisons will be made among different maturational indicators, and across different indicators of body composition. Gaps in understanding will be identified and recommendations for future research will be presented.

Epidemiology of Cerebrovascular Diseases in Croatia

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Cardiovascular diseases are the leading cause of death and of hospital treatment in Croatia. Their share of overall mortality in 2000 was 53.2%. On the mortality scale of cardiovascular diseases, with 31.4% the cerebrovascular disease diagnostic group was second to ischemic heart diseases. Nevertheless, with 13.2% of total deaths (10.6% of male and as many as 15.8% of female deaths in 2000) cerebrovascular insult, unspecified whether a bleeding or infarction, was the leading individual diagnosis as a cause of death in Croatia. In practical terms, every tenth Croatian male and every sixth female, die of cerebrovascular insult. General mortality rates for cerebrovascular diseases had been rising steadily to 181.7/100,000 in 1986 since when the rates' growing trend has been noted to halt. In 1990, the rate was 181.1/100,000. The period 1991–95 saw rates lower than 180.0/100,000. The rate was 184.4/100,000 in 1996, 179.5 in 1997, 186.0 in 1999, and 191.3 in 2000. Calculating this last figure on the 1991 population census basis would produce 175.2/100,000 instead. According to the WHO database for the »Health for All by the Year 2005« program, the age-standardized cardiovascular disease mortality rate for all ages for 1998 in Croatia was 188.2/100,000, being 35.8% above Europe's average and 22.6% above the CEE average. In contrast, for the 1998's

age group 0–64 years the rate was 27.8/100,000, which was 8.1% and 17.8% below the European and CEE averages, respectively. With 13.7%, cerebrovascular diseases are heading the list of causes of hospitalization in Croatia in 2000. However, cerebrovascular diagnoses group accounted for 23.4% of the inpatient care for cardiovascular diseases. However, by number of diagnoses recorded in the General Medical Service in 2000 cardiovascular diseases were second with 11.5%; and for the cerebrovascular disease diagnostic group it was 5.7%.

Development of Body Weight, Selected Proportional Indices in South Bohemian Children

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In our paper we present a part of results of a long-term anthropological research in South Bohemia children aged 6–10. The anthropometrical data were collected by the anthropological investigation »Semilongitudinal study of the physical development of school youth from the Czech Republic« in 1997 – 2002. The file ČB 1997–02 counts 106 children, 50 boys and 56 girls. The children were measured repeatedly after 6 month. Standard Martin-Saller´s method was used. The presented paper informs about the growth dynamics of body weight and a sum of four skinfold thickness and a percentage body fat, BMI (Body Mass Index, Quetelet-Kaup-Gould´s index), Rohrer's index (RI, Rohrer-Buffon-Bardeen´s index). The tables and figures inform about the average increments and standard deviations. Girls of our file have higher mean values of body weight and other dimensions than boys. The results have been compared with regional investigations and the whole republic surveys. The comparison of the files ČB 1997–02 and the whole republic surveys shows in most of boys´ and girls´ age categories higher body weight and other dimensions in our file. Differences of the mean values of our file and the whole republic surveys were significant in the most of age categories. The comparison of the files ČB 1997–02 and regional investigations showed in most of boys´ and girls´ age categories significant difference rarely. The results are completed by some socioeconomic factors.

Physical Development of Belarusian Children of 4–7 From Minsk

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The research of physical development (PD) of children is the necessary part of population state of health examination because children's organism is more sensitive to influence of environment factors. In 2001–2002 the investigation of PD of 801 children of 4–7 (409 boys and 392 girls) in Minsk, capital of the Republic of Belarus, was conducted. The dynamics of main indexes of PD: body length, body mass and chest circum-

ference during from 1950 till 2001–2002 was considered. Sex distinctions and constitutional peculiarities of growth processes were analyzed. The problem of reaching »school maturity« by children is one of the major in depicted period of life. Under »school maturity« a level of psycho-physiological and morphological maturity sufficient for the beginning of systematic training at school is implied. For children of 4–7 from Minsk the Philippine test was conducted and three indices of »school maturity« were calculated, tooth maturity was determined.

A Simple Method for Sex Classification of Skeleton Based Objective

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Estimation of most likely sex and sex classification is one of the major problems of both forensic anthropology and anthropological demography. Known methods are either objective and rather complex or based upon subjective assessment. Objective but complex methods are not suited for use in field or laboratory while subjective methods require intense training of the observer and still have significant inter-observer error. To overcome this problem a new statistical model is suggested. Objective measurements – osteometrics – of several characteristics are known to vary among sex. A set of osteological measurements with low inter-correlation of misclassification is chosen as parameters for our model. The model is fitted to and tested against a sample of well preserved but unknown sex skeletons from tree different Danish Medieval cemeteries kept at ADBOU. As the skeleton samples are of unknown sex and age at death, statistical tests are carried out against sex-estimated by of well known be it subjective methods. Further statistical tests of clarity of classification are performed using K-means -cluster analysis. A general statistic classification method based on objective measurements are proposed and its use as a tool for sex-estimation is demonstrated. Statistical characteristics of the method are described.

Measurement of Determinants of Mandibular Movements in Dental Students in Croatia

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The aim of this study was to measure main variables influencing mandibular movements during chewing, speech and swallowing. Measurements taken were: vertical and horizontal overlap of central incisors, lateral excursion from centric relation (CR) to maximal intercuspation (MI) measured in sagital and frontal plain, maximal mouth opening, forced maximal mouth opening, maximal dextrolateral and sinistrolateral movements. This investigation included 120 subjects, dental students at final clinical year, which were self-examinee (they were both- subjects and examiners in this investigation) and which were controlled by their tutor. Measurements were divided by: gender, dental status, and number of signs and symptoms related to temporomandibular dysfunctions (TMD), and statistically were analyzed. Obtained data are useful in determining the factors that are decisive for craniomandibular relationship. Comparison

of this method to single examiner and multiple experienced examiner methods revealed no statistically different results.

Ethics in Regard to Biological Anthropology – Focus on the Nordic Area and the General Need for Ethical Rules

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Today ethical issues are more and more often raised in society. Many sciences have developed an insight in these problems and frequently ethical rules and ethical committees are created. Many institutions keep large osteological collections. They have often long historical roots that might be problematic. How were the series built up? Do they contain parts of people from indigenous groups? How are the collections used today? Are parts on exhibit? Do the collections still have a scientific value? Collections within Anatomical departments and Archaeological institutes in the Nordic area are discussed as examples. Considerations regarding indigenous people as the Inuits in Greenland and the Saamis (Lapps) in the Scandinavian peninsula are presented. Collaboration and insight in science is exposed as well as full submission by the main society. In the Nordic area skeletons and crania of different times are frequently exposed in museums. Even people with known identity to the curators are sometimes exhibited. This demands special care and contacts with the ethnical group in concern. As a university reader, I teach anthropology and osteology. I also feel that we must introduce an ethical thinking to the students. They ought to have more insight in the history of our disciplines to be able to answer public questions. They also ought to be prepared to think about new and »sensitive« issues as genome research, studies on foetuses and how to collaborate with indigenous people – only to mention a few topics. Is there a need for an ethical code within our EAA? The other EAA, the archaeologists, have created an ethical code for the researchers within their scientific society.

Modality of the Variance of Heart Rate and Variability Responses to Artificial Environment

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Population thinking, developed largely by Darwin, considers variation not to be an error, but to be real. It is commonly understood that large amounts of variation exist within physiological measurements; however, these variations are often considered to be merely errors in statistical analysis. Population thinking might not be irrelevant to some research fields, which address physiological parameters, because the diversity of physiological responses in many kinds of research might not be a negligible quantity, but rather would be essential to indexes in these fields. In order to discuss the diversity of physiological responses, the percent contribution (PC) of responses of heart rate (HR) and its variability (HRV) to combined environments consisting of a variety of physical factors (ambient temperature, noise level, and color temperature of lighting)

were estimated by using ANOVA. The results show that there was a higher PC of ambient temperature (19.9%) to HR, which might be related to the fact that the degree of variation regarding the experimental stimulus of ambient temperature (21–35 ºC) was larger than the other environmental factors (color temperature: 3000–7500 K (PC = 0.0%), noise level: +0 – 10 dB (A) (PC = 0.1%). Moreover, the PC of the subject's factor was 29.4%. However, in the results obtained regarding the inter-individual variations of HR, the PCs of color temperatures varied individually (0.4–16.2%), and were clearly higher than that of all the subjects (0.0%). These results might indicate that the effects of color temperature are difficult to detect in certain physiological indexes in a mass. Especially for the response to a weak stimulation, like a color temperature, which leads to a large variation that is unrelated to the experimental conditions, however, there was a constant tendency within individuals.

Anterior Teeth Injuries in Children

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The aim of this study was examine appearance, classification and therapy of trauma on frontal teeth. The sample consisted of 447 patients (251 boys and 196 girls), 6–25 years of age, with 606 injured teeth treated within a period of 10 years. The material consisted clinical examination, case of histories and radiograms taken during the examination. The ratio of boys and girls was 1.28:1 ($p < 0.01$). Patient aged 10–13 years old exhibited the highest number of injuries. The most injuries involved one tooth (69.4%), girls 79.6% and boys 61.4% ($p < 0.001$). Maxillary central incisors were the most often affected teeth (80.4%, $p < 0.001$). The type of trauma was classified based on WHO classification partially modified. The most common type of trauma was non-complicated crown fracture (76%). Of total number of teeth enamel fractures represented 37.2%, enamel and dentin fractures 38.7%, complicated crown fractures 14.4%, non -complicated crown and root fractures 0%, complicated crown and root fractures 0.7%, root fractures 1.5%, concussions 0.2%, subluxations 2%, intrusions 0.2%, extrusions 0.2%, lateral luxations 4.3% and avulsions 0.8%. The most often therapy of class I/1 was restoration with composite materials; class I/2 was restoration with composite materials and structural base; class I/3 was pulp covered with calcium hydroxide paste and restoration with composite materials; class I/5 was endodontic treatment and extractions; class I/6 was extractions; class II/1, II/2, II/3 and II/4 was control examinations; class II/5 was splinting with composite splint and class II/6 was space maintainer.

Dentoalveolar Changes Predominate During the Orthodontic Therapy of Skeletal Orthodontic Anomalies

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The purpose of this study was to evaluate skeletal and dentoalveolar changes following administration of fixed and/or bionator treatment in patients with Class II relationship, Class III relationship and open-bite. The sample consisted of 50 subjects with the mean age of 12 years and 8 months. Two latero-lateral cephalometric radiographs were taken for each patient, one before and one after the administration of orthodontic treatment. The control group consisted of 50 cephalometric radiographs of eugnatic subjects. Conventional cephalometric procedure was applied in the analysis of seventeen cephalometric variables. After the treatment, minor skeletal changes were observed. More anterior mandibular position in Class II subjects was found, with anterior rotation of maxilla following the administration of bionator treatment and posterior maxillary rotation following the administration of fixed appliance treatment. Slight mandible retraction was found in patients with Class III malocclusion, while minor convergence of the basal parts of both jaws was found in patients with open bite following the treatment. More evident dentoalveolar changes were observed in both Class II and Class III malocclusions. Retrusion of upper and protrusion of lower incisors were dominant in patients with Class III malocclusions. Major effect on incisor position in comparison to minor incisor tipping (inclination) was evaluated after the fixed therapy. Protrusion of upper and retrusion of lower incisors was achieved in patients with Class III relationship. In the patients with open bite, slight extrusion of the upper and lower frontal teeth was observed following treatment administration. Finally, the results of this study suggest that, following the administration of either fixed or bionator treatment, more dentoalveolar than skeletal changes should be expected.

Communication, Deception, Indoctrination, Dogmatism and Memes – Neuroethology of Mind Control

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The primary aim of this overview is to provide a theoretical framework for an integrated neuroethological model based on neurophysiological principles governing deception, indoctrination and dogmatism in humans, and further development of interactive, computerized behavior recognition-analysis platforms. We propose that indoctrination and dogmatism should be most successful when communicated via unconscious affect display cues that evolved as a means of (self-) deception, and that are governed by the limbic system. Individuals with high capacity for self-deception display well -masked (i.e. successful) deceptive cues and at the same time be moderately good decoders. Individuals with low capacity for self-deception display poorly masked (i.e. unsuccessful) deceptive cues and as a result, be exceptionally good at decoding others' de-

ceptive cues. We argue that the former perceptive-behavioral tendencies are especially prominent in behavior of politicians engaged in indoctrinative communication of ideologies or political doctrines. On the one hand, the basis for our approach is provided by neuroethological research and theory, emphasizing especially on Regulation-Disregulation Theory (RDT) and Affective Primacy Hypothesis. On the other hand, since an important aspect of communication, as it relates to indoctrination and dogmatism is mode of information transfer and retention, we provide an overview and rely strongly on contemporary developments in the field of memetics. Our emphasis on memetics serves as a theoretical counterweight (memetics being primarily based on abstractions) to our focus on neurophysiology in the quest towards designing an integrated neuroethological model of indoctrination and dogma formation. Finally, we propose that information processing of meme-complexes by evolved primate neurophysiology may be considered neuroethological basis of indoctrination and dogma formation, which serve as structural backbones of socially proliferated mind control. Applications of this research include ecological, micro- and macro- evolutionary studies, population genetics and memetics, culture and communications studies, neuroscience, as well as future astrobiologcal/ecological research.

Body Movement, Indoctrination and Personality – Behavior-Recognition-Analysis

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The primary aims of this research are to investigate the underlying ethological principles of body motor activity as it relates to indoctrination, dogmatism and personality in humans, and develop an interactive computerized behavior-recognition-analysis platform that would allow further interdisciplinary research. The theoretical basis for this research is provided by a new communication theory based on Affect Primacy Hypothesis. We will investigate the influence of personality traits and psychopathologies on individuals' ability to effectively indoctrinate. The empirical basis for this research is data obtained from computerized behavior analysis of randomly chosen subjects. In digital video analysis of filmed behavior, we will use Motion Energy Detection (MED), a new image and speech processing method used by E-motion 1.0 software platform. The results from the movement analysis will be used for training a neural network simulator as a recognition platform for both verbal and nonverbal behavioral cues associated with personality traits, indoctrination, and dogmatic behaviors in humans (i.e., speed of movement, motion direction, limbic coordination, emphasis in movement, vocalics, proxemics and chronemics). The proposed relations were demonstrated empirically in a pilot study conducted at the Ludwig Boltzmann Institute for Urban Ethology. Correlating the data obtained through neural network training and analysis, with the results of previously assigned standardized personality inventories (MCMI-III or MMPI-2) analysis of speech content, and third person ratings should enable us to obtain yet unseen empirical data on the relationship between personality and behavior. Ultimately, our goal is not only generating evidence of phylogenic basis of indoctrination, dogmatism and the role of personality traits in these processes, but providing new insight into the ethology of political indoctrination as a means of socially proliferated

mind control, which would finally enable us to shed new light on historic politicians and their personalities. This research has many possible practical applications. Such a recognition-analysis platform, once developed and validated, could be easily applied to a broad range of areas in behavioral research, forensic anthropology and legal studies, and primatology.

Application of the »Values« Model in Bioanthropocybernetic Investigations of Interaction Between Environmental, Genetic and Memetic Factors – A Research in Progress

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The »Values« model, developed on the basis of the OPSIM2 model, comprises of a system of compartments and respective control mechanisms. The system of compartments is defined by the compartmental input X_i (added to a compartment *i*) and exit ($F_{i,j}$) or entry ($F_{j,i}$) flows. Exit flows simulate agents leaving a compartment ($F_{i,j}$ value deducted from the volume/content of compartment *i*), while entry flows simulate agents coming into a compartment ($F_{j,i}$ value added to the value/content of compartment *i*). Compartmental/systemic control is achieved by means of controlling input (X) and/or flow (F) constants. The control may be based on a compartment controlling directly itself or indirectly, other compartments. The »Values« model consists of seven compartments, wherein three hold a population of agents (Y1, Y2, Y3) and another four serve as »dummy« compartments. Three »dummy« compartments represent environmental (E), memetic/value ($), and genetic (Kin) factors respectively. The one remaining »dummy« compartment is used as regulation compartment directly controlling other »dummy« compartments, and indirectly the remaining regular compartments (Y1, Y2, Y3). The aim of this research is to investigate the interaction between environmental, genetic and memetic factors on individual, family and population levels. Using the »Values« model, we intend to simulate the influence of genetic kinship on the level of families and population. Similarly, we intend to define and quantify »memetic markers«, and use them like genetic markers are used in kinship/pedigree studies. Thus through a combination of computer simulation of genetic and memetic kinship we intend to simulate the development and interaction of the above mentioned factors. Furthermore, current literature supports the hypothesis that certain personality traits (big five) as well as temperament are moderately to highly inheritable. We therefore intend to conduct a field study in which we will gather data on psychological and genetic profiles, and demography. These data will be quantified and used in testing/development of the »Values« model as well as other models with anthropological applications. Studies in prospect relate this research to communication, ethology and neuroscience.

Physical Development of Lithuanian Newborns With Different Malformations

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The purpose of this study was to analyze weight, length, and head circumference of Lithuanian newborns with different malformation. Data of 4592 live term births in 1998–2000 from Obstetrics and Gynecology Clinic of Vilnius University were analyzed. In total 114 male and 148 female singleton Lithuanian newborns had different malformations: skeletal defects, genitourinary anomalies, cardiovascular anomalies, skin anomalies, chromosome abnormalities, multisystem anomalies, facial clefts, diaphragmatic hernias, gastrointestinal anomalies and other. Statistically significant differences of anthropometrical data were as follows: weight of girls with cardiovascular anomalies (3216 g), chromosome abnormalities (2745 g), multisystem anomalies (2611g), diaphragmatic hernias (2910 g) and boys with cardiovascular anomalies (3290 g), gastrointestinal anomalies (2693 g) was lower to compare with normal girls (3440 g) and boys (3585g); girls with cardiovascular anomalies (50.95 cm), multisystem anomalies (47.86 cm) and boys with cardiovascular anomalies (51.09 cm) were shorter to compare with normal girls (52.04 cm) and boys (52.73 cm); head circumference of girls with multisystem anomalies (34 cm), diaphragmatic hernias (33.25 cm), chromosome abnormalities (33.25 cm) and boys with cardiovascular anomalies (34.45 cm), gastrointestinal anomalies (33.67 cm) was smaller to compare with normal girls (35.28 cm) and boys (35.64 cm). It was observed tendency of lower birth weight of boys with chromosome abnormalities, shorter length of girls with chromosome abnormalities, diaphragmatic hernias and boys with chromosome and gastrointestinal anomalies, but differences were statistically not significant.

Common Sense in Evolutionary Perspective

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In the primary sense Common Sense denotes a set of (typically unconscious) mental processes involved in every-day cognition and action: processes of perception, reasoning, linguistic competence, decision making, understanding other people's minds, etc. In the second sense Common Sense refers to a system of (typically implicit) beliefs that can be viewed as outcomes of mental processing. In its third sense the term can be applied to objects and situations in the world corresponding to mental processes viz. belief systems: the »common sense world«. Accordingly, there are three kind of theories dealing with the three aspects of Common Sense: (1) theories about mental processes (e.g. psychological theories of perception, reasoning, mind reading, etc.); (2) theories about belief-systems (e.g. in social anthropology); and (3) theories of common sense world (e.g. formal ontological or AI theories of substances, situations, events, or other ontological categories). Traditionally, the three aspects of Common Sense have been studied separately, by different disciplines following diverse, often mutually incomensurable methodological guidelines. In the last decade and a half an important paradigm change took place, mostly due to a new research program (often referred to as

'cognitive science') integrating results and methodologies of some old and a host of new disciplines (evolutionary psychology, particularly). In respect to the topic of Common Sense, two insights stand out: (1) contrary to the »Standard Social Science Model« (Cosmides-Tooby), there exists something as a universal, panhuman cultural substrate (»metaculture«) that is invariant in respect to time, space or social contingencies; (2) contrary to the long held orthodoxy about the human mind as a general purpose machinery, this panhuman »stock of beliefs« is the result of many functionally specialized, content-dependent, context sensitive and domain-specific mechanisms (»modules«) which evolved as adaptations to ancestral environments. While the first hypothesis is relatively unproblematic, the second deserves special scrutiny. In particular, there seems to be a problem about the coordination and integration of the diverse common sense generating mechanisms viz. their outcomes. Short of a solution to this problem the scientist of mind faces difficulties in integrating the two hypotheses in a unique theory.

Mitochondrial DNA and the Origins of the Domestic Horse

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The place and date of the domestication of the horse has long been a matter for debate among archaeologists. To determine whether horses were domesticated from one or several ancestral horse populations, we sequenced the mitochondrial D-loop for 318 horses from 25 oriental and European breeds including American mustangs. Adding these sequences to previously published data, the total comes to 652, the largest currently available database. From these sequences, a phylogenetic network was constructed which showed that most of the 93 different mtDNA types grouped into 17 distinct phylogenetic clusters. Several of the clusters correspond to breeds and/or geographic areas, notably cluster A2 which is specific to Przewalski's horses, cluster C1 which is distinctive for northern European ponies, and cluster D1 which is well represented in Iberian and northwest African breeds. A consideration of the horse mtDNA mutation rate together with the archaeological timeframe for domestication requires at least 77 successfully breeding mares recruited from the wild. The extensive genetic diversity of these 77 ancestral mares leads us to conclude that several distinct horse populations were involved in the domestication of the horse.

Does Climate Shape Our Face – Who Nose? On the Morphological Differentiation of the Areas of the Pyriform Aperture and the Choanae

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A new method of quantifying the area of the pyriform aperture and the choanae is presented. We used this method to assess possible climatic impact on the nasal area. The research is based on the four skull series: pre-contact Eskimos (N = 66), medieval Danes (N = 41), prehistoric Nubians (N = 67), and Greenland Norse (N = 24). The pyriform aperture and the choanae were digitally captured in a standardized setup, and subsequent image analysis, including tracing and calibration, yielded the areas in square millimetres. Our results showed comparatively small pyriform apertures for the Nubians (954 ± 228 mm^2) and largest pyriform apertures for the medieval Danes (pyriform aperture: 1152 ± 206 mm^2). As expected, the Eskimo sample had the lowest values of the area of pyriform aperture (772 ± 169 mm^2). However, when focusing on the choanal areas, they show much more complicated picture with an Eskimo population (453 ± 73 mm^2) laying in between Danes (484 ± 71 mm^2) and Nubians (401 ± 61 mm^2), which shows that posterior apertures are uncorrelated with the anterior. A small series of Greenland Norse proved to have pyriform aperture intermediate between Eskimo and Danes (1021 ± 228 mm^2), but the choanae areas are comparable to Nubian sample (367 ± 65 mm^2). Special attention will be given to the discussion of possible causes of such differences in the frontal and posterior nasal apertures, also when compared to the traditional nasal index.

The Influence of Genetic, Paragenetic and Environmental Factors on Selected Dimensions of the Neonates' Bodies From Southeastern Poland

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The aim of this work was to determine the dependence between the selected dimensions of the neonates' bodies, i.e. body length and mass and the dimensions of the chest and the head and the height of the parents' body, mothers' age, the sequence of pregnancy, parents' place of residence and the level of their education. The investigation included 1419 neonates (715 boys and 704 girls) born in the area of southeastern Poland in 2000. All neonates were born alive, between 38th and 42nd weeks of pregnancy: they came from single pregnancy and natural labor. The measurements included the length of the neonates' body (cm), their body mass (g), circumference of the chest and head (cm), and the height of the bodies of mothers and fathers. Information was collected about the residence of mothers (city-village), their age and level of education as well as the sequence of pregnancy (first and subsequent). Statistical analysis of the collected material confirmed the existence of inter sexual differences in the dimensions of the neonates' bodies (male neonates achieved greater dimensions). The height of the mothers' body proved to be a factor differentiating stronger the dimensions of the neonates'

body than that of the fathers' body. Moreover, relations of children with mothers were stronger than those with fathers. Paragenetic factors, i.e. the age of mothers and the sequence of births differentiated selected parameters of the neonates' body. Furthermore, the education of mothers proved to be a factor related to different dimensions of the neonates' body. However, no significant differences were found between the neonates of mothers residing in cities and those in rural areas.

Characterization of the Process of Augmentation of the Body Height and Mass of Rural Children and Adolescents

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The study presents a characterization of the process of augmentation of the body height and mass of children and adolescents with reference to age, gender, current body height and the socio-economic situation of the family. The research material was based on the diachronic (semi-continuous) investigation lasting 5 years (1995–2000). It included the total of 6099 children and adolescents aged 6–19. With the help of an interview data was collected about the social status and the level of education of parents, number of children in family and the living conditions, which allowed to assess the socio-economic situation of the family (good, average, bad). The rate of the augmentation of the body height and mass was analyzed in absolute and relative (standardized) values. The multi-factor variance analysis was applied to the assessment of net effect of the particular factors. It has been found that the rate of the augmentation of body height and mass depends first of all on biological age however a significant influence is also exerted by the socio-economic situation of the family.

The Necropolis of Sant Pere (Terrassa, Spain) – Preliminary Bioanthropological Analysis

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The city of Terrassa, located a few kilometres from Barcelona, has an important recent history as an industrial city, concretely in the textile industry. But the history of Terrassa goes back hundreds of years. It is possible to say that the city of Terrassa is the legitimate successor of the Roman city of Egara and the Visigothic Episcopal Seat. In VIII century the Muslim invasion that completely destroyed the Visigothic city of Egara and the Episcopal Seat took place. During a century this territory was practically uninhabited. In IX century the Franks, commanded by Carlomagno, arrived in Barcelona and re-conquered all this territory from the Muslims. During the »Recon quest« the population of Terrassa moved to the area around the powerful Castle, the »Castrum Terracia«, from which grew the medieval villa of Terrassa, direct predecessor of the present city. In this period, in the same location of the Episcopal Seat, a set of churches was constructed, which was known as the monumental assembly churches of Sant Pere that still stands until today. At this moment, an archaeological excavation in

Sant Pere churches is being done with the main goal of reconstructing the space that delimited the old Visigothic Episcopal Seat. During the excavation a great deal of burials from different periods have been brought to light. Graves previous (late Roman period) and posterior to the creation of the Episcopal Seat were found, the cemetery being continuously used until the last century. The analysis of the skeletal remains from the oldest graves, that include the Roman and Visigothic Egara period until the Muslim invasion, has begun with the main purpose of carrying out a complete bioanthropological study. In this study we present the preliminary results.

Minor Anomalies in Developmentally Disturbed Children

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Minor anomalies may occur in completely healthy individuals, but their frequency is significantly increased in some groups with prenatal developmental disturbances. High frequency of minor anomalies observed in particular group of children may serve as an indicator of disturbed prenatal development. In the present study minor physical anomalies were examined in a group of developmentally disturbed (DD) children. The sample comprised 606 children and adults aged 5 to 20 years (303 DD children, and 303 controls). The patient sample of 303 DD children comprised 176 mentally retarded (MR), 70 children with hearing impairment (HI), and 57 children with visual impairment (VI). The control sample included 303 healthy subjects matched in sex and age. Waldrop physical anomaly score was used to assess minor anomalies in all groups. There were no significant sex differences in number of minor anomalies in different groups. The average number of minor anomalies per individual or Waldrop 1 (W1) was significantly higher in DD children ($M = 3.81$) than in control group ($M = 1.99$; $P < 0.001$). Waldrop weighted score (W2) was also significantly higher in DD children ($M = 3.80$) comparing to healthy controls ($M = 1.82$; $P < 0.001$). The high values of W1 and W2 comparing to normal controls were obtained in the groups of MR, HI and VI children. The obtained findings of high number of minor anomalies per person and their high weighted score in DD children suggest that basic developmental problems in particular groups could be attributed to the common underlying factors acting during early prenatal development.

NADPH-d Histochemistry Detecting NOS in Healthy and Chronically Inflamed Pulp

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The aim of this study was to examine the expression of nicotinamide adenine dinucleotide phosphate-diaphorase (NADPH-d) activity in human dental pulps and determine whether there are changes of the activity in chronically inflamed pulp tissue. Nineteen pulps with clinical diagnosis of chronic pulpitis were collected during endo-

dontic treatment. The healthy controls were obtained from teeth extracted for orthodontic therapy. The clinical diagnosis was confirmed by histological analysis. Healthy pulps showed stratified odontoblasts in peripheral parts, while in central area there was normal connective tissue. Chronically inflamed pulps showed less expressed stratification of odontoblasts and infiltration of lymphocytes, polymorphonuclear leukocytes, plasma cells and mastocytes. NADPH-d granular reactivity was assessed semi quantitatively under the light microscope by a single observer and scored on an intensity scale from negative reaction to very strong reaction. In healthy human pulps, NADPH-d activity was strong to very strong in odontoblastic layer. Endothelial cells and Schwann cells showed strong NADPH-d reactivity, while the other parts of central area were weakly positive. Similar distribution of reactivity was expressed also in chronically inflamed pulp; moderate to strong reaction was observed in stromal area as result of positive reaction in inflammatory cells and endothelial cells of abundant newly formed capillaries.

The Effect of Arm Swing on Ground Reaction Forces in Human Walking

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Many studies have been published about human walking and a lot of mathematical models of movement of lower limbs have been developed. Despite the large volume of research on biomechanics of human walking, the upper limbs have been virtually ignored by researchers. The reciprocal swinging of the arms in walking plays an important role and the aim of this study was to investigate the effect of the upper limbs swing on the ground reaction forces during walking. The gait analysis has been performed on 52 subjects with no apparent abnormalities of the locomotion system, using the Elite system and Kistler force platform. Subjects were walking barefoot at normal speed (0.95 m/s = v = 1.7 m/s). In a set of experiments on each subject, the subject was instructed to walk 20 times: ten were natural walking and ten were walking with emphasized rhythmic upper limbs swing (full reciprocal excursion of both arms). In order to be able to compare characteristics of walking, the ground reaction forces have been normalized with the body weight. The normalized ground reaction forces have been shown as a function of contact duration between foot and force platform. »Typical patterns« of three components (vertical, fore-aft, mediolateral) of ground reaction forces have been established for every subject. »General patterns« and variation bandwidth of one standard deviation for a particular walking manner have been determined from »typical patterns« of all subjects for the same manner of walking. A »general pattern« represented the mean curve of the entire group of subject studied. The determined »general patterns« of three components of ground reaction forces have been compared and differences between gait with natural and emphasized upper limbs swing have been described.

Secular Growth Changes in Zagreb School Children at the Dawn of the Third Millennium

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The purpose of this paper is to explore the secular growth changes in Zagreb school children aged 7 to 19 in 2001 related to the trends in the second half of the 20th century. Measurements of height and weight were performed 5 times – in 1951, 1964, 1973, 1982, and 1991; menarcheal age was followed simultaneously starting from 1964. Over the 40-year period (1951–1991), mean height increased significantly in both genders. Differences reached the maximum of 10.4 cm in girls at the age of 12, and of 14 cm in boys at 14. They were highly pronounced in the adult height as well. However, changes were quite heterogeneous. Most intensive positive changes were observed between 1951 and 1964, whereas in the period 1982–1991 they were hardly noticeable, and in boys in younger age groups even slightly negative. Menarche in the period 1964–1991 shifted to a younger age by 6.5 months. However, the drop occurred between 1964 and 1973, whereas from 1982 to 1991 the trend became reversed – a slight shift towards an older age. In the recent survey performed in 2001, the total of 4700 boys and 4670 girls were embraced. Compared to their peers in 1991, their stature was somewhat taller in most age groups. In girls, height increase in the period 1991 – 2001 varied from 0.1 to 1.8 cm, in boys from 0.1 to 2.0 cm. Slightly decreased height was noticed at the age of 16 and 17 in both genders. From 1991 to 2001 menarcheal age was almost stable, with a slight upward trend (12.82 to 12.85 years). It seems that secular changes in the population of Zagreb school children at the dawn of the third millennium are reaching their end. Boys with their mean adult height of 179.3–179.4 cm are near to the tallest European populations whereas girls according to their mean menarcheal age are among »the earlier maturers«.

Some Results of the Bashkir Antropology Research

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1.) The deep racial genesis root of the modern bashkirs anthropological staff goes back to the aged population of South Ural. 2.) By the beginning of the first century A.D. the representatives of the different variants of the ural race with the admixture of the European anthropological types of the South genesis have settled in the north part of this region. The aged Ural component has been traced from the beginning of the first century A.D. and the modern north-west and north-east bashkirs have conserved it's one by this time. 3.) In the partially-wooded steppe and steppe districts the European type population of the south and south-east genesis had been prevailing in the anthropological staff of Sarmats and Savromats population during the early Iron Age. The base of this anthropological type were signs of the forming Central Asian race with the Ural and some variants of the Mediterranean one. This component is traced in the anthropological type of the later population. 4.) By the end of the first thousand years (the VII-th – IX-th centuries) the representatives of the Karayakupe culture had been hav-

ing the much significance in the forming of the anthropological type of the South Ural population. Their racial type was put on the anthropological layer of Sarmat-Alane population and wide extended to the partially – wooded steppe and steppe districts of Bashkiria. 5.) The Gold Horde (it took place in XIII-th –XIV-th centuries A.D.) almost had not an influence on the anthropological type of the bashkir population. In this region the racial genesis process took place on the base of the European anthropological layer, had formed by the end of the first thousand years A.D. The interaction with the Desht-i-Kipchak's nomads was marked on the territory of the north-east and south -east bashkirs settlement. Bashkirs of this region were having formed the complex of the South Siberia race signs. 6.) The river Ural was the south border of the territory of Bashkirs with the population of the Grate Zone Steppes before Gold Horde period and past of it. 7.) The South Siberia race in the complement of Bashkirs is one of the » young» one, that formed on the South Ural with the local variants of the Ural race participation. The South Siberia type of the modern kazachs and bashkirs is distinguished by the genesis and the different parts of the European component. 8.) The base of the bashkir complement had been laid by the end of the first thousand years A.D. and it is has been traced with some changes by this time. The broad of the first and second thousand years A.D. was the main moment in the history of Bashkiria, because it was the time, when the development of the ethnic and race genesis processes had closed and taken the unit course.

The Age at Menopause in Relation to Reproductive, Social and Lifestyle Determinants – A Case of Polish Woman

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The purpose of the present study was to determinate the age at natural menopause among Polish women and its relation to woman's reproductive history, social and lifestyle characteristics. Sample under study considered of 5203 women aged from 35 to 65 years and investigated in cross-sectional survey carried out in the West part of Poland in years 1998–2001. Data were collected from the menopause-specific questionnaire, addressed to woman older than 35 years and focused mainly on women aged 45–54 years as it is known that the grate majority of woman has experienced a natural menopause within this age range. Of the 6500 respondents, replies were obtained from 5203, which makes 80.04% of final response rate and meets the requirements of the sample qualities. A descriptive analysis of the data included: menopausal status, median and mean age at natural menopause, characteristics of the reproductive period and social background and lifestyle characteristics. All variables taken into analysis were ordered and ranked with the PCA. It resulted into four factors: I- symptoms of menstruation; II- social determinants such as education, profession, birth and dwelling sites; III- dwelling conditions; IV- reproductive determinants. The number of pregnancies was the complex variable sharing the four factors. It was found that the age at natural menopause, calculated by probit analysis, was 50.31 years. Of reproductive characteristics length of lactation period were consistent for explanation the range of variability in the age at menopause. No relation was found between the age at menopause and lifestyle determinants such as physical activity and health status.

Dietary Habits and Prevalence of Obesity Among Adolescents in Croatia

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The aim of the survey was to investigate nutritional habits and determine prevalence of obesity among adolescent population in Croatia. Survey was conducted on the sample of 1715 adolescents, age 11–14 years from 14 different elementary schools. Regional, urban and rural distribution has been taken into account. The degree of overweight among examined adolescents was graded according to the percentile distribution of their BMIs, respective of age and gender. BMI values between 85–95th percentiles were taken as a borderline values thus identifying preobesity, while values >95th percentile were considered as obesity. Dietary habits and nutritional intake of 620 examinees from all included locations were assessed by application of 24 hr recall and FFQ method throughout the year. Results of investigation indicate that according to the mentioned criteria, 11.5% of boys and 9.4% of girls have increased body weight, while 5.6% of boys and 4.2% of girls age 11–14 years could be classified as obese. Assessment of dietary habits among examined adolescents revealed lower than recommended intake of milk and dairy products as well as fruits and vegetables while at the same time children tend to consume more frequently snacks, soft drinks and sweets. Mean daily energy intake of the examined population group is within the dietary recommendations for this age group. However the results of nutritional assessment and determined prevalence of obesity indicate the obvious need to improve dietary habits and increase physical activity among adolescents.

Comparative Studies in Methods of Assessing of Body Composition

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An increasing interest in the studies on the human body composition is observed in recent years. In particular this applies to the studies on the body fat contents. This results from the increasing morbidity in so-called civilization diseases that show a considerable correlation with overweight and obesity. There are many methods allowing for the assessment of the body composition – ranging from traditional physical measurements (height, body mass) to most modern methods using nuclear techniques. In this study the body composition was assessed by using skin fold thickness measurements as well as by applying bioimpedance method. The study was performed on 278 female students of the 1st year of the Faculty of Pedagogy of the Nicholas Copernicus University in Toruñ. Data collected comprises information on the general living conditions of the participants, as well as lifestyles, physical activity, menstrual cycle, contraceptive use and family history of overweight and/or obesity. All the participants underwent anthropometrics measurements. Three skin folds were assessed for their thickness. The body fat contents, total body water contents and lean body mass were assessed whit the use of Body Composition Analyzer Tanita TBF–300.

The Case of Skeleton Delta From the Ancient Amphissa Cemetery – Possible Cause of Death – An International Hemangioma

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A remarkable lytic lesion of the inner surface of the skull vault was identified in an adult male skeleton of biological age 25–40 years, which was found in the ancient Amphissa cemetery. It has the shape of a circular disk 9–10 cm in diameter, extending from the posterior region of the right bregmatic to the upper right region of the occipital bone. It is due most possibly to a carvenous hemangioma which destroyed the entire inner plate, part of the diploe and a small part of the outer plate, penetrated the cranial wall, leading to the death of the affected man.

Is There Still Place for the Race Concept in Polish Anthropology?

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The usefulness of the race concept in the study of human variation is still a matter of contention in physical anthropology. American anthropologists, for example, increasingly reject race (41% in 1985 and 69% in 1999; Lieberman & Kirk *AJPA* 2002, suppl. 34:102). In the 1999 study, Kaszycka & Štrkalj (*Curr. Anthropol.* 2002, 43:329) tried to assess the attitude of Polish physical anthropologists towards the concept of race, asking, in a questionnaire, whether they agree that »There are biological races (defined as subspecies) within the species *Homo sapiens*«. Then, 31% of respondents agreed, 62% disagreed, and 7% could not tell. The authors concluded that although a majority of anthropologists reject race defined as subspecies, it is possible that they might still support race in other of its many definitions. To test this hypothesis, and to further elucidate the status of the race concept in Polish anthropology, a follow-up survey was conducted, again using questionnaires handed to the members of the Polish Anthropological Society at their 2001 meetings. The participants were asked whether they agree with the statement »There are biological races within the species *Homo sapiens*«. If they answered 'yes', they were then asked which of the 4 basic meanings of 'race' (populational, ethno-geographic, typological, or the subspecies one) they accepted. This time, out of 100 respondents, only 25% rejected race, and 75% accepted it. We sought to find a dependence between the response and several factors; two of them – age and place of education – turned out to be significant. We discuss the similarities and differences (and the reasons for them) between the American studies and our own. We suggest that the status of the race concept in contemporary science cannot be reliably assessed until the meaning of 'race' is more generally agreed on.

Efficiency of Polyglicol Copolymer Bone Replacements in Bone Defects Healing Measured by Densitometry

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The problem of odontogenic aetiology bone defects healing is the most frequent failure cause in surgical treatment of an ostitic process. The aim of this study was to determine successfulness of bone defects healing after implantation of a new alloplastic copolymer-polyglycol bone implant (Fisiograft). A group of 45 subjects with periradicular ostitic process on teeth of the intracanine region was examined. The densitometric measurements were performed on radiovisiographic dental x-ray images made over a 12 months period after implantation. After one year the results obtained were analysed and presented graphicaly. Thirty- eight patients were treated successfully, i.e. 84%, and unsuccessful healing of the bone defects was determined by densitometric measurement in 7 cases, i.e.16% of total number of analysed cases. The results obtained indicate that polyglycol copolymer bone implants can be successfully used in a treatment of bone defects of odontogenetic aetiology. Their fundamental advantage is slower biodegradation, which ensures a more suitable area for the apposition of a new bone in the lumen of the bone defects, simple application in clinical work and the possibillity of a mutual combination of all three available forms.

Ergonomic Analysis of Working Motions During Heavy Work

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Using the scientific approach to ergonomically analyze working motions during heavy work it is possible to encompass all the aspects, which can lead to better work conditions. Method of registering the working motions by video camera was used. Collected data have been saved as the inputs for the simulation of the biomechanical model using the geometry-matrix method on the computer. Kinematical and dynamical relations inside of the biomechanical model have been established, and the results of computed reaction forces and moments reduced to the several critical points of the body have been presented, as well as the influence of the external force on their amounts.

Semi-Automatic Assembling of Skull Fragments

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Due to the destruction caused by the taphonomic processes along the specimen's way from biosphere to lithosphere, most fossil skulls are fragmental. Though the re-assembling of these skull fragments resembles the familiar problem of a jigsaw puzzle, the following additional problems occur: 1) Due to abrasion, fragments often do not match exactly. 2) Parts of fragments or entire fragments can be missing. Starting with CT-data of such bone fragments, points lying on edges of breakage (together with the con-

nection information) are extracted. At each of these points, a discrete feature of the point is computed from its position relative to its neighboring points (e.g., is the point the tip of a dent?) and other information (such as thickness and color of the bone at this particular point). Thus, a fragment is translated to a »word« where the features correspond to letters, and the problem of assembling fragments is reduced to finding two words which have common parts, i.e. to a generalized (sub-) string matching problem. In this talk, we present some preliminary results for artificial data and show how the performance of the matching algorithm depends on (artificial) abrasion and missing parts. Supported by the FWF (Austrian Science Foundation) project number P–14738.

The Dynamics of the Bashkir Population Quantity in the 19th Century

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The earliest census of the population, giving the point of the counting out of the dynamics of the bashkir population quantity during the 19th century, is the 5th one (1795). By the facts of the different researchers, the bashkir population, haven the cattle-breeding mode of production, have been about 90–92 thousand persons by this time. By the moment of the 7th century (1816) the quantity of Bashkirs has increased to 137 thousand persons. That is to say, the increment of the population was 50.5%, or it was 2.4% each year. It was the considerable increase of the bashkir population compared with the 5th census (1795). By the 8th census (1834) the general quantity of Bashkirs have amounted to 193 thousand persons already in this region. The increment of the population was 112% compared from the beginning of the 19th century. Consequently, the bashkir population increased twice during the 38 years. The causes of this based on the state political and economical measures had been taking place during the 19th century. This system was named as the canton administrative one. This system conduced to the natural increment of the bashkir population and to the process of the including strange population into the bashkir ethnic. By the time of the 9th census (1850) the bashkir population has amounted to 250 thousand persons in this region. The increment was 29% during the 16 years, or it was 1.8% each year. Consequently, the rate of the bashkir population increase has slowed down from the middle of the century. The comparative analyses of the agricultural bashkir population quantity dynamics came to the conclusion about the higher population increment. The causes of these were in the special features of this mode of production and it's one of life. And there was more active process of the strange population including into the bashkir ethnic in the agricultural region.

Skeletal Pattern of Class II Molar Relationship in Croatian Population

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The aim of this study is to evaluate frequency of maxillary and/or mandibular prognatism, normognatism and/or retrognatism in Class II patients in Croatian population. Sample consisted of 71 Class II patients and 70 Class I patients, all in the age of 13–16 years. Cephalometric analysis was performed on latero-lateral craniograms of all subjects. In the Class II sample maxillary prognatism and mandibular normognatism was found in 11,3% patients, maxillary normognatism and mandibular retrognatism in 22,5% patients, maxillary prognatism and mandibular retrognatism in 11,3% patients, maxillary normognatism and mandibular normognatism in 7% patients, and maxillary retrognatism and mandibular retrognatism in 47,9% patients. The combination of maxillary prognatism and mandibular prognatism was not recorded among the sample. It is concluded that the most frequent skeletal pattern in Class II patients in Croatian population is bimaxillary retrognatism with dominantion of mandibular retrognatism.

Re-Association of Bones as a Part of Identification Process

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The recent war in Bosnia-Herzegovina took the lives of about quarter million of its inhabitants, many of whom are believed to be the victims of ethnic cleansing. After the war ended, about 30,000 people were unaccounted for missing persons. The organized process of exhumation began in 1996 due to the fact that there was little doubt about what happened to the so-called missing persons. During the past 6 years, through the end of 2001, about 15,000–16,000 cases were recovered. This means about 12,000 individuals. Discrepancy in the numbers is due to the fact that many recovered remains represent incomplete skeletons or bodies. Some cases are just body parts and, therefore, cannot be counted as a whole »body«. In addition, other cases contain commingled bones of several individuals that have to be sorted out, withdrawn or completed into separate cases. Dealing with commingled remains is the greatest challenge for the forensic anthropologist responsible for the post-mortem examination, DNA sampling, and for the identification process. Re-associating bones consumes an enormous part of the time during those preparations. Generally, re-association means matching separately recovered bones to the incomplete remains missing those bones and is based on visual comparison of morphological similarities, such as: general shape and size of the bones; shape, size and location of articulating surfaces; coloring and discoloration of the bones; pattern of attachment of ligaments; size and location of nutrition holes; pattern of osteoarthritic lipping; deformation and remodeling of neighboring bones; pattern of changes in vertebral bodies; age estimation in cases of re-associating upper and

lower parts of the skeleton. Measurements can be used for the comparison of the length of long bones, size of the heads of the humerus and femur, and for calculation proportions between the bones of the arms and legs. Positive comparative DNA results from re-associated bones are the best verifications for usefulness of re-associating process.

Mandibular Bone Mineral Density Changes in Removable Partial Denture Wearers Dependent on the Denture Loading

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Reduction in the height of alveolar edentulous ridge in complete denture (CD) wearers is a well documented problem which depends on various local and systemic factors. However, in the case of distal extension removable partial dentures (RPD), changes that occur less than a year may require attention, as well. Changes of bone mineral density (BMD) in RPD wearers have not yet been documented in follow up studies. The aim of this study was to determine the changes in BMD of the mandible in free-end saddle RPD wearers with dentures of different loading during a six-month period. Twenty RPD patients (5 males, 15 females) participated. The BMD measurements were performed on digitized dental panoramic radiographs (DPR) with a 5 steps copper stepwedge attached to each film cassette. Grey levels of each step of the stepwedge were transformed to optical density values and using the 3rd degree polynomial a regression formula was calculated for each digitized image to express BMD values of the measured region of interest (ROI) in the copper stepwedge thickness equivalents. The difference between the first and the second BMD measurement for each ROI was calculated and t test for independent samples was performed to calculate the significance of the difference between the mucus-supported and tooth and mucus supported lower RPDs. The results revealed that the BMD value of the ROIs at gonion and at the upper and the lower projection of the mental foramen were significantly different between the different denture supported RPDs ($p < 0.05$). The BMD values increased within the 6-month period in tooth and mucus supported dentures, while in mucus-supported dentures the values at the second measurement decreased. The increase in BMD values in tooth and mucus supported RPDs was attributed to the more favorable load exerted from the denture to the denture bearing area due to the indirect retainers, opposite to the unfavorable load from the mucus supported RPDs. Supported by Ministry of Science and Technology, Republic of Croatia, Project No. 065911.

Oral Status, Aesthetic Materials Used and Frequency of Crowns and Bridges in Patients With Fixed Prosthodontic Appliances Living in the Metković Region

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The aim of the study was to examine oral status in patients of the Metković region with fixed prosthodontic appliances. The aim was also to evaluate aesthetic materials used, and difference between the frequency of crowns and bridges dependent on patient's age and frequency of visits to dentist. The examination was performed on 212 dental patients with fixed prosthodontic appliances, from the Public Health Center Metković from February to October 2001. A questionnaire was created for the purpose of this study and was filled in by the patients. The dentist registered oral status. Descriptive statistics and X^2 tests were used for the data analysis. Following conclusions were made: 1. The examined patients had relatively high caries (tooth decay), gangrene and residual roots prevalence, the oral hygiene was not appropriate, calculus and gingivitis were diagnosed in all of the patients (100%) and these facts point out to the insufficient preventive oral health care in the Metković region, as well as to the insufficient self-perception on the proper oral hygiene maintenance. 2. Patients who visit their dentist regularly (once a year or more often) have significantly more crowns than bridges than the patients who visit their dentist irregularly or when in pain ($p < 0,01$). 3. Almost all fixed prosthodontic appliances not older than 10 years were made of porcelain (98%), while acrylic veneer crowns (or chromasite) were more frequent in appliances older than 10 or 15 years ($p < 0,01$). There was no gender difference dependent on the material used ($p > 0,05$). High frequency of porcelain was attributed to the high economic status of this region, as well as to a dentist's preference.

The Characteristics of the Enamel Structure of the Dormice Incisor in the Gorski Kotar Area (Croatia)

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Grey Dormouse is our indigenous game, which belongs to the Rodent order (Rodentia), Muscardinida family (Muscardinidae), Dormouse genus (Glis) and Grey Dormouse specie (Myoxus glis). The dental formula of the Grey Dormouse is: I 1/1, C 0/0, P 1/1, M 3/3. Dormice live in the various habitats, from bush – like vegetations over forests to human premises (hunting lodges, weekend cottages and similar). They eat various food, like seeds, hazelnuts, beechnuts, acorns, walnuts, fruits, insects, bird eggs, bark of trees and even small birds. Morphological and histological features of their teeth are determined by genetic and functional factors. The studies of dormice are extremely

rare in the recent literature, which inspired authors to study morphological and histological features of incisor teeth. 30 dormice gathered from the beginning of May till the end of October from the area of Mrkopalj and Delnice in Gorski Kotar were used as a material. The teeth were taken from the corpses, put into the moulds and cut at thin cuts. With the study the authors tried to determine next parameters: the outer layer thickness, the inner layer thickness, the total enamel thickness, the external index, the inclination of inner layer zones, the inclination of outer layer zones and the location of diazone and parazone in the tooth crown according to a thirds (DPZ 1, DPZ 2, DPZ 3). The enamel of the dormice incisor teeth is of different thickness, and that is why is divided to the inner and outer layer. The results of the study point to some statistically important values in comparison to the statements in the literature. With the parallel study of the incisor teeth of human and dormice, some differences were noticed, which are caused by genetic factors. The incisor teeth of dormice permanently grow and are worn of very fast in comparison to the human incisor.

The Influence of Selected Anthropometric Factors on the Occurrence of the Breast Cancer Progression in Women Subjected to Primary Radical Treatment

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Purposes of the studies. The aim of the work was to determine the usefulness of selected anthropometric traits in the prognosis of the risk of the cancer progression occurrence in women subjected to radical surgical treatment because of breast cancer. Material and method: the analysis included 119 women aged 35 to 79 years who were subjected to the radical treatment (surgical, eventually combined treatment) because of a breast cancer. All the patients were analyzed considering the following indicators: height, body mass, BMI index, Quetelet's weight-height ratio, Rohrer's index, Pignet-Verwaeck's index. In the course of the postoperative observation conducted (the longest period of observation lasted 5 years) 29 cases were noted of local recurrences and/or of dissemination of the cancer. All cases were verified histologically or cytologically. The group of patients with progression of the breast cancer and the group of women without progression of the neoplasm formed the basis of the comparisons of the selected anthropometric indicators. In the statistical analysis the SAS rel. 6.03 programm was used. Results and conclusions: 1. Among the indicators analyzed only the BMI index was statistically significant in the development of the progression of the breast cancer after radical treatment of this neoplasm. 2. It was confirmed that mainly women with a high body mass in whom BMI index was ≥ 30.0 (Pearson's correlation coefficient = 0.93) were threatened with the formation of distant metastases or with a local recurrence after amputation of the breast because of a cancer.

The Significant of Selected Somatic Indicators in the Change of the Concentration of Omega-3 Unsaturated Fatty Acids in the Blood Serum of Patients With Breast Cancer

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Introduction: presently the participation of polyunsaturated fatty acids (PUFA) in the process of the carcinogenesis in the organism of man is mainly linked with the regulatory (agonistic or antagonistic) influence of these acids on the receptors having their own tyrosine kinase. The action of omega-3 PUFA most probably depends on the blocking of these receptors, hence the increase of the concentration of these acids may favor the prevention of the development of neoplasms. It may be asked to what extent somatic indicators can influence the changes of the concentration of omega-3 PUFA in the blood serum, creating the risk of being ill with a breast cancer. Purpose of the study: the aim of the study was to determine the significance of selected somatic indicators in the changes of the concentration of omega-3 PUFA in the blood serum of women ill with a breast cancer. Material and methods: the analysis included 119 women aged 35 to 79 years who were subjected to the radical treatment (surgical, eventually combined treatment) because of a breast cancer. All patients were analyzed considering the following indicators; height, body mass, BMI index, Quetelet's weight-height ratio, Rohrer's index, Pignet-Verwaeck's index. In all patients the chromatographic estimation of the omega-3 PUFA in the blood serum was carried out. The statistical analysis was conducted using the Statistica 6.0 program. Conclusion: it was confirmed that mainly women with a high body mass, obese, and with a stout silhouette, with a strong or very strong build were threatened with low omega-3 PUFA concentrations in the blood serum.

Correlational Study of Young Male Adults' Physical Size and Acoustic Parameters of Voice

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For most of the people it makes sense to relate body size to voice, and particularly to the pitch of the voice. However, the question about their relationship is still unanswered. The purpose of this investigation was to shed some more light on correlation between physiological variables (age, body weight and height) and acoustic parameters of the voice – voice pitch (F0), harmonic-to-noise-ratio (HNR), jitter (JITT), voice intensity (SPL), and formant frequencies (F1-F5). Subjects for this study were 20 healthy young adult males. Their mean age was 23 years. Six were smokers and 14 were non-smokers. (This factor was controlled in correlation calculation.) The voices of the subjects were recorded in a quiet laboratory room. The phonation task was based on pro-

longed phonation of the vowel /a/ performed three times by each subject. The subjects' weights and heights were obtained prior to voice recordings. Acoustic parameters were analyzed using the PRAAT computer program, version 4.0.19. The partial correlation coefficients between all variables, controlling for the linear effect of smoking, indicated statistically significant correlations between some acoustic parameters themselves (F2-F3, F0-F4, JITT-HNR, F5-SPL), and between age and mean frequencies of the third formant, the fifth formant, and voice intensity respectively (AGE-F3, AGE-F5, AGE-SPL). Furthermore, significant correlation was found between body height and pitch of the voice (HEIGHT-F0). However, the latter coefficient, being positive, was more difficult to interpret. The current findings present the preliminary data of a larger project of that kind, so the results must be taken with caution.

Influence of Body Mass Index, Nighttime of Denture Wearing and a Period of Being Edentulous on the Rate of Alveolar Ridge Resorption in Complete Denture Wearers – A 1-Year Study

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Alveolar bone loss (RRR) is a continuous process following tooth extraction, more pronounced during the first few month after the tooth extraction. The RRR in the mandible is twice that of the maxilla during a 1-year period and the mandibular: maxillary resorption ratio increases further to 4:1 after 7 years. The RRR stops after ten years in the upper jaw, while it is continous in the mandible. Some studies on the RRR revealed that the mean rate of RRR was approximately about one mm/year. The RRR results in reduction of face height and counterclockwise rotation of the mandible. The etiology of RRR is still not elucidated. It is supposed that both, systemic and local factors contribute. The aim of this study was to analyze RRR in different regions of the both jaws on lateral cephalograms of 100 complete denture wearers and to correlate such changes with number of years edentulous, nighttime wear of dentures and body mass index. The height of residual ridges was measured on 5 different sites at the delivery of the dentures and a year later using a calibrated grid. The results revealed significant RRR in one-year period ($p < 0.01$), which was 2.5x bigger in the mandible than in maxilla. RRR was higher in patients who had their last extraction within a period of one year than in patients who had extracted their teeth earlier ($p < 0.01$). Nighttime denture wearing and body mass index made no significant influence on the rate of RRR ($p > 0.05$). Higher rate of RRR was recorded at frontal sites of maxillary and mandibular residual ridges compared to lateral sites ($p < 0.01$).

Bodily Characteristics and Lifestyle of Czech Children Aged 7.00 to 10.99 Years – Incidence of Childhood Obesity

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In 1999 – 2000 in the Czech Republic a survey of the prevalence of obesity was made. The assessment was made by the transversal method in elementary schools in all regions of the Czech Republic. Children aged 7.00 to 10.99 years were investigated. The survey comprised a total of 3362 children (1668 girls and 1694 boys). A total of 12 anthropometric dimensions were recorded and questionnaires addressed to the children and parents were analyzed. From the results ensued that the ratio of obese children of both sexes in the CR (i. e. children with BMI values above the 97th percentile of the reference population) increased. This zone comprises 6.0% boys and 5.6% girls of the investigated group. An important finding was also the increase of mean values of the abdominal circumference of the children in all age groups in both sexes. The ratio of obese children in different communities is related unequivocally to the size of the community. In smaller communities there are more obese children (according to our data 6.9%) and in large towns the ratio of obese children is 2.3%. In large towns there is also a greater proportion of thin children – 12.1%, in small communities 8.6%. In was found that there is a higher percentage of obese children in families where the mother has elementary education as compared with children of mothers with secondary and university education. Mothers with elementary education have 9.6% obese children while university-educated mothers have only 3.7% obese children. Analysis of the dietary questionnaires revealed that only 62.9% children in large towns eat breakfast, the position in villages is similar – 63.9%. In the group of children with excessive body weight fewer children have breakfast (only 54.1%), in the group of children with a low body weight the majority eat breakfast (75.3%). The majority of children have a mid-morning snack at school, which they bring from home. As regards school lunch the majority of children from large towns replied that they have lunch at school. The number of rural children who had school lunch was smaller. Less than half the children take an afternoon snack in different groups.

Children Conceived by in Vitro Fertilization – Weight and Head Circumference in the First Six Months of Postnatal Life

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Weight and head circumference of 103 boys and 97 girls conceived by in vitro fertilizations, born between 1996 and 1999, were examined during the first six months of their postnatal life. The measurements were compared to the European standards for full term children (Haschke et al. Euro Growth Study – J. Pediatr. Gastoent. Nutr. 2000,

31) In general, the children studied did not show any significant deviation from the mean value of the standards. In particular, this is true for all the girls in the group once their chronological age was corrected for their gestational age, for singletons and twins alike. For girls-singletons even at their chronological age, growth deficit in relation to the standards turned out to be insignificant. For the boys, only during the second and third month after birth the mean of body mass and head circumference appeared to be significantly lower than the mean of the European standards, for singletons. As expected twins continued to be smaller up to six month after birth. They were smaller at birth in comparison to European standards after correction for gestational age. However, also in male twins deficit in body mass and head circumference gradually decreased and their catch up growth terminated at the age of six months. At that time they did not differ from means of the standards. In the study, no differences in the growth and physical outcome between children conceived by IVF and by ICSI technique were detected.

Stress Under Modernization in Aboriginal Communities of Western Siberia

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The pressure of »modernization« stress on the aborigines of the North of Western Siberia was evaluated. We compared parameters of inhabitants of small (population less than 500 persons), large (500-3000) settlements, and the town (about 35000). The examined native population was divided into three social groups. Among residents of settlements, the representatives of »traditional« and »modernized« style of life were chosen. The third group is students who have been moved to the town for a studying. The share of the respondents with high level of anxiety is big in all the social groups (64%, while in samples of Russians it does not exceed 40%). The psychological manifestations of stress are combined with the physiological responses: blood glucose concentration correlates with level of anxiety ($r = 0.40$). The average arterial blood pressure (ABP) of the small settlements' inhabitants is lower ($p < 0.05$) than that of large settlements. In the »modernized« group the average ABP level is higher ($p < 0.05$) then in the »traditional« group. Blood glucose concentration increases as people diverge from »traditional« lifestyle. Glucose intolerance among the rural aborigines occurs in 8.6% but for those who have moved to the town it is 15%. Among the native students and rural representatives of »modern« trades, the mean values of glucose concentration are higher ($p < 0.05$) than in those who oriented on hunting and fishery. Our data testify that urbanization and »modernization« of the native people are accompanied by an increase of manifestations of stress. The native northerners, who are transferring to living in large settlements with ethnically mixed population or towns, are under the biggest pressure. Acknowledgements: This study was partly supported by the John D. and Catherine T. MacArthur Foundation (grant 00–62622–000)

Palaeoepidemiology of the Degenerative Changes of the Human Spine in the Medieval Populations From Poland

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The analysis involved 360 male and female skeletons of adult individuals found at the site in Gruczno (North-Central Poland). The material was archeologically dated to 11th–14th c. Degenerative changes of the spine were observed macroscopically. The following changes were analyzed: osteochondrosis, osteophytes and traces of Schmorl's nodes. The results of study were compared with the data described on the other Polish medieval skeletal populations from Ostrów Lednicki (Swedborg 1974), Cedynia (Piontek, Piekarz 1999) and Kaldus (Kozlowski, Walczak 2000). Additionally this data was matched with the frequency observed in aggregate skeletal series from Lithuania (Jankauskas 1992). Distribution of degenerative changes of the spine was similar in all compared populations. This phenomenon was characteristic for males and females. Highest frequency of the changes was noted on the middle and lower thoracic segments of the spine (traces of Schmorl's nodes and ostephytes) and on the apexes of the physiological curvatures of the cervical and lumbar segments of the human spine (osteochondrosis). Generally highest percentage of the traces of degenerative lesions and spondylosis were observed in the medieval rural population from Cedynia and Gruczno.

25 New Microsatellite Loci on Human Chromosome Y

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The DNA sequence of human chromosome Y available in public databases was screened for tetra- and pentanucleotide repeats suitable for DNA typing using the PCR method. Of the many microsatellites tested, the selected 25 satisfy the following criteria: i) regular, non-interrupted repeats; ii) no specific amplification with female genomic DNA; iii) a single band from male genomic DNA; iv) identical PCR amplification conditions; v) amplification products in the size range from 150 to 230 bp; vi) separation of all alleles on 4 cm long Spreadex gels under identical electrophoresis conditions, and vii) allele sizing accuracy of 1 bp using a digital gel analysis system. With 25 Caucasian genomic DNA samples, the number of alleles per locus varied from 1 to 8, giving a combined exclusion of over 10^{13}. The new loci were named according to their current position in kilobases on chromosome Y, for example CYKB 4236. Each locus is described also by its sequence and position of two known flanking markers. When using Spreadex S-100 gels, 100 samples can be run in 80 min. After electrophoresis the gels are stained with SYBR Gold, avoiding the use of radioactive or fluorescent labels. The combination of these new microsatellite loci with Elchrom electrophoresis and imaging system represents a high throughput, low cost alternative for various genotyping applications.

Fingerprint on the Venus of Dolní Vestonice I (Pavlovian, 25,000 BC)

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The Venus of Dolní Věstonice I (Pavlovian, 25,000 BC) was discovered on 13th July 1925 in Dolní Věstonice, South Moravia (Czech Republic), during Moravian Museum excavations. The figurine from fired clay, about 11.5 cm high, represents a woman of a plump figure. More than 75 years after discovery a fingerprint on the left-hand side of the figurine back was analyzed. The dimensions of the fingerprint are 3 x 5 mm and it is possible to recognize seven lines. The structure was identified as human friction skin negative in accordance with minutiae, ridge breadth and other markers as well. Papillary ridge breadth correlates with the age during growth period of an individual. Original method for the age estimation from fingerprint ridge breadth was elaborated and used to estimate the age of an originator of the fingerprint. The ridge breadth varies from 0.34 to 0.43 mm with average of 0.37 mm. The estimation of age is 11,13 years. With respect to the preciseness and limits of the method the age of the fingerprint originator was somewhere between 7 and 15 years. The estimation is valid in case the age/ridge breadth relation in Paleolithic was similar to the recent one. It is also important to realize that the originator of the fingerprint may not be identical with the creator of the artifact. It is quite hard to believe that such a figurine as the Venus of Dolní Věstonice I could have been a work of beginner or even child. However, this approach has great potential to specify social circumstances of ceramics production.

Peculiarities of Dermatogliphic Rates of the Population in Belgorod Region, Russian Federation

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At modern stage of anthropology, topicality is dermatogliphic marker of human constitution as determine rates of its development. There is enough information about dermatogliphic (skin patterns) of nationalities from the former USSR in the scientific publication. The purpose of the research was to determine the peculiarity of dermatogliphs of the hand fingers distal phalanxes in the population of the Belgorod region, Russian Federation. To our point of view the obtained results of the investigation can expand the available sources of dermatogliphic data in different regions of Russian Federation. 1000 people (500 female and 500 male) of the Belgorod region at the age from 15 to 22 were put to the test. The dermatogliphic of the hand fingers distal phalanxes were studied, using the technique of Dr. T.D.Gladkova (1986). Then quantitative (TCC- total crest counting and LCC- local crest counting) and qualitative (pattern forms) analyses of skin pattern prints were fulfilled. Sexual dimorphism of studying rates was revealed on evaluating of dermatogliphs. Predominating compound skin patterns forms as helix and central pocket with increasing of local and total crest counting and maximum manifestation of present descriptions right hands fingers are characteristic for male. For female, the simple skin pattern forms as arch and ansa (with maximum quantitative characteris-

tic in ansae patterns) are defined by the greatest frequency. Typical indications for the population in Belgorod region are frequent manifestations of arches and ray ansae on II fingers, ulnar ansae on V fingers, double ansae on I fingers and central pocket pattern on IV fingers of the both hands. Thus, obtained dermatogliphic data have revealed typical structural peculiarities of skin patterns on distal phalanxes of the hand fingers. It allows delimiting human sex and defining common dermatogliphic characteristics of the population in Belgorod region. Presented information may be recommended for the foundation of dermatogliphic pattern on hand fingers of indigenous population on the studying territory.

TW3, TW2 and GP Methods – Comparison of Assessment of Skeletal Maturity

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Assessment of skeletal maturity is used for diagnostics, therapy control and for final height prediction in diseases associated with linear skeletal growth alterations and also in growth diagnostics of healthy individuals. There are three methods used in clinical practice today: GP method (»atlas matching«, Greulich, Pyle, 1959), the TW2 method and its new version TW3 (»point scoring system«, Tanner et al., 1975, Tanner et al., 2001). We compared the known discrepancies between TW2 and GP with results obtained by TW3. 117 radiographs of hand and distal part of forearm of various age categories both sexes of early or late maturing individuals and female patients with anorexia nervosa were available. Different results dependent on age of the individuals have been observed: at the age of 2.0–8.9 there is no significant difference between TW2/RUS and TW3/RUS and TW3/RUS and GP method resp. in both sexes. At the age of 9.0–16.9 we found significant differences between TW2/RUS and TW3/RUS values, in average 1 year: TW3 values lower by 0.95 year in girls (SD = 0.092, p = 0.007), 1.06 year in boys (SD = 0.346, p = 0.036). Very good accord of values of bone age was assessed by GP and TW3/RUS methods, the average difference was only 0.04 year (SD = 0.486, p = 0.939) for both sexes. From the clinical point of view (multicentric studies, therapy monitoring etc.) we recommend to abandon the TW2 method and to use the TW3 method based on recent reference data. The different results of TW2 and TW3 methods are given by their construction. We recommend the GP method for common pediatric practice where exact evaluation is not required. For the exact evaluation we prefer the TW3 method (scoring of multiple parameters gives results exact in 0.1 of a year).

Leptin, Body Fat and Menarche in Girls

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It was established that a certain threshold of body size is necessary before the reproductive system becomes active. Recently, leptin, a hormonal product of fat cells was discovered. The aim of the study was to investigate the relationship between fatness,

serum leptin concentration and the age of menarche in girls during puberty. One hundred and twenty six healthy girls aged from 10.4 to 15.4 years, in third and fourth pubertal stage were included into the study. Body fat was estimated using BMI and the thickness of skin folds at the triceps site, sub scapular site and on abdomen. Serum concentration of leptin was assessed by RIA method. To obtain information about the sexual development of girls in the third stage, 57 of them, that were before menarche during the first examination were personally interviewed after one year and the event of menarche was noted. Leptin strongly correlates with the thickness of the skin folds and BMI. The anthropometrical parameters assessing fat status and mean serum concentration of leptin in girls in the fourth stage (6.55 ± 4.34 ng/ml) and in menstruating girls in the third stage (6.09 ± 3.09 ng/ml) were statistically higher ($p < 0.001$) than in girls in the third stage, that were before menarche (4,24 ± 3.37; $p < 0.04$). We had not observed the differences between anthropometrical parameters and serum leptin concentration in girls that reached menarche during one-year observation period and in girls that were still before menarche. On the basis of body fat status and serum leptin concentration is not possible to predict the time of reaching the menarche.

The Imbalance Between the Top and Bottom Teeth Row of Equus Spp.

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The imbalance between the top and bottom teeth row is frequent and well studied condition in human dentistry. It is not so frequently found when it comes to animals, included Equus spp., with the exception of so called »sharp teeth«. The aim of the study is to highlight the specific case of pronounced exuperantio dentinum in male horse (Equus caballus L) from the Comparative bone collection of Department of Anatomy, Histology and Embryology, Faculty of Veterinary Medicine University of Zagreb. Detailed RTG scan of the jaw and adjacent bones were conducted in order to find the cause of irregular built teeth row. That kind of condition has not been noticed on any horse (30) used for the purpose of study during the past five years or on none (50) scull from the above mentioned Comparative bone collection.

The Importance of Teeth in the Analysis of Animal Remains From the Archaeological Site of Vučedol, Croatia

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The analysis of animal remains (1502 samples) found at archaeological site Vučedol, Baden Culture, has confirmed 85 individual animal teeth and broken bits of teeth as well as 156 fragments of lower and upper jaw. Those remains help with the identification of animals species that were native 5500 years ago at the above mentioned Site. The bite marks that were found on the other bones and bone fragments were used for very same identification purposes. The pattern on occlusal surface tells us whether one or more animal is in question. It also gives us idea about body mass (Canis spp.). The existence or the lack of certain teeth gives a clue about the sex of that particular animal (Equus spp., Sus spp.). The condition of the teeth row may indicates the age at which the particular animal has died and therefore explains the reason for keeping the animal at the first place (Cervus elsphus L., Suus spp.). All those facts are of great importance when it comes to defining the animal species, biological link between the populations as well as economic development of prehistoric societies.

Analysis of Occlusal Traits Through the Analysis of Twins and Inbred Population

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The most of dental and occlusal traits are polygeneticly and multifactorially determined and hereditary analysis can provide valuable information regarding the etiology of malocclusions. Twins analysis is frequently used tool to obtain genetic influence into developing dental and facial characteristics as well as to evaluate interactions between »nature« and »nurture«. In population that is characterized with high rate of inbreeding, if some of recessive genes are mutated and/or responsible for some disturbances in occlusal relationships, prevalence of such deteriorated traits is expected to be higher in inbred than in general population. Occlusal traits were recorded in the sample of monozygotic and dizygotic liked-sex twins, siblings, inbred population and the panmictic reference population. All children were in the age of mixed or early permanent dentition. In monozygotic twins mirror imaging of occlusal traits was observed. Our find-

ings suggest important genetic role onto development of occlusal traits, especially on arch width and length.

Extra Teeth in Medieval Danish Graves

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Teeth have been subject of religious belief and superstition in many societies both in the past and in the ethnographic present. Teeth from holy men and women have been considered of particular value and thought to possess great magic properties. In general a »dead-mans-tooth« was seen as extremely powerful. Old superstition has told that even a tooth from an animal in the grave would ease the admittance to heaven for the deceased. The purpose of this research is to elucidate the importance of such beliefs by studying the occurrence of extra teeth in medieval graves. A total of 220 skeletons form the Medieval and Early Modern cemetery under the present day square Storetorv in Århus form the material for this research. Storetorv is situated just in front of the cathedral and the excavated cemetery is part of the area laid out for burials from the cathedral. The whole sample is characterized by age estimated through the transition analysis method sex assessed from visual inspection of all parts of the skeleton, and as an indicator of dating of the burial, position of the arm in relationship to the rest of the body in the grave. The presence of extra teeth be it human or animal teeth in the graves is analyzed and contrasted with the distribution of other finds in the graves. Possible spiritual beliefs creating the patterns observed are discussed and written sources about burial and grave magic in Medieval Denmark.

A Hun Skeleton With Intentionally Deformed Skull From Ptuj, Slovenia

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During preserving archaeological excavations of late antique necropolis at secondary school center in Ptuj in September 2000 a skeleton buried in the Roman limekiln was found. According to grave findings (iron sword, bronze ear-ring with gilded endings) it belongs to a Hun from the middle of the 5th century. The Hun origin is supported also by artificially deformed skull of this skeleton. The custom of intentional cranial formation was practiced among Crimean residents and sporadic cases are reported from migration period necropolises throughout central Europe. In Slovenia the findings of artificially deformed skulls are not frequent, till now reported only from two Lombard-age necropolises, Kranj-Lajh and Ljubljana-Dravlje and in both cases linked with Ostrogoths. Standard anthropological analysis of the skeleton was carried out. It belongs to a young male of 25 years of age. The skull was intentionally formed using circular band and additional band over the vertex, resulting in short and very high cranium that is brachycranic, hypsicranic, acrocranic and stenometopic. The face is short and broad, hypereuryprosopic with mesokonch orbits, leptorrhin nose and wide mandible. Postcranial features show a graceful build with weakly expressed muscle attachments and under average stature of 162 cm. The degenerative changes of the spine (the first stage

of osteoarthrosis and Schmorl's nodes) are atypical for this age and probably result of mechanical loadings. Two rare epigenetic traits were recorded; infraorbital suture and six-cusped lower molars. Etiology of anomalies found in the base of cranium (asymmetry in the size of oval foramen and round empty hollow in the place of right jugular fossa) is unknown, further investigation will be needed.

Primate Socio-Ecology – A Diversity of Models and Applications to Human Evolution

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The anthropoid primates live in maintained social groups, which act as units to solve problems of resource acquisition and defense, to avoid predation, and to ensure reproduction and infant survival through parenting roles. Models of why such a diversity of groups exists, and of how the interactions between members of a group in relation to social knowledge have been extensively applied to patterns and processes in human evolution. It is argued here that principles from life history theory and reproductive ecology can be used to explore trends in human evolution, while at the same time reflecting specializations amongst the different primate lineages for specific solutions to an array of local ecological problems. Life history variation among the primates is associated with reproductive rates, male-female patterns of association and dispersal, and intra-group dynamics. Shifts in the tempo of life histories can be observed between different primate families, many of which are related to the resource base and affect male-female relationships. How these diverse primate patterns apply to the human lineage over evolutionary time will be explored in a comparative analysis of primate socio-ecology and life history.

The Hmong of French Guiana

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In the year 1975, 1000 Hmong making up 153 families from Laos and VietNam were offered migration to French Guiana. Climatic change, travel, deforestation in Guiana, building of houses and agricultural laboring were meant to generate a very hard stress and health problems amongst these people which originated from mid-altitude mountains. A bioanthropological survey was set up in 1980 focusing on nutrition, growth of children, transmissible diseases and general conditions of hygiene. The results demonstrated surprisingly a good quality of life and health. Symptoms of critical pathology were detected with low frequency even for ageing people. To better understand such a good biological adaptation, attention was given to more complex factors such as socio-cultural, economic and political. This human ecological approach explained perfectly how the Hmong managed, with the help of French Government, such a successful transplantation mainly through the maintenance of many parameters of their traditional ecosystem in terms of religion, teaching, production, family relationships and housing quality. To conclude the future of the Hmong of French Guiana is ecaluated.

Malocclusions in Children With Deciduous Dentition

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A sample of 311 children from the area around Poreč in Istria (177 boys and 134 girls aged 3.5–5.5 years) (177 males and 134 females) were studied in order to verify the frequency of orthodontic anomalies in each of the three spatial dimensions, the early loss of the posterior deciduous teeth (c, m_1 and m_2), congestion of the incisors, and the habit of finger-sucking (confirmed by parents). Orthodontic anomalies were found in 46.94% of the children, early loss of c, m_1 or m_2 in 11.25%, the habit of finger sucking in 10.29%, congestion of the incisors in 11.89%, and occlusal anomalies in 40.83%. The most common occlusal anomalies were of the sagital-vertical type (18%), followed by vertical (9.33%), sagital (8.68%), transversal anomalies (2.89%), and finally by sagital-transversal, sagital-transversal-vertical and transversal-vertical anomalies (0.64%).

Perishing Paradigm – Race 1930–1999

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Matt Cartmill, past president of the American Association of Physical Anthropology, has recognized the lack of »intellectual support for the race concept, for racial classification, or for social hierarchies based on ethnic-group membership« (1998:651). He supports his conclusion by analysis of research published in the American Journal of Physical Anthropology (AJPA) in alternate years, from 1965 to 1995, and including 1996. He reports that only about 34 percent of articles used the race concept in 1965 and 35 percent did so in 1996, and that there was no significant trend between these dates. We redefined his criteria, re-analyzed the articles for 1965 and 1996 and added those published in 1930–31. In 1930–31 we found 67 percent of articles dealing with human variation utilized the race concep, 36 pecent did so in 1965, and 28 percent in 1996. We also compared his finding to two series of our own studies. In our series of questionnaries, responding physical anthropologists in the United States increased their rejection of the race concept from 41 percent in 1985 to 69 percent in 1999. Our updated content analysis of textbooks of introductory physical anthropology covered 1932 to 1999. In the decade of the 1990s only one text continued to support the race concept (Campbell 1998). Our findings indicate greater increase in the frequency of physical anthropologists who reject the race concept in the 1980s and 1990s than Cartmill' study reported. We discuss the possibility that these studies were based on population that differed somewhat from each other. However, all of the studies confirm that support for the race paradigm has declined in physical anthropology in the United States.

The Questionnaire for the Evaluation of the Ergonomic Aspect of Working at the Computer

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For the purpose of Risk Assessment related to the place of work, the company »Ericsson Nikola Tesla d.d.« prepared a questionnaire for the assessment of the workplace that includes the ergonomic aspect as well. Based on the obtained data every workplace with indicated shortcomings shall be evaluated separately, both from employee's point of view as well as considering the equipment – computer, auxiliary equipment, office furniture. The obtained results are shown in the paper.

Genetics of Skeletal System Aging – Biochemical Indices of Bone and Cartilage Metabolism

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The present research was driven by a clinical problem of osteoporosis (OP) and osteoarthritis (OA). OP in practical terms is a problem of excessive skeletal fragility leading to trauma fractures in the elderly. OA is a degenerative joint disease, which is mostly caused by erosion of articular cartilage and is in particular common in older persons. Our research results obtained until the present moment can be divided into 2 sections: 1. Genetic analysis of bone mass characteristics and Kellegren-Lawrence traits of OA, and 2. Pedigree based study of plasma levels of calciotropic hormones, growth factors, cytokines and biochemical indices of bone remodeling. In this part of the study we used some 150 nuclear pedigrees of ethnically homogenous Caucasian origin. Model fitting technique of the quantitative genetic analysis was implemented to reveal effects of age, sex, sex hormones, latent environmental factors, and genetic sources on variation of each of the studied variables and covariation between them. The obtained results indicated strong involvement of the putative genetic factors in determination of circulating levels of the majority of the studied biochemical indices. Thus, narrow sense heritability estimates for PTH, 25(OH)D, osteocalcin, IGFBP-3, TIMPs, $TGF_{â}$, TNF_{α} and M-CSF, ranged between 0.30 and 0.60, but was virtually zero for IL6. Major gene effect was clearly inferred for some of these variables especially for 25(OH)D, PICP and IGFBP-3. Genetic relationships between the studied biochemical indices, as well as between them and bone aging traits were complex. The pairwise genetic correlations varied very substantially in extent (from 0.00 to 0.60). Further extensive research is needed in this field to clarify the situation.

Genetic Aspects of Early and Adolescent Human Growth

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Child growth is the result of the interaction of many regulatory factors, both hereditary and environmental. Although often the discrimination between these factors in purely genetic or environmental is difficult, a number of recent studies attempted to evaluate the contribution of the putative genetic factors. The modern quantitative genetics and genetic epidemiology utilizes various maximum likelihood based techniques that include variance component and path analyses, complex segregation and linkage analyses. The aim of these methods is to evaluate the extent and pattern of the quantitative trait inheritance, and possible chromosomal location of the corresponding genes. The literature survey showed that there are virtually no studies reporting the chromosomal location or even attempts to map the genes responsible for human growth. However, there are a few publications, including ours, which have used model-fitting statistical technique to examine the genetics of growth pattern and rate in twins, siblings and more complex pedigrees. The majority of studies implemented two main approaches to describe longitudinal growth pattern, using the repeated measurements of the same individuals: 1. principal component analysis (PCA), and 2. curve fitting models (e.g. Preece-Baines Model 1, PB1). It should be emphasized that what little has been published, clearly suggested strong narrow sense heritability estimates ($h^2 = 0.50$) for various parameters of PB1 (such as age, or stature, or velocity at take off/peak height velocity) of growth curves and PCs. In several instances h^2 estimates were = 0.90(!). These results were obtained on samples of different ethnic origin and using different methods of statistical analysis. It is obvious that since the obtained h^2 estimates are consistently high, there are good prospectives for successful linkage and genetic-molecular study of human grow.

Mitochondrial DNA and Y Chromosome STRs Variation in Shona From Zimbabwe

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We have investigated the variability of mitochondrial DNA and Y chromosome microsatellites in a sample of 60 Shona from the highlands of Zimbabwe, in Southern Africa. The HVRI region was sequenced from 16024 to 16400, and RFLPs screening for the diagnostic sites involved in the Bantu expansions was also performed. Six STRs (DYS19, DYS389II, DYS390, DYS391, DYS392, DYS385) of the Y chromosome were analyzed. The results are compared with data available on mtDNA and Y STRs in sub-Saharan African populations by means of phylogeographic and philogenetic approaches. The aim of the study is to unravel the genetic history of the Shona population. In fact, little is known about the origin and the age of the different migrations involved in the Bantu agricultural expansion in this southern region of Africa. The degree of admixture between the Bantu-speaking incomers and the Koisan-speaking populations that inhabited the region prior to their displacement is analyzed. Moreover, an estimate of the different contribution of paternal and maternal lineages is presented.

Y-Chromosome Diversity in Sub-Saharan Africa Populations

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Y-specific loci are extremely useful tools for tracing the origins of the genetic diversity present in human populations. The Y-chromosome biallelic markers (SNPs) are very sensitive to genetic drift and thus, exhibit an increased level of population subdivision. It has been demonstrated by recent studies that the frequency distribution of Y-SNP haplotypes reflects substantial geographic structure. Another advantage of these markers is that the majority of the mutations creating the polymorphisms are believed to be unique events, and thus inferential complications associated with other genetic data (mtDNA, STRs) due to recurrence or homoplasy are avoided. This permits the construction of an unequivocal haplotype phylogeny and facilitates phylogeographic interpretation with respect to the haplotypic distribution. In this study we have carried out the analysis for a set of 177 markers of several African populations. Because a well-established hierarchy of mutational events allows the correct inference concerning the allelic status of many of Y SNP loci, only 47 markers have been directly typed. The populations studied in this work were sampled in Kenya, Tanzania, Cameroon, Rwanda and Benin. The central objective of this investigation is to characterize non-recombinant Y chromosome diversity and use it to infer population relationships and trace microevolutionary patterns in Sub-Saharan Africa. We observe distinct geographic structure with respect to genetic differences among the sampled populations including a west to east gradient that may be related to the influence of Bantu expansion in the demographic history of Sub-Saharan Africa. This work was partially supported by NIH grants: MBRS SCORE GM 08205, MBRS RISE GM 61347, MARC U-STAR GM 08771.

Nature or Behavior? An Answer to the Question of Male Excess Mortality Through a Comparison of Monastic and General Population

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There is a still undecided discussion whether sex differences in mortality with their increase in time are caused by biological or behavioral factors. Employing a study of 8,400 Bavarian Catholic nuns and monks the overall mortality and especially the sex differences in mortality for the monastery and the general population are calculated and compared to each other. Since there are no behavioral differences between nuns and monks, an examination of sex differences in mortality in the monastery population enables to observe the impact of biological factors separated from the effects of behavioral sex differences, which is impossible in the general population. In order to compare the mortality of these populations, life tables for the time periods 1910–1940 and

1955–1985 for Bavarian nuns and monks were constructed using Chiang´s method and analyzed in comparison to the complete German life tables of 1924/26 and 1970/72. Whereas sex differences increased rapidly in the general population from two to more than seven years since World War II, these differences remained unchanged in the Bavarian monastery population for the whole observation period from 1910 to 1985 at a small level of 0–2 years in favor of nuns. This difference between the monastery and the general population solely results from the lacking improvements in mortality for German males who are not able to follow the trend of rapid mortality decrease in women, nuns, and monks. Biological factors should thus not be seen to be responsible for the growing gap in male and female mortality. But even in a population without behavioral differences between men and women still persists a small female advantage in longevity, which could actually have a biological origin.

Gonadal Dysgensis and Molar Features

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The aim of this study was to identify the molar occlusal features in 73 subjects with the Turner syndrome (TS) and a control group (CG) numbering 322 healthy females. The occlusal features were scored on dental plaster casts using the Scoring Procedures for Key Morphological Traits of the Permanent Dentition: the Arizona State University Dental Anthropology System (ASU). The results were analyzed through frequency, percentage and x2 test. Triangular occlusal contour was more frequent on the upper left third molars (TS 80.00%, CG 72.92%). Rhomboid occlusal contour was found only on CG upper third molars. TS upper second molars have frequent triangular occlusal contour (left 52.00%, right 59.09%), CG (left 34.16%, right 39.75%), rhomboid was found in TS (left 40.00%. right 36.36%), CG (left 58.08%, right 54.04%). Distolingual cusp was more frequent on CG (left 66.77%, right 60.25%); TS (left 52.00%, right 45.45%). Upper second ($p < 0.01$) and first molar ($p < 0.05$) H occlusal groove pattern was more frequent in CG. Lower third molar distal cusp is more frequent on CG (left 36.04%, right 36.07); TS (left 9.09%, right 0.0%). Lower first molar distal cusp is more frequent in CG (left 71.63%, right 70.99%), TS (left 57.14%, right 58.33%). TS subjects have more frequent reduction of the cusp number, distolingual on the upper molars and, distal cusp on the lower molars. Furthermore, the reduction of the occlusal surface, and loss of the molar occlusal H groove pattern is significantly frequent on TS sample. The X chromosome aneuploidy can cause a decrease in developmental homeostasis, which results in the alteration of apposition of the enamel and in consequently substantial changes of the molar occlusal morphological features.

Malocclusions in Primary and Permanent Dentition – Longitudinal Study

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The aim of this study was to examine the stability and changes in orthodontic anomalies (Class II/1, Class II/2, crowding, premature loss, mesial occlusion complex, open bite and cross bite) in children with no previous orthodontic treatment, longitudinally followed up from primary to permanent dentition. Two hundred and forty-six subjects were longitudinally followed (132 boys and 114 girls) in whom orthodontic anomalies of primary dentition were determined. In 49.1% of cases Class II/1 persisted from primary to permanent dentition, changed to normal occlusion in 9.1% and remaining cases changed to: crowding, Class II/2, premature loss, open bite and other anomalies. In 87.5% of cases Class II/2 persisted from primary to permanent dentition, and remaining cases changed to crowding. In 45.2% of cases crowding anomalies persisted from primary to permanent dentition, 16.2% changed to normal occlusion and remaining cases changed to: premature loss, cross bite, mesial occlusion complex, Class II/1, Class II/2 and open bite. In 46.7% of cases mesial occlusion complex persisted from primary to permanent dentition, in 20% of cases they changed to normal occlusion, and in remaining cases to premature loss. In 17.8% of cases open bite persisted from primary to permanent dentition, 17.8% changed to normal occlusion and in remaining cases changed to: crowding, Class II/1, Class II/2, premature loss and cross bite. In 21.4% of cases cross bite persisted from primary to permanent dentition, 28.6% of cases changed to normal occlusion and in remaining cases changed to: crowding, premature loss and mesial occlusion complex. With regard to stability and changed diagnoses in all anomalies gender differences were not statistically significant.

PCR Amplification of Mycobacterium Leprae DNA in Skeletal Remains From XII Century

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Destructive arthropathy of foot caused by leprosy is widely described in literature. Descriptions of this pathology in ancient remains are also available, however, detection of DNA from Mycobacterium leprae to confirm the diagnostic is very scarce. In this work we present 4 cases of hansenian arthropathy of foot, diagnosed by osteological criteria (lesions in palatine, tibial periostitis, acroosteolisis, etc.) in three men and one woman from the Islamic necropolis of the »Capilla y Castillo de San Jorge« (Córdoba, Spain), dating from XII century AD. DNA from several samples of each individual was extracted following strict procedures previously established in our laboratory to avoid contamination. Primers to amplify fragments from de repetitive element RLEP specific of M. leprae were designed. The primers amplify fragments of 149pb and 97pb that can also be used for Nested PCR. Samples from two individuals showed positive amplification, being the identity of the amplified fragments assessed by restriction enzyme anal-

ysis and direct sequencing. The authenticity of our results is discussed in light of the criticisms done to previous works in which ancient DNA techniques were used to detect DNA from pathogenic microorganisms.

Reaction Time Task During EXG Paradigm in Chronic Schizophrenia Patients

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In this study, the reaction time towards an imperative S2 tone during the EXG paradigm was measured. 30 patients with chronic schizophrenia divided in 2 subgroups (14 out-patients and 16 in-patients) and 30 healthy controls aged 25–40 years were tested. EXG paradigm is an electrophysiological procedure (S1-S2-MR) for eliciting an oscillatory brain process which reflects the dynamics of the CNV brain potential when the appearance of S2 tone in the paradigm is not regular. The CNV brain potential reflects the processes of arousal and attention, preparation for action or decision making connected with the impetrative S2 tone, and take place in the interstimulus interval between S1, the warning stimulus, and S2 the imperative stimulus of the paradigm. The reaction time of the motor response (MR) with the subject's dominant hand, towards S2 tone was automatically measured by the computer, which directed the experiment. The minimal and average reaction times in 100 trials were measured. Healthy subjects had faster minimal (RT = 168 ms, SD = 53.9 ms) and average reaction times (RT = 276 ms, SD = 74.1 ms) then patients with chronic schizophrenia (minimal RT = 286 ms, SD = 132.9 ms), (average RT = 617.9 ms, SD = 410.9 ms) ($p < 0.05$) Out- patients had faster minimal (RT=224.2 ms, SD= 65.9 ms) and average reaction times (RT=375.9 ms, SD = 126.5 ms) than in-patients (minimal RT = 332 ms, SD = 152.5 ms). (Average RT = 827.6 ms, SD = 458.8 ms) ($p < 0.05$).

Cranial Variation in the Genus *Homo* Between Early and Middle Pleistocene – A Phenetic View

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In the last few years new evidence came to light providing clues about the evolutionary pattern followed by archaic humans in Africa and Eurasia during the Early Pleistocene and great part of the Middle Pleistocene, a time range roughly bracketed between 1.8 Ma and 300 ka. These 1.500 thousands of years represent the core of our evolution, interposed among the origin of the genus *Homo* and the differentiation of clear evolutionary lineages, like those respectively leading to *H. neanderthalensis* (in Europe) and to *H. sapiens* (in Africa). Among the new findings that can help to identify a scenario for this crucial period there are specimens such as Dmanisi (Georgia), Daka (Ethiopia), and Ceprano (Italy), that are comparable among them (calvarial features are largely represented) as well as with great part of the better preserved available fossil record.

We use a phenetic approach in order to recognize affinities between single specimens. A matrix of distances was obtained by scoring presence/absence of 30 cranial traits (reported in the literature to describe *H. erectus s.s.*) and was used to generate different but consistent trees and plots. We find a certain distinction between African specimens referable to *H. ergaster* and the Far Eastern Asia hypodigm, or *H. erectus*; we observe also that crania from Dmanisi and the partial braincase from Olduvai (OH9) have different phenotypes, in some way intermediate between *H. ergaster* and *H. erectus*. More distant are Middle Pleistocene hominines from Africa and Europe, for which Ceprano appears to be the best candidate to represent the last common ancestor. The phenetic approach applied here has the advantage that it requires few a priori assumptions; the pictures obtained may help to evaluate the evolutionary significance of new findings and to suggest a plausible evolutionary scenario.

Contribution to Ethiopathogenesis of Osteogenesis Imperfecta in Czech Republic

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The authors have more than 10-years experience with comprehensive treatment of severe cases of osteogenesis imperfecta (OI) children. At present, a group of 45 OI patients (age 4–46 years) has been followed at The Ambulant Center for Defects of Locomotor Apparatus in Prague. The group was classified according to D. Sillence et al. /1979/ – type IA in 27 cases, type IB in 3, type II in 1, type III in 10, type IVB in 4 patients. DNA bank of patients with osteogenesis imperfecta syndrome has been regularly collected since 1998. In our pilot molecular genetic study, we analyzed 20 individuals with OI syndrome. Genomic DNA was extracted from peripheral blood samples. The primer sequences were performed for exon 27 of COL1A1 gene in our laboratory. Sequence changes in exon 27 were found in codon 430 (GGT–GTT, Gly–Val), 446 (CCT –CGT, Pro–Arg) and 440 (GCT–GAT, Ala–Asp). Other changes were noticed in introns 26 and 27. We proved at radio clinical manifestations and morphograms of presented cases that the same nucleotide substitutions were at variance with severity of the OI syndrome. This phenomenon could be explained by next undiagnosed mutation and some genetic background. Acknowledgement: This research has been supported by grant of Ministry of Education EuroMISE – Kardio No. LNOOB107 and GACR No. 106/00/0006.

The Chemical Blood Group Analyses of Palaeoanthropological Remains

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It is a well-known fact of archaeologists, palaeoanthropologists and palaeoenvironmentalists that the environmental conditions and the »time« destroyed much information on an archaeological site. Accordingly the reconstruction of past environmental and societal interactions is one of the most difficult problems for us. The main set of samples to be measured includes human skeletal remains of the late neolithic archaeological site of Hodmezovasarhely-Gorzsa. The osteochemical analyses can be applied to determining both the genus and the lifespan. We analyzed both the main (carbonates, Ca, P, Na, Mg and the organic components) and the trace elements (Ba, Sr, Fe, Cu, Zn, etc.) of the samples with modern analytical methods (AAS-AES, ICP-AES, HPLC, PIXE, DTG, XRF). This empirical data of chemical analysis make the results of anthropology and zoology complete, and moreover, in some specific cases (eg. in the case of anthropological findings in very bad condition) the properties mentioned above can only be determined in this way. In Hungary it was Dr. Lengyel Imre who ever performed similar osteochemical and blood–type analyses (with fluorescent antibody and absorption methods) on archaeological finds, but after his tragic deceasing research in this field discontinued (Lengyel 1975, 1980, 1982, 1984). One of the central aims of our research is the improvement of the analytical methods as well as the development of new diagnostic techniques.

Relative Reduction in the Extent of Genetic Diversity at STR Loci in Adriatic Island Populations

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The purpose of this research is to examine the signatures of isolation in the Adriatic Island populations of Croatia from genetic data at 9 short tandem repeat loci. Allele and genotype frequencies at these loci (D13S1358, vWA, FGA, TH01, TPOX, CSF1PO, D5S818, D13S317, D7S820) in 440 individuals distributed in 25 villages/regions located in the islands of Brac, Hvar, Korcula and Krk have been analyzed. In spite of relatively high levels of inbreeding, genotype frequencies in each village or region, by and large, hold the assumptions of Hardy-Weinberg equilibrium. However, with respect to the levels of genetic variation measured by the number of segregating alleles, allele size variance and heterozygosity, the Adriatic Islands populations exhibit reduced variability compared to other outbred populations of African, European and Asian descent. This is also reflected in a somewhat lower power of discrimination in human identity testing and lower average probability of parentage testing using these loci. In fact, with respect to these attributes, the levels of diversity in the Adriatic island popu-

lations are comparable to those observed among the isolated populations from Oceania and the Americas. This reduced variability, however, does not appear to compromise the utility of these loci in forensic and paternity testing. Independently segregating loci do not exhibit non-random association of alleles, nor unrelated individuals sharing genotypes at large number of loci appear than dictated by chance alone.

Impact of Health Education in Improving Knowledge, Attitude and Practice in the Control of Intestinal Parasites in Rural Bangladesh

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The impact of regular health education in improving knowledge, attitude and practices in the control of intestinal parasites was examined in four rural areas of Bangladesh as part of a package of selected health intervention regimens. Two areas received health education and the other two areas were controls. Health education (comprising monthly home and school visits and focus group discussions) was aimed at increasing awareness of different health aspects of worm transmission and the disabilities caused by intestinal helminths. Simple ways of improving personal hygiene and sanitation through hand washing before food preparation in particular, nail trimming, wearing of shoes and use of a latrine and clean water supplies were encouraged. At the beginning of the study knowledge of the public health significance and transmission of intestinal parasites was low in all areas. Over 70% of respondents did not know how worms enter the body, only 6% correctly associated consumption of unwashed green vegetables with worm infection and only 43% of respondents knew that ridding the body of worms was good practice. By the end of the 18-month study households receiving health education showed highly significant improvements in knowledge compared with households in the control areas. Households with a tube-well and access to a latrine increased by 19.6% and 33% respectively in the health educated areas compared with a 5% decrease in tube-well access and 11% increase in access to a latrine in the control areas. Substantial improvements in personal hygiene also occurred in the health educated areas. Most importantly, the improvement in the access to safe water supplies and sanitary latrines occurred without any capital investment by the project.

Dynamics of Molecular Genetic Diversity in the East Midlands, England

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The main objectives of this investigation were 1) to establish the database of minisatellites (VNTRs), AMP-FLPs, microsatellites (STRs), and ALU Insertion allele frequencies for the regionally sub-divided populations of the East Midlands, which is suitable for population genetic, forensic and evolutionary studies, 2) to determine if Caucasian sub-population heterogeneity exits within the UK, Europe and World Caucasian and racial populations at these loci and 3) whether settlement patterns of various con-

tinental European populations have left any detectable genetic imprints in the East Midlands populations. Blood samples (500) were collected at random from the five Caucasian East Midlands populations. Using standard molecular genetic techniques, we analyzed MS1, MS31, YNH24, MS43a VNTRs and HUMTHO1, F13A, F13B, FES, LPL, VWA31 and CSF1PO STRs. Alu insertion polymorphisms studied included, ACE, TPA, D1, PV92, APO and FXIIIB and three AMP-FLPs were D1S80, APO-B, and YNZ22. While overall pattern of allelic distribution was within the ranges observed for Caucasian populations, there were significant inter-population/regional differences for a number of loci. As expected the heterozygosity levels for DNA loci were much higher than conventional blood groups. The FST values were also higher for DNA loci (average 0.018) compared to blood groups and serum proteins (0.005). The implications of observed genetic diversity in urban contemporary populations are evaluated in the light of settlement patterns of continental European populations. The Caucasian population heterogeneity and its implications for disease mapping, forensic and paternity investigations are presented to evaluate the effectiveness of these markers.

ALU Genetic Diversity in British and Indian Populations

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ALU polymorphisms provide a useful tool to population geneticists for understanding the population dynamics that have occurred over time. We report here a study of Six Alu insertion loci (TPA25, D1, APO, PV92, FXIIIB and ACE) from 20 endogamous caste and tribal populations of India and 5 regionally subdivided populations of Britain. Overall spectrum of variation in these populations is very interesting at different geographical and cultural levels. High level of insertion frequencies was observed in some highly inbred groups. Average levels of heterozygosities were found to be relatively high in these populations (range 41% to 49.8%). The genetic diversity coefficient GST among this group of populations was observed to be high. Philogenetic trees and principal components analysis (PCA) computed from Alu frequencies provide support for socio-cultural and geographical assignment of these populations in Indian population structure. Comparisons are made with other world populations to understand genetic diversity and dynamics of Alu variation in British and Indian populations.

Somatic and Psychosexual Maturation of Girls Living in Nitra, Slovakia

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The object of this study is one of the period of the ontogeny – puberty. Puberty, maturation, is process associated with compound somatic and psychic changes. The main aim of our study was to compare variability of somatic proportions and indexes. We compared two groups of girls of same age but different in level of maturation (menarcheal and nonmenarcheal girls). The assessments, attitudes and knowledge in sphere of sexuality, partner and matrimonial relationships were studied. We were interested in relation between somatic and psychosexual development. The object of this study is a group of 911 girls living in an urban district, from 8 to 17 years old. Subjects were examined by anthropometric and questionnaire methods. We observed that menarcheal girls have some statistically significant values (body weight, sitting height, gluteal circumference, arm circumference) differ only in some age groups. We recorded significant differences in values of some indexes (Quetelet-Bouchard, Pignet-Vervaek, BMI). The psychosexual development of girls was by questionnaire method. The girls were asked to explain various terms. The main aim of our questionnaire was to detect the existing of relation between somatic and psychosexual development, whether knowledge of menarcheal girls is advanced than knowledge of nonmenarcheal girls.

Demography, Dynamics and Genetic Characteristics in Great Apes

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Great apes show a wide variety of social systems, with fusion-fission systems in chimpanzees, harems in gorillas, solitary life in Orangutans, mixed groups in pygmy chimpanzees. Some long-term studies yielded a thorough knowledge on few populations of each species, providing fundamental information on social dynamics, behavioral ecology and life-history traits. However, our knowledge remains relatively limited on intraspecific variations of these aspects because studies have been conducted only under few environmental conditions. Depending on the plasticity of a species, populations will evolve in different ways when living in different conditions. Demographic characteristics can vary leading to variations in dispersal and reproductive strategies. Such variations influence the demographic structure of populations. For example, differences in life-history traits induce variations of the stability, the size and the composition of parties in chimpanzees. Variations in dispersal and reproductive strategies induce different degrees of variance of male reproductive success and variations in the degree of relatedness within groups. Consequently, one can expect differences in the genetic characteristics and structure of populations living in different ecological conditions. Studies on population dynamics and genetics are fundamental to understand microevolutionary processes. Until recently, genetic studies were limited to captive populations of apes due to difficulties for collecting samples. Now, the use of non-invasive samples (faeces, hair) provides numerous advantages over invasive sampling and stud-

ies of genetic diversity and relatedness among individuals in wild populations of apes are developing.

Ancient Greek Trephinations

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During excavations in the Byzantine cemetery in Advira, North Greece, there has been found a skull with a probable curative trephination. The cranium which belonged to a young man, approximately 20-25 years old, bears a circular perforation in the upper left cranial part of the occipital bone, as well as a non complete perforation at a short distance from the first one, probably caused by an attempted previous operation that field. In September 2001, while the paleoanthropological findings of the Anthropological Museum were being put in order, a very impressive and rare example of multiple trephination was spotted. At the right frontal region of the cranial finding, the presence of five perfect cranial trephinations was discovered. These had been opened up by a circular mechanical drill of a diameter of 1cm. The special proximity of the cranial trephinations in the same area of the frontal bone, seems to be due to the pathological symptoms that the person had suffered from, and the obviously vein efforts fro their relief. The lack of any evidence of healing of the cranial bone-sections shows that they were done at the same time and without the expected results.

Finite Element Method Analysis of the Tooth Movement Induced by Orthodontic Forces

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The aim was to investigate the tooth movement induced by orthodontic forces using the three-dimensional (3D) finite element (FE) method. The 3D FE model of an upper canine with supportive structures was constructed on the basis of 60 digitized transverse sections and consisted 400 finite element and 2367 nodes. A force of 1N was applied in labiolingual direction at five different levels of the crown to determine amount of tooth movement depending on different level of the applied force on the labial surface of the tooth. The results shows, shifting, induced by the action of horizontal, orally directed, force strength 1 N, decreased, according to how much the applied force was apically located, and amounted to 6.83×10^{-4} mm for the highest force and 7.86×10^{-5} mm for the lowest.

Motor Performance in Pubertal Boys

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Regular physical activity is one of the most important environmental factors that stimulate growth and development (Malina and Bouchard 1991). The relationship between peak aerobic power and motor performance is significant, though no internation differences can be observed between the peak oxygen consumption relative to body weight in

healthy non-athletic boys. Nevertheless, no secular change can be observed by the successive means for mass related aerobic power, and the exercised oxygen economy. The effects of most often mentioned genetic endowment could also be neglected in non-athletic samples. Traditionally the most common means of assessing speed and endurance has been time for distance, and distance for time. The increase in physical performance capacity is remarkable during the first 10–12 years of life, however, dramatic decrease can be observed following the maturation in the results of most motor tests. This decrease is independent of nationality, it can accordingly be attributed first of all to the dramatically reduced habitual physical activity of the growing child and adolescent. That is, the age dependent variability in physical and physiological performances is less expressed in regularly training samples and individuals. Since habitual physical activity decreases continuously and markedly with age in the developed countries no positive predictions could be given.

Sex Determination From Human Bones by the Molecular-Genetic Techniques

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A method for determining the sex of human skeletons was developed using molecular genetic techniques. The amelogenin gene, localized on the X and Y-chromosomes, was examined using the polymerase chain reaction (PCR). DNA was analyzed from 11 living individuals of known sex (DNA was extracted from caput femoris after operation), 15 skeletons and soft tissues from 15th – 17th century and 10 skeletons from an archeological site in Mušov (south Moravia). DNA was extracted from all 36 samples. An independent assessment of sex of each sample was successful in 10 samples of living individuals and 7 samples of historical material. Molecular sex determination is especially useful for juvenile and fragmentary remains when it is difficult, or impossible, to establish an individual's sex from morphological features. Acknowledgement: This research has been supported by the grant of Ministry of Education EuroMISE – Kardio No. LNOOB107.

Quality of Life – The Key Variable in Gerontological Education in Europe

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Quality of life and quality of ageing have always been the key variables among the basic issues of gerontology and should be seen as a multidisciplinary concept not only in research but also in student's training and education in gerontology. Faced with an increasingly growing population more people are working with and for older people and the need for appropriate gerontological training opportunities is of interest to academics, professionals and political decision makers across Europe, particular in the field of health and social welfare. Although experts agree with an increasing need for profes-

sional training, expertise and skills in the ec-countries on the one hand and the necessity of optimizing gerontological education on the other hand, no significant efforts have been made at a Europe- wide level to develop standards and to introduce comprehensive academic training in gerontology. The current state of gerontological education shows a heterogeneous picture with a great structural diversity of programmes, different entry requirements to programmes, a lack of guidelines and course contents as well as a deficient evaluation of the quality of programmes. In 1998 the EU- commission funded a working group with European experts from the different interdisciplinary fields of gerontology in order to develop a European master programme in gerontology. The overall aim of the project was the development of a model curriculum that is both multidisciplinary and European and valid throughout the European union, to recommend a flexible framework within which the European masters in gerontology can be developed and provided by partner universities across Europe and to develop new programmes in countries which currently have no such provision. A qualified gerontological education should provide experts who are able to evaluate age-related social policies and appropriate intervention strategies in later life to maintain and to promote the quality of life and the well-being of older people, even if the individual is depending on social services or is in need of care. The free university of Amsterdam has accepted to handle the executive management of the European master in gerontology –EUmag- programme. The programme will be managed by an executive committee supported by a project manager under the direction of the EUmag consortium. The tasks of the next project phase is to establish and to implement the master programme, to run and to evaluate five core modules in different European countries and to develop a European network in gerontology.

Isonymy and the Genetic Structure of Albanian Human Populations

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It is well known that in systems of surname transmission through the paternal line surnames simulate neutral gene alleles belonging to the Y chromosome. This property of surnames was used to analyze the genetic structure of Albanian human populations. Two large samples of surnames belonging to two different periods of time were analyzed. The analysis of different indicators of population structure indicated that geographical distance has an important effect on surname distribution. It seems that isolation by distance and genetic drift have been still important factors in the determination of the genetic structure of the Albanian population.

Trace Elements (TE) Release as Nutritional Supplement of Daily Needs From Three Different Dental Alloys Under in Vitro Simulation of Dental Plaque

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Over 90% of adult population (≥ 35 y) in Croatia wear dental crowns and/or fixed partial dentures (FPD) and in 30% of population FPDs are combined with metal frame removable partial dentures (RPD). The aim of this work was to assess how TE leached from the crown/bridge Au-Pt metal alloy, NiCr alloy for dental ceramics and from CoCrMo alloy for RPD-m in simulated dental plaque. We soaked ten sets of Au-Pt alloy pieces having 133 mm^2 exposure surface, ten sets of CoCrMo alloy pieces and ten sets of NiCr alloy pieces having 497 mm^2 exposure surface each, from 1 to 30 days (six replicates each) in lactic acid (pH 3.5). TE were assessed by ICP-AES (JY 50P, Jobin-Ywon, France; detection limit - 10 μ/L. From the Au-Pt alloy (Refinery of precious metals, Zagreb, Croatia) were released in the lactic acid (Mean; SD) Zn 140 (47), Cu 113 (79), Fe 58 (36) and Cr (< 10). From CoCrMo (Wironit^R, Bego, Germany) (Mean; SD): Co 501 (400), Fe 133 (360), Zn 78 (39), Ni 34 (60), and Cr 65 (121) of TE were released. The NiCr alloy (Wiron 99, Bego, Germany) of TE (Mean; SD): Co 339 (318), Fe 227 (272), Zn 96 (51), Ni 432 (502), and Cr 368 (361) were released. The manufacturers did not indicate the presence of all the elements released from each alloy. Some of the TE were released in concentrations that overcome daily essential needs for human health, which may be of interest to nutritionists. After the laboratory procedures TEs may be released in a higher amount and other TE may become detectable. However, the considerable amounts of the essential albeit allergenic essential TE Cr, Co, and Ni may be present locally.

Analysis of Bone Tissue Mechanical Properties

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This paper deals with the torsional moment depending on the angle of torsion of the compact bone in laboratory animals and humans. Based on the data from laboratory animals, obtained by measurement, the data on dependence of the torsional moment and the angle of torsiom were assumed for humans. Measurements were carried out on four groups of the compact bone in laboratory animals. One was the control group, and three other groups were treated by various vitamin D_3 metabolites. Equal measurements were performed in only one group of the compact bone in humans, due to the impossibility to treat humans with vitamin D_3 metabolites. Functional relations between

the angle of torsion and the torsional moment for all groups of animal body tissue were determined by measurements, and the results were used to assume the reaction of human compact bone tissue if treated by vitamin D_3 metabolites.

Some Anthropodynamic Characteristics of the Human Head and Neck During Whiplash Simulation Movement

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The characteristic movements that occur with head and neck of subjects hit from the back in traffic accidents has been simulated on volunteers (with safe loads), recorded by stereophotogrametric method, with the system Elite. 50 examinees took part in the research, and for every subject the basic anthrop-measures have been determined. By application of the basic methods of mechanics, harmonic analysis, anthropometry, statistics and biomechanics, the harmonic model of head and a part of the neck have been defined, thus obtaining the model of a reference human. This model was assumed to be predominantly an independent kinetic unit regardless of the fact that it actually represents a kinematical unit together with the body. The reason for this lies in the fact that in the dynamic sense the resistance to the rotation of the head on the atlas is significantly less than the overall inertia of head and neck with relation to the co-ordinate system located at the bottom edge of the cervical vertebra. It was determined that by studying the plane movement of head and neck made of translation and rotation, first the rotation of the head around the first cervical vertebra – atlas is significantly pronounced. The determined results allow comparison between mechanical values obtained by measurements on subjects whose movements of head and neck may be considered as »normal« and the movements produced by subjects with damaged cervical vertebra.

Dermatoglyphs in Adriatic Islands and Coast (Croatia)

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The qualitative dermatoglyphic traits were analyzed in populations of four Eastern Adriatic islands (Brač, Hvar, Korčula, Vis), Pelješac peninsula and Makarska coastal region, and analyzed in relation to the known ethno historical processes. This paper presents the results of Chi- square test analysis and Hiernaux Δg biological distances for the examined populations. Frequencies of dermatoglyphic patterns on fingers in males from the island of Brač and peninsula of Pelješac differ significantly from all other examined populations, as well as in the case of males from the island of Hvar (except from the Makarska coastal region). In females differences are found between island of Brač compared with those from the island of Korčula, Vis, peninsula of Pelješac, between the islands of Hvar and Vis, and between the islands of Vis and Makarska coastal region. In using Hiernaux Δg biological distances for the examined populations in males, two clusters are distinguished. The first one consists of the males from the is-

land of Brač and Hvar and second from the islands of Korčula and Vis, peninsula of Pelješac and Makarska coastal region. In females, also two clusters are distinguished. The first cluster is formed of the females from the islands of Brač, Hvar and Makarska coastal region. Population of females from the island of Korčula and Vis, and peninsula of Pelješac form the second cluster. Females show a higher migration rate emigrating from the island in one direction, while the second direction is formed from the mainland onto the islands. The differences might be due to their migratory background. The migration flows that are probably confirmed in this way are those onto islands of Brač, Hvar and Korčula from the Makarska coastal region and on the islands of Hvar, Korčula and Vis from the peninsula of Pelješac. In the case of male populations the biological distances could be the result of homogeneity and drift effect as shown for the island of Brač, Hvar and Pelješac peninsula.

The Secular Trend in Body Surface Area Ratio (Body Surface Area/Body Weight)

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The exponential functional correlation of body surface area ratio and exercise capacity / maximum oxygen intake to body surface area ratio (MR/s = α s^{β}, α, β: const; [MR: Metabolic rate]) has been established, and it has become clear that maximum oxygen intake and exercise capacity are expressed as difference between body surface area and body weight (logMR = kslogS – kwlogW, ks, kw: const.). The authors prepared a longitudinal birth-year cohort based on school health statistics. Those statistics were arithmetically analyzed the growth curve obtained from change in age for each birth group, and studied the annual transition of functional and biological parameters obtained. The data used was stature and body weight for various ages from 6.5 to 17.5 years from a school health statistics study report put out by the Ministry of Education since 1900. Body surface area was determined by the method of Fujimoto et al, and body surface area ratio was calculated by body surface area to body weight. The growth curve for body surface area ratio (:s) is expressed as (1/s). The PB1 method of Preece & Baines (1978) [$y = h1 - (2\,(h1 - h\theta) / e^{s0(t-\theta)} + e^{s1(t-\theta)})$] was used for analysis of the growth curve. As a result, with the functional parameters, h1, hθ and s0 increased annuallyθ, while s1 decreased. With biological parameters, the age at the time of take-off and peak velocity was observed to be younger each year. Adolescent gain of 1/s and 1/s at time of take-off and peak velocity increase in all cases, and was greater from peak velocity to adult distance than from take-off to peak velocity. A large difference was observed in the distance curve and growth velocity curve for 1980s following the 1960s. In other words, the distance curve for recent years is large at low ages and the growth velocity curve stabilizes. Value of velocity is large at take-off and small at peak velocity.

Physical Activity Level and Obesity Indicators in Urban vs. Rural Female Population

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Although the difference between the urban and rural way of life of adult employees diminishes, it is presumed to still persist in the socio-economic factors that influence and modify various biological traits of individuals. The objective of this study was to compare the habitual physical activity level and obesity comprised 678 adult employed women, 20–65 years of age from the urban and rural communities. The examinees were tested with the Baecke questionnaire to assess level of their habitual physical activity. Anthropometric measures were used to calculate the body mass index (BMI), the waist to hip ratio (WHR) and percentage of body fat. The significance of the obtained differences was checked by means of the *t*- indicators in the age-matched urban and rural Croatian female population. The urban and rural female population differs primarily in the component of activity at work. The younger urban women revealed a higher sport activity level. Rural women in their fifties do not become more active in sport nor in the leisure time, as has been observed for the urban population, probably due to their high work activity, which is even higher than in men. Young urban women have lower body fat percentage. From their forties on women living in towns are significantly leaner, with the lower WHR and from fifties on also with the lower BMI, than their rural female. Moreover, the average WHR in the countrywomen exceeds upper limits already after the 40th year of age.

Some Anthropometric and Functional Characteristics in Active vs. Inactive Croatian Population

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The aim of the study was the analysis of differences in anthropometrical status, and some functional and motor abilities between active and non-active group of adults. The sample comprised 1537 employed citizens of Croatia, aged 20–65 (858 male, 679 female). The sample was divided according to the age, as well as to the engagement in regular physical activity into active and inactive group. Fifteen anthropometric measures and skin fold thickness were measured. The body mass index (BMI) and the waist-to-hip ratio (WHR) were calculated. Functional and motor abilities were determined by EUROFIT battery of tests (Oja & Taxworth, 1995). Almost 66% of men and 80% of women were not engaged in any kind of sports-recreational activity. Active men differed significantly from inactive men till the sixth life decade. At the age of 30, it

was manifested through smaller waist circumference and abdominal skin folds and especially through smaller skin folds on extremities. At that age the active men had better obesity indices such as BMI, WHR and percentage of fat tissue ($p < 0,001$). In the fifth life decade the difference between the active and inactive group diminished. In women, the differences in morphological characteristics were apparent till the beginning of the sixth decade, mostly expressed in waist circumference and skin fold thickness of abdomen and extremities. The difference in WHR was observed in the second life decade, while in fourth life decade the differences were observed in WHR and BMI as well as in percentage of fat tissue. In the fifth life decade the difference in the percentage of fat tissue diminished again. The only significant difference in morphological characteristics in the sixth life decade was the difference in WHR Active vs. inactive women showed significantly better morphological characteristics and functional and motor abilities till the older age. Active subjects had better aerobic capacities till the sixth life decade in both genders.

Physical Development and Anthropometric Nutritional Status of 9–15 Years Old Schoolchildren From the City of Sofia (Bulgaria)

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The present work is part of a complex anthropological study of schoolchildren in the city of Sofia started in 2001. The aim of this study is to be characterized the specificity of their physical development, the early recognition of external and genetic risk factors for obesity, hypertonia, and other diseases among the schoolchildren, through discovery of deviations from the normal physical and sexual development among the subjects in diverse age groups. In this communication we analyze the data on height, weight, body mass index (BMI) and percent body fat, obtained from representative samples of boys and girls at praepuberty and puberty age, distributed in 7 age-groups, starting form 9 up to 15 years. On the base of data obtained, we describe the physical development and anthropometric nutritional status of the study-subjects. To determine the boundaries of normal values of BMI we use the cut-off points developed by the World Health Organization (2000), derived from the corresponding values in adults (25 kg/m^2 and 30 kg/m^2).

Geometric Morphometrics in Paleopathology – Shape Analysis of a Neolithic Hydrocephalus

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We provide a detailed shape diagnosis of a middle-neolithic (4900–4300 BC) human cranium introducing a new tool to geometric morphometrics: semilandmarks on surfaces. Two hydrocephalics (34 and 12 years old) and a control group of morphologically regular formed crania ($n = 20$) ranging from 2 years of age to adults are compared

against an adolescent middle neolithic specimen which is presumably hydrocephalic. 42 anatomical landmarks and several thousand points on the neurocranial surface were either digitized using a Polhemus device or extracted from CT-data. Then our algorithm automatically places 336 semilandmarks on the neurocranium and relaxes them against the Procrustes average. The resulting landmark positions are analyzed using Relative Warp Analysis. While all 3 hydrocephalics possess very prominent parietal bosses, the Neolithic hydrocephalus is different in frontal bone shape, lying close to the variability obtained in the control group. This suggests that the Neolithic specimen could represent a case of acquired hydrocephalus where the sutures at the posterior, occipital region of the skull still had enough degrees of freedom to compensate the intracranial pressure, while the frontal suture had already fused. This hypothesis is supported by paleopathological evidence: the skull's endo-cranial lamina exhibits vestiges of an inflammatory process presumably caused by meninigits or meningoencephalitis, which can lead to obstructions of cerebrospinal-fluid flow and/or resorption defects – causing a dynamic block and increasing CSF pressure. (Supported by the FWF-Austrian Science Foundation, Project-number P14738.)

Social and Economic Influences on Morphological Structure in Bulgarian Children and Adolescents (on the Results of Investigation in Smolian Region)

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Differences in the processes of growing and maturing of children depending on social strata is the object of investigations made by scientist all over world (Procopec, 1984; Eveleth and Tanner, 1990; Maiscie-Taylor, 1991; Antonela, 1994; Godina, 2001). But while in many developed industrial countries there is social differences decrease in the ex-socialist countries there is a reverse process – of increasing social differences (Kromeyer, Zellner, Jaeger, 1996; Kromeyer et al., 1997). This study presents the results of investigation on social and economic influences on the morphology of children and adolescents from Smolian region (Bulgaria). The sample consisted of 801 girls and 749 boys (1550) aged 3 to 17. They were examined on a cross-sectional study in the period 1998–2001. This paper included some basic anthropometric measurements-stature, weight, chest circumference, three diameters and some skin folds. Individual anthropometric measurements have been transformed into Z-score in order to avoid age effect. Socio-economic data were collected by interviewing parents and included parental education, parental professional level, monthly income and number of children. Differences between the groups have been tested with Sheffe's test on ANOVA. The results referring to the influence of social and economic factors on the morphological structure of children and adolescents identify the social factor parents' education as the most informative. Children of parents with higher education are significantly taller than those, whose parents have lower educational level. The results also show sexual dimorphism in respect to the influence of certain factors.

Growing Dynamic on Some Morphological Characteristics in Schoolchildren and Adolescents From Smolian Region (Bulgaria)

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The growing processes have typical features in the diverse populations. They are depending on many factors: genetic, ecological, socio-economic, etc. This study compares the growing status in schoolchildren and adolescents from Smolian region (Bulgaria). A total of 1152 children (605 girls and 547 boys) aged 7 to 17, were examined in the 1998–2001 period (cross-sectional study). The work included data of growing and ageing dynamics on some body linear measures, diameters, circumferences and skin folds thickness. The anthropometric data have been taken by the Martin–Saller method. Skin fold thickness was measured using a caliper GPM to the nearest 0.2 mm. Data were analyzed using the Statistica–5.0 package. The results of the analysis on growing charts demonstrated sexual dimorphism in the ageing dynamics on some morphological characteristics, as the most in the skin folds and circumferences. The maximal growing velocity for weight, height and some anthropological characteristics at the boys is to two years later, than at the girls. The sexual differences in the ageing dynamic for the fat component are in connection with the quantitative characteristic and location.

Physique and Motor Performances of 10-Year-Old Malaysian Boys

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Fatness and obesity is a serious challenge for the developed societies. The relationship between relative body fat content and endurance performances is obvious without any restrictions. The aim of the present study was to compare the motor performances of 10-year-old boys in a function of different body fat content. Altogether 466 volunteer Malaysian boys were investigated. Their physique was described by the growth type indices (Conrad 1963) and also the somatotype components (Health and Carter 1967) were calculated. Relative body fat content was estimated by the suggestions of Parizkova (1961). The following subgroups were formed F% < 15.0 (G1, n = 87), 15.1–19.9 (G2 n = 136), 20.0–24.9 (G3 n = 105), 25.0–29.9 (G4 n = 69) and F% > 30.0 (G5 n = 67). Physical performance was characterized by the results of 1200 m run, 30 m dash, standing long jump and fist ball throw. Among the investigated Malaysian non-athletic boys the ration of fat and obese children was very high. Parallel with the greater relative body fat content the height means were taller, however, the physique (described by the mean metric index) was more and more picnomorphic. By these observations it cannot be clearly decided whether or not the increased relative body fat content is in relation with the characteristics of physique. The physical performances were the best in the most lean (G1) sample, and very moderate means refer to the fat and obese children.

Physical Anthropology and Linguistics – A Northern Eurasian Sample

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The paper focuses on the correlation between biological and linguistic affinities of the Northern Eurasian populations. It appears likely that the principal limitations of earlier comparisons were largely related to the idiosyncratic nature of single systems of traits used in the analyses. To avoid this, data regarding four systems of biological traits (craniometric, cranial nonmetric, dental, and dermatoglyphic) were integrated using various statistical techniques. Data concerning local populations from Northern Eurasia including Eastern Europe, Fennoscandia, Caucasus, Siberia and Central Asia, were pooled into 40 samples that represent populations speaking Indo-European, Uralic, Turkic, Caucasian, Mongolian, and Tunguso-Manchurian languages. Rather than working with crude trait values, the first linear trait combinations derived from each system by means of multivariate analysis (and thus independent within each system) were regarded as new traits and were again subjected to multivariate analysis, which yielded new cross-systemic trait combinations with a maximal informative value. The results suggest that integrated data are much more consistent with linguistics than are those derived from any single-system. In fact, the resulting clusters tend to correspond with the linguistical classification better than in any of the previous analyses. In several cases linguistic factor appears to be even stronger then geographical one. For instance Ugric and Samoyed populations of Western Siberia although shear several common characters with their Siberian neighbors but also are definitely related to their Finnish linguistic relatives who live in European part of Russia and Fennoscandia. Similarly Armenians and Ossets who living apart from other Indo-European populations show to be biologically related to Indo-Europeans.

Genetic Structure of the Population of the Azores Islands (Portugal) – Results of a Study Using 6 STR Loci (FES/FPS, CD4, F13A1, MBPB, VWA31/A and HTPO)

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The Azores Islands (Portugal) are located in the Atlantic Ocean, 1500 km from the European Mainland. They were discovered, uninhabited, by Portuguese navigators in the 15th century. With the purpose of documenting the genetic profile of the Azorean population, we performed a study of 6 Short Tandem Repeat (STR) loci (FES/FPS, CD4, F13A1, MBPB, VWA31/A and HTPO) in samples of individuals born in the Azores and of Azorean ancestry. Markers were analyzed by PCR, followed by PAGE (CD4, HTPO and VWA31/A) or using a Genetic Analyzer (FES/FPS, F13A1 and MBPB). The allelic frequencies and gene diversity values obtained fall within the range observed in other European populations. For 2 of the 6 markers analyzed (FES/FPS and MBPB), a significant excess of homozygotes was detected. The results of the differentiation tests conducted relative to other populations varied depending on the STR being analyzed. When the Azorean sample was compared with other Portuguese samples (North Portu-

gal, Center Portugal and Madeira Island) no differentiation was found, with the exception of markers CD4 and MBPB, which produced significant values of differentiation between the North of Portugal and the Azores. The fact that the Azorean sample differentiates from all of the African populations used in the comparisons indicates the lack of evident signs of an African affinity, despite the historical evidence of the presence of African slaves in the original founding population of the Azores. The phylogenetic analysis clearly locates the Azores within a European cluster. Furthermore, the proximity between the Azores and Madeira Island (Portugal), agrees with the strong influence that the latter island had in the settlement history of the Azores.

Variation at Candidate Genes for Cardiovascular Risk in Western Mediterranean Populations – Population and Epidemiological Aspects

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A total of 22 DNA polymorphisms were typed in different western Mediterranean human population samples (Iberian Peninsula, Morocco, Corsica and Sardinia). The analyzed markers correspond to polymorphic sites in several candidate genes for cardiovascular disease including apolipopoteins and their receptors (APOA1, APOB, APOE, APOC1, APOC2, LPA, and LDLR), genes implied in the hemostasis regulation (Factor VII, α and β-fibrinogen, α and β platelet-integrin, tissue plasminogen activator and plasminogen activator inhibitor-1), and the angiotensin converting enzyme gene. In spite of the potential significance as susceptibility risk factors reported elsewhere for some variants, the analysis of the between-population variation demonstrated their usefulness for population studies. The degree of interpopulation diversity was significant and consistent with data from other kind of genetic polymorphisms. The apportionment of the allele frequency variance supported for moderate genetic discontinuities separating the major Islands of center Mediterranean and, in a lesser degree, the separation between Iberia and Morocco. The genetic distance pattern is compatible with a different south-to-north North African influence in the Iberian Peninsula and a remarkable of gene flow from sub-Saharan Africa into Morocco. Population differences were present for linkage disequilibrium between linked markers and the distribution of intra- and interpopulation LD variance was consistent with a selective pattern only for a few of the examined genomic regions (APOE-C1 and β-fibrinogen). As far epidemiological features, North Africa appeared characterized by high frequencies of LPA PNR alleles with high number of repeats (protective for cardiovascular risk) and high frequencies of the APOE*E4 allele (risk factor) As compared with European populations.

Analysis of Differentiation of World Populations Based on Non-Metric Traits of the Human Skull

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The reconstruction of the history of human differentiation for a long time attracts attention of population geneticists as well as physical anthropologists. However, the study of fossil material, in spite of new developments in molecular technology, is in general limited by bone measurements data, which are well known to be correlated with climate, and therefore are less suitable for the study of genetic history. Meanwhile it has been shown repeatedly that minor non-metric skeletal variants, being predominantly under genetic control, can provide useful information about population relationships. The set of 38 non-metric cranial traits has been tested for its taxonomical value in discriminating genetic distances among 40 populations (N = 3000 skulls) from Southeast Africa, West and East Europe, Northeast Asia, Australia and New Guinea. The comparison of populations by the techniques of canonical and cluster analyses has been carried out. The variation was calculated among all populations and for subregions. The world variation proved to be the greatest, on the second place stand Asia, Africa and then Australia, and the most homogenous is Europe. This result is in full conformity with the genetic data (Cavalli-Sforza et al., 1994). The map of the first two canonical variables shows a clear distinction among Negroid, Caucasoid and Mongoloid groups. The first canonical variable differentiates groups on eastern and western stocks, separating Mongoloids from Negroids and Caucasoids. The second variable, in turn, separates Caucasoids from Negroids and Australoids, breaking, thus, the western stock in two parts: Caucasoid and Austro-Negroid, according to the anthropological scheme of threefold division of mankind in the past. A classification tree, obtained from the cluster analysis, corresponds in general with genetic tree (Cavalli-Sforza et al., 1994), with the exception of Australian and New Guinean populations, which are associated with Southeast Africans in separate cluster. Results obtained from analysis show that non-metric variants represent a valid source of information and can be used in conjunction with other data to reconstruct the genetic history and evolution of human populations.

Physiological Anthropology From Ergonomics to Standardization Issues

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According to the meaning of the syntagma *physiological anthropology* this branch of anthropology dealing with functions and vital processes of living organisms or, their parts and organs, became with the joining of biomechanics very close to the main meaning of mentioned syntagma. From this point of view, physiological anthropology should have the main scope to investigate various characteristics of the human beings (and other living systems), and how different parts or organs of an organism work together to achieve a particular function. For example, all kinds of human movement are

consequence of muscle contraction that occurs through action of chemical messengers produced by nerves that supply the muscle. On the other side, the description of the human movement is the task of biomechanics, which depends among other things on the distribution of the masses during the motion. From the European Standards viewpoint the ergonomics principles are established to be followed during the process of design of work equipment, especially machine of the system. So European Standard applies to the interactions between man as operator and the work equipment when operating, adjusting, maintaining etc. The outlines of the principles should be followed taking into account health and safety of the man in the whole system. In this work we emphasized some parts of the *System Man –machine – environment* where is possible to verify actual recommendations of Standards. There are questions of human orientation, manual handling, human working efforts, ergonomic design principles, sitting pressure questions, design for safety, quality of life and design for disabled persons. All mentioned titles were analyzed on the basis of the anthropo-dynamical values.

Bioethical Foundation of Sustainable Development – Principles and Perspectives

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The paper considers the primal importance of bioethics for sustainable development, which is prerequisite of evolution and survival in peace, encompassing processes, from economic globalization to local diversification and protection of environment and biodiversity. Understanding and application of bioethics is necessary for health or clean environment maintenance, successful disease or pollution prevention, purposeful research and development of consciousness and morality, for higher quality of life and higher culture of living. The extension of prevailing use of terminology is required, from anthropocentric consideration of pathological states of human life, disease and aging, to prevention of pathology of living style, caused by domination of consumerism, culture and economy of violence in use of living space and environment. Ignorance of bioethics is at the background of environmental or social pathology, having in mind health as a state of complete physical, mental, social and environmental well being. Decay of society begins with neglect of ethical values likewise ignorance of bioethics leads to pollution of environment and extinction of biodiversity; thus observance of morality and bioethics is precondition of health of society and environment, vitality and well being of community. Perspectives of development and survival of global society depends on application and observance of bioethics on local level like moral health of society depends on observance of moral values on the level of family and community. Both are rooted in organic living environment of community and healthy home as living space of family. Considering that: a) preservation and protection of environment and biodiversity is inseparable from protection of family home and cultural diversity; b) assuming that environment is existential living space of family and community, which are c) conscious and responsible part of living world, then sustainable development begins with application of above principles on local level with help of appropriate policy, education and research.

Associations Among the Palmar Areas on the Basis of Qualitative Dermatoglyphic Traits

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We studied qualitative dermatoglyphic traits in sixteen populations in Hungary. We analyzed the frequency, the distribution and the occurrence of pattern types in different palmar areas. In connection with this, we also analyzed the modal types of C line terminations. Tests of independence showed associations between most palmar areas, which also manifested in the distribution of pattern types. The hypothenar was the most independent of the other palmar areas. We studied the interrelationships of areas using multivariate methods. Although the areas were strongly interrelated, there were areas with stronger relationships and areas with weaker ones. As a result of homogeneity analysis, the palmar areas separated into two groups. The left and right thenar / interdigital I, the left and right interdigital II and the left and right hypothenar formed one group and the left and right interdigital III and IV as well as the left and right C lines formed the other group. Based on discrimination measures obtained in the homogeneity analysis we determined the distances among the traits using cluster analyses. Our results proved that a strong association can be observed among the palmar areas, thus, these areas are not separated entities that are influenced by genes independently of one another. During their formation, palmar pattern types are subject to a substantial common control.

Sexual Maturation and Some Psychosocial Characteristics of Hungarian Students

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The purpose of this analysis was to investigate adolescents' self-image, well-being and integration to peer groups in relation to chronological age and sexual maturity state. It also tries to reveal whether differences in traits, if any, can be found among the subgroups of early- and late-maturers, and there are gender differences among these subgroups. A nationally representative sample was used for the analysis (2354 males and 2518 females aged between 11 and 18). Statistical methods were χ^2-tests of independence, and standardised indices were calculated for characterizing body-image, self-evaluation, well-being, friend relations, classmate relations and aggression. Nonparametric tests and two-way ANOVAs were carried out to compare the subgroups along these characteristics as well as maturity and gender. Differences are similar to those of maturity state within genders according to the chronological age. There were no significant differences in boys' self-evaluation among these subgroups. In both sexes the older and sexually matured girls and boys have higher scores in friend relations, while they have lower scores in classmate relations than the younger and non-matured ones. Scores of well-being are worse in both genders in the older and matured groups. Scores of body-image are higher in younger and non-matured girls and matured boys. Groups of early- and late-maturers differ in some investigated traits from each other within and

between sexes. These results indicated that biological and psychosocial development are not independent from each other and the relationship is very complex. The maturation patterns of boys and girls differ from each other in terms of not only biological but also psychosocial development.

The Level of Morpho-Functional Development of Children, 10–16 Years of Age, as Subject to Environmental Differences

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The aim of the present abstract is to determine the influence of selected environmental factors (place of living) on the changes formation within the limits of tested morpho-functional traits. The research results constitute the material: a total of 1611 people were examined – including 794 boys and 817 girls, 10–16 years of age. The research was carried out in 1998 on the area of the Swietokrzyskie region. Selected somatic traits and motor skills were measured. The evaluation of physical development was made on the basis of the body height measurement, the body mass measurement, three measurements: subscapular skinfold, skinfold on arm, skinfold on stomach and the chest circumference. The following intermediary indicators were calculated as well: ponderal index, Rohrer index and sholder-illiac index. The assessment of motor efficiency was made on the basis of the measurement of selected strength skills: static force of a palm, explosive force of lower limbs, functional force of arms and shoulders. The flexibility was also measured. The comparisons of the range and direction of environmental differences were based on the normalized values of intergroup differences. The research confirms the existence of environmental differences in the development of somatic and motor traits. The children from urban areas achieved higher indicators of physical development. I many cases, the children from rural areas achieved better results in range of strength skills: functional force of arms and shoulders, static force of a palm. A distinct advantage in flexibility of urban children, girls especially, over their peers from provincial and rural areas has been revealed.

Schoten – A Collection of Skeletons of Known Age and Sex

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The Royal Belgian Institute of Natural Sciences comprises among its collections a series of 51 adult skeletons of known age and sex. All the individuals were buried in the cemetery of Schoten, a village near Antwerp, in the year 1931, and excavated in 1946 on the initiative of Prof. François Twiesselmann. The 26 men and 25 women were born between 1840 and 1916, in a radius of 50 km around Schoten. The age distribution is quite particular, with an overrepresentation of very old people, with only 3 individuals of less than 20 years of age, 21 between 21 and 40, 15 between 41 and 60 years, 16 between 61 and 80 and 11 who are older than 80. This collection has already proved to be extremely precious as a reference in biometrical analyses. For example, the estimated

stature of the individuals has been compared to different European past and present populations; their metacarpal dimensions have been compared to Belgian Neolithic series. This has helped to determine the morphological pattern of a presumed Neanderthal first metatarsal. It was also very helpful in the study of the sexual dimorphism of the pelvis. One of the females appeared to have dimensions of a big male. This raises the question of whether she should be eliminated from the statistics, which, however, we have never done. We intend to study the answer partly by way of a DNA analysis of that individual, in order to confirm his or her gender.

Evaluation of Lipid Metabolism in Children With Microsomia

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Defects in body height and weight in children made us evaluate some of the lipid metabolism parameters in children and youth with microsomia. The concentration of triglicerides, total cholesterol, HDL-, LDL-, VLDL cholesterol and apolipoproteins: apo-AI and apo-B was assayed in blood serum in 55 children (aged 5.6 – 17.6) with defect in body height below the 3rd percentile, poor rate of growth, delayed bone age (on the average by 22% as compared with the chronological one) on the basis of diagnostics of GH secretion. Deficiencies of GH were confirmed in 34 (61.82%) of the studied children with microsomia. The control group included 36 peers with no growth defects. Significant higher mean values for HDL-cholesterol (43.84 mg/dl in comparison 37.71 mg/dl; $p < 0.03$), and significant lower mean values for LDL- cholesterol (93.25 mg/dl in comparison 110.08 mg/dl; $p < 0.02$) in children with microsomia in relation to healthy children were observed. No significant differences between total cholesterol, VLDL-cholesterol, triglicerides, apolipoproteins concentrations in the group with microsomia and healthy children was found. Most of the hormones of hypophysis demonstrates lipolytic properties, however the growth hormone influences lipids metabolism most. The confirmed differences in the concentrations of the assayed parameters of lipid metabolism in children with microsomia do not seem responsible for the present health condition of a child.

Fluctuating Asymmetry in Two Lithuanian and Danish Medieval and Early Modern Samples

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Fluctuating asymmetry (FA) is a deviation from perfect symmetry of bilateral structures of an organism. It is believed that FA could reflect the magnitude of developmental instability thus being a good index of the life conditions of individual. The aim of this study was to evaluate FA in two medieval populations – Subačius Str. in Vilnius, Lithuania (urban, 16–17 c.c., 90 adults) and Tirup, Denmark (rural, 12–14 c.c., 92 adults). 13 craniological and osteological measurements were used. Age at death and

sex had no impact on the level of FA. In both samples, midshaft diameters of tubular bones had highest FA. Results revealed higher level of FA in Subačius Str. sample, notwithstanding it's higher heterozygosity and supposedly higher epigenetic control. Thus we suppose that environmental not genetic factors are responsible for the differences in FA. The major difference between populations was detected in the total average magnitude of FA. A comparison between FA level and earlier studied dental linear enamel hypoplasia (LEH) patterns revealed a tendency for concordance of these two unspecific stress indicators – individuals from Subačius Str. with higher LEH scores were more asymmetrical. It is highly probable that Subačius St. individuals experienced more chronic stresses in childhood (malnutrition, exposure to infectious agents) leading to higher morbidity but lower mortality and higher survivorship. This way it appears that FA could serve as an independent system for checking ontogenetic stress levels in skeletal populations. Acknowledgements to Dr. J. Boldsen (Odense University, Denmark) for providing data on Tirup and the Danish Government Scholarship for partial support.

Skeletal Markers of Occupational Stress Reflecting the Lifestyle of the Population From the Hallstatt Cemetery

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Presently, the oldest known salt mine in Europe is located in Hallstatt in Upper Austria. The mining there probably started in the Neolithic and reached its main peak during the eponymous Hallstatt period (800–450 B.C.). Since 1846, a cemetery with more than 1400 burials of this period has been excavated. Burial objects like bronze weapons and jewelry found in the graves of this cemetery indicate that the population was very wealthy. Yet the exact connection between the population buried in this graveyard and the salt mining in the mountain remains unknown. It is still unclear, if the people from the cemetery are identical to the salt miners. This is an attempt in order to shed light on this question by analyzing the MSM (Musculoskeletal stress markers) of the preserved 192 skeletons. MSM are distinct skeletal markers that occur on the bone surface where a muscle, tendon or ligament inserts onto the periosteum and into the underlying bony cortex. Within these markers the categories robustness, stress lesion (enthesopathy) and ossification exostosis are distinguished. 38 markers of the upper and lower extremity are scored according to methods of Hawkey and Merbs (1995), Peterson (1994) and Robb (1998). For comparison data from populations known for living and working in the lowlands are recorded. Overall frequencies of different grades and muscle groups are classed according to sex and age analyzed and compared both within and between the groups. Further side use dominance and ranking of specific muscles from most utilized to least utilized will be presented. Distinct pattern differences will be discussed in the light of specific habitual muscle use and »daily activity patterns«, looking for tendencies in organization and division of labor. Together, this will take us one step further in revealing the social structure and lifestyle of an important ancient alpine population.

Maturation Type and Body Composition

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Some events of puberty were studied in athletic children. The subjects were 37 boys taking part in a longitudinal study of Central School of Sports, Budapest. The boys were grouped by their maturity status. The onset of the spermarche was chosen to be the reference point. Early and late maturers were separated by using the upper and lower quartiles of the distribution. The question was: what kind of changes took place in body composition before and after the occurrence of the spermarche. Early maturers had consequently smaller absolute body dimensions in the initial and midphase of the sexual maturation. In late puberty they came up with the late maturers in the investigated body measurements or exceeded them. In both group the most intense growth was experienced at the time of spermarche with a variation of plus and minus half a year.

Self, Creativity and Maturation

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Some psychological parameters of the early and late maturing adolescent girls were studied. The questions were: Is there any difference in the factors of creativity, body image and self by sexual maturation type. Whether or not girls attending grammar, respectively vocational schools differ in these traits. The sample consisted of 300 girls aged between 14 and 18 years. Maturation status was characterized by the time of menarche. The data were collected by retrospective method. The groups of early and late »maturers« were separated by using the quartiles of the distribution. The factors of creativity were estimated by the Uncommon Usage and the Torrance Circles, the self dimensions were studied by the Tennessee scale. No differences were found between the early and late maturing groups in the examined traits. Comparing the early and late maturing children with different schooling level significant differences were seen in the factors of creativity. The self components behaved distinctively. The values of the early »maturers« were quite close to each other. The late maturing girls attending vocational school undervalued themselves in the majority of the self factors.

Obesity and Hypertension

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From the epidemiological point of view there are two interesting diseases in modern and developed world. One called silent thief: osteoporosis and another called silent killer: hypertension. Obesity can have a favorable effect on osteoporosis but an unfavorable effect on hypertension. There is a close link between high blood pressure and obesity but the cause of this link is not completely explained. It is also well known that obesity predisposes people to hypertension and diabetes. Not only obesity, but also

weight distribution is important as a risk factor for hypertension, i.e. upper body or abdominal obesity, so called apple-shaped obesity, is more frequently associated with hypertension than so called pear-shaped or gynecoid obesity. In an epidemiological investigation of risk factors of high blood pressure in Croatia, among 5768 hypertension patients 27.7% were overweight, 31.9% males and 23.6% females. Measurement of weight and height and the calculation of body mass index should be a part of the initial assessment of all patients with high blood pressure. To detect a type of obesity calculation of waist/hip ratio should be performed. The ratio of more than 0.9 is typical for upper body obesity. Weight loss is the first step in treatment of hypertension and in some patients with only slightly elevated blood pressure it can be the only treatment.

Two Distinct Genetic Polymorphisms as Potential Anthropological/Population Markers

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Genetic polymorphisms have found extensive application in anthropological and population genetic studies in recent years, providing data for the genetic structure of different populations. In our study two different polymorphic genetic markers are presented. They have been used in medical diagnostics, but have promising uses in the fields of anthropology and population genetic. The first one is a GATA tetranucleotide repeat linked to human E-cadherin gene (CDH1). Prior studies involving this marker revealed only four DNA allele variants. Here we report on three novel allelic variants of D16S752 found in constitutive DNAs from random sample of 54 unrelated individuals from Croatia. By using the molecular biology techniques PCR and PAGE we found that the polymorphism has mean heterozygosity value of 89%. From seven allelic variants, the allele of 106 bp appeared most frequent (20%), followed by alleles of 110 and 114 bp (both 19%), 118 bp (17%), 102 and 122 bp (both 9%) and 126 bp (6%). Another polymorphic site is found in exon 11 of the APC gene. The gene is responsible for familial adenomatosus polyposis (FAP) and colorectal cancer. The site is recognized by Rsa I restriction enzyme generating two different allelic variants: alleles a and b. In a random Croatian sample of 36 individuals the molecular biology techniques PCR and RFLP revealed 44% heterozygous individuals. The distribution of the two alleles in 20 homozygous individuals is: 70% allele b and 30% allele a. Sex and age of the subjects showed no correlation to the both marker distributions. The polymorphic markers presented here contribute to our knowledge of the genetic nature of the Croatian population and might prove useful for future studies in anthropology by broadening the anthropological genetic spectrum.

Button Osteoma in a Sample of Urban, Medieval Danish Skeletons

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Button osteoma are flat button shaped bone-pillows often seen on skull. Despite the apparent generality of button osteoma they have not been researched. The purpose of this work is to examine if button osteoma are localized, are related with age and sex, and if they have bearing on well-being. The material consists of a total of 59 skeletons excavated from the square »Storetorv« in front of the cathedral in Århus. Skeletons of immature individuals or with no cranium were not used either. Sex and age at death were estimated and a series of variables related to button osteomas were observed. Size and shape of the individual osteoma were measured to the nearest 0.1 mm. It might be assumed that button osteoma are related to aging, as are many other bone-knobs on the human skeleton. If this is the case the button osteoma will occur with a higher frequency and be larger in the elderly individuals. These assumptions are tested against estimated age at death and sex in the Storetorv skeletal sample. The possible association between button osteoma and well-being is analyzed by Cox regression with and without age interaction. Any estimate of the relationship between button osteoma and well-being is confounded by variation of the age of onset of the condition. This means that it only is possible to disclose strongly negative influence on health by the presence of button osteoma all other statistical results cannot be taken for their face value.

Estimating Stature From Tibia Length – A Comparison of Methods

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Most forensic and biological anthropological studies use the stature-estimation formulae developed by Trotter and Gleser. In recent decades, studies of morphological differences between populations have indicated that population-specific formulae are necessary to obtain accurate estimates. A number of equations have been devised for the Turkish population. Previously, we introduced a »general formula« and three »stature-group-specific formulae« based on tibia length. The main purpose of the present study was to determine whether the formulae in the literature are suitable for the Turkish population. To assess this, we compared the accuracy of formulae geared for Turkish people to the accuracy of formulae devised for other populations. We also evaluated the accuracy in short, medium, and tall height groupings. The formulae were tested in 110 healthy male adults, with estimated height compared to true height in each case. Analysis showed that the Trotter-Gleser formula for Mongoloids was most accurate for estimating stature in the study group as a whole. The formulae of Sağir for Turkish population and our previously published »general formula« were the next most accurate methods, respectively. When the 110 subjects were categorized as short (1652 mm and below), medium (1653–1840 mm), and tall (1841 and above), our stature-group-specific

formulae were more accurate than all other equations for subjects at the height extremes. The results of this study indicate that stature-group-specific formulae are more reliable for forensic cases.

Heterochronic and Non-Heterochronic Shape Differences in the Skull of Modern Humans and Common Chimpanzees Reconsidered With a Tridimensional Procrustes Analysis

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Heterochronic studies compare ontogenetic trajectories of an organ in different species – here the skulls of common chimpanzees and modern humans. A growth trajectory requires three parameters: size, shape and ontogenetic age. One of the great advantages of the procrustes method is the precise definition of size and shape for whole organs such as the skull. The estimated ontogenetic age (dental stages) is added to the plot to give a graphical representation in order to compare growth trajectories. We used the skulls of 41 *Homo sapiens* and 50 *Pan troglodytes* at various stages of growth. The procrustes superimposition of all specimens is completed by statistical procedures (principal component analysis, multivariate regression and discriminant function) in order to calculate separately size-related shape changes (allometry common to chimpanzees and humans), and interspecific shape differences (discriminant function). The human growth is clearly retarded in terms of both the magnitude of changes (size-shape covariation) and shape alone (size-shape dissociation) with respect to the chimpanzees. At the end of the growth, the adult skull in humans reaches an allometric shape (size-related shape) that is equivalent to that of juvenile chimpanzees with no permanent teeth (paedomorphosis), and a size which is equivalent to that of adult chimpanzees. The discriminant function reveals that they are additional structural traits, which have been classically described as paedomorphic because they superficially resemble juvenile traits. They mainly concern the reduced prognathism, the flexed cranial base (forward position of the foramen magnum which is brought closer to the palate), the reduced anterior portion of the face, the reduced glabella, and the prominent nose. The statistical analysis gives us the possibility to point out that these traits are in reality independent of growth.

Different Origins of the Mediterranean African Maternal Lineages – A Analysis of Their Western Eurasian and Sub-Saharan African Roots

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Upper Palaeolithic of Iberia and northwestern Africa reveal close connections between the two continents. On the other hand, post-LGM re-peopling of northern Africa and the spread of Afro-Asiatic languages indicate east-west movement of people alongside Mediterranean coast of Africa in Neolithic and later. We have studied mtDNA variability in about 600 Arab and Berber speaking people of northwestern Africa and about 400 sub-Saharan western Africa and compare them with northeastern African-Arabian and Mediterranean European mtDNA lineages in order to understand better mtDNA flows between western Eurasia, northwestern and western Africa, as well as alongside the Mediterranean. We show here that the western North Africa is a place where gene flows both from the western Eurasia and sub-Saharan Africa have met quite at the same extent as in Egypt. In contrast, further south along the coast of western Africa, in Guinea-Bissau, the frequency of western Eurasian mtDNA lineages drops to less than 10% and, furthermore, the pattern of the European mtDNA variants is far from random. We provide a detailed analysis of mtDNA lineages of northwestern Africa and suggest likely sources of different mtDNA lineages among the present-day Arab and Berber populations of this area.

Y-Chromosomal STRs in the Population of Croatia

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Due to its specific features Y chromosome is an importante genetic tool for the study of human evolution, population diversity as well as forensic and paternity testing. The aim of this study was to present allele and haplotype frequencies. Eight Y chromosome short tandem repeat (STR) polymorphisms (DYS19, DYS388, DYS389 I, DYS389 II, DYS390, DYS391, DYS392, DYS393) were analyzed in the sample of 457 unrelated Croatian men. A general STR allelic frequency pattern in Croatians corresponds to other European populations with the exception of the loci DYS19 and DYS389I/II. The most frequent DYS19 allele was 16, while at the DYS389I the most frequent was allele 10 and alleles 27 and 28 were the most frequent at the DYS389II locus. Two hundred forty two different Y chromosome haplotypes were observed, yielding the haplotype diversity estimate of 0.9896 ± 0.0017. The most frequent Y chromosome haplotype (16–

13–10–28–24–11–11–13) was found in 33 individuals (7.22%). One hundred seventy four haplotypes (38.07%) were observed in single copies. Comparison of insular and mainland populations showed that the forth most frequent haplotype (16–13–10–29–24–11–11–13) in the total sample was noticed only in islands and absent in the mainland population.

The Handling of Missing Values in Multivariate Morphometrics – Problems and Prospects

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In multivariate morphometrics, as well as in any other multivariate statistical procedure, it is often a problem that for some cases not all variables are available. Over the years several methods for dealing with such incomplete datasets have been proposed in, e.g., the anthropological literature. However, in many cases these methods have not been considered in connection to specific purposes, e.g. estimation of parametres such as centroids and covariance matrices, discriminant analysis and classification of single specimens, or principal component analysis aiming at elucidating functional complexes. In other cases the evaluation of the performance of the method in question has been wanting or the properties of the estimates have been aberrant. This presentation will give a short overview and criticism of methods proposed in the biological anthropological literature, emphasizing the need for clearly stated assumptions and purposes, i.e. precisely aimed methodology. The distinction between »missing at random« and »missing completely at random« is stressed. Among the »traditional« methods one finds multiple regression and Dear's principal component method, both in a number of different versions. Multiple imputation is presented here as a possible alternative to the hitherto applied methods for imputing missing values and obtaining reliable parameter estimates. The discussion will be based on analysis of a complete craniometric dataset, where missing values are generated in a »missing completely at random« pattern, and different approaches to the handling of missing values are applied. The performance of the traditional methods and multiple imputation is compared with regard to different purposes.

The Sexual Dimorphism in Human Osteology

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The sexual dimorphism (SD) of the constitutional and somatological marks was studied systematically (Deryabin, 1994), whereas the studied of the SD of the osteological marks are very rare. In our work we use SD coefficient (the difference of average values of marks of the male and female groups) and new generalized index of SD (the average coefficient of SD for a group of marks). For research we chose 40 populations of North Eurasia. These populations belong to different chronological periods, different cultures and geographical zones. We disposed these populations in a space of new generalized marks. Result. The European and Asiatic populations do not differ by the marks of SD, but the values of SD are closely connected with the peculiarities of the

economy and culture (the agricultural and nomads populations were clearly determined). It is also possible to suppose the significance of the hereditary factor in formation of the SD scheme for concrete population.

Anthropological-Ethnological Journeys of Professor Vojtěch Suk

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Professor Vojtech Suk (born in 1879, Prague) was one of the first Czech pioneers of so called »Anthropobiology«. In his view human being emerges rather as a complex entity resulting from genetic background, social, cultural and natural environment. As opposed to previous approaches, he postulated that modern anthropology should rely not solely on simple biophysical measurements (osteometry, craniometry), but always consider broad and complex social background and culture. He was one of the founders of the first Czech anthropological institute in Prague. He also established and was a director of Anthropological Institute of Masaryk University in Brno. In his rich scientific career he led many expeditions to Africa, Labrador, Mediterranean region and Ukraine. As a keen explorer he gathered numerous valuable collections: apart from anthropological measurements he collected also immunological data, extensive ethnological material and was also describing ethnic groups from a morphological and physiological point of view. The main emphasis was always put to cultural and social context. In his publications he was pointing out the negative influence of civilization to the health of origin populations and the influence of outer conditions to unadapted individuals. Contemporary as an ethnologist he indicated that the industrialization and mixing isolated for long time human groups leads to their unification and reciprocal adaptation to the new conditions. The danger is therefore that in such process many groups may lose their original genetic identity and unique culture.

The Dispersion of the First Farmers in Europe

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The appearance and dispersion of the first farmers in Europe has been the subject of heated debate among anthropologists, archaeologists, geneticists and linguists for over a century. While each discipline focused on different aspects of this grand topic, the central point of contention is what may be regarded as the demographic nature of the process. There is lack of consensus regarding two main aspects (1) the extent to which the transition to farming was an indigenous process, involved some admixture between incoming farmers and local hunters, or a population replacement process; and (2) the historical pattern in terms of the timing and tempo of the dispersion events. These issues are examined through the analysis of craniometric data assembled for over 1,400 specimens from Mesolithic and Neolithic skeletal populations. The analysis looks at the pattern of population expansions in Europe during the Early Neolithic Period and specifically at the point of origin and dispersive pattern of the first farmers. The expansion pattern of these populations is assessed in the context of corresponding

changes in the settlement pattern and demography of the European hunter-gatherer groups.

Colorblindness in Albania and in the Albanian Ethnic Minority of Cosenza Province (Calabria-Southern Italy) – Preliminary Results

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Albanian ethnic minority of Cosenza province (inhabitants, 39,621 living in 19 towns) is the most numerous of Continental Italy. It retains own ancient language, own cultural popular traditions and own religious Greek-Orthodox rites. So, it shows a great social-cultural isolation respect to the surrounding indigenous population. The high endogamy's degree and the high consanguinity are the cause for the increment of the inherited diseases. We compared the colorblindness frequencies of a males sample (n = 761) attending albanophon community with those of both males sample (n = 600) coming from Tirana (Albania) and a males sample (n = 3,591) attending the indigenous people living in the same internal area of Cosenza province where Albanian towns are located. Statistical analyses were made by χ^2 test. Colorblindness mean frequency of albanophon community, 7.5%, is significant different from the 5.43% of the indigenous people ($p < 0.0025$), but it was not different from the 8.0% of Tirana sample. Both albanophon community and Tirana sample miss the protoanomalous phenotype. Albanophon community shows a frequency of 13.8% for the protoanopous phenotype while Tirana sample shows 4.2% ($p < 0.05$). The frequencies of the green anomalous vision (deuteranomaly + deuteranopy) were the same in both albanophon community and Tirana sample.

The Fossil Hominid Findings From the Cave Site of Apidima, South Peloponnese Greece

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Paleoanthropological excavations at the cave site of Apidima brought to light a significant number of human fossil bones, which belonged at least to 6–8 different individuals. These fossil remains were found in different stratigraphic layers of the site dated to the middle and the upper Pleistocene. In the higher, upper Pleistocene layers of the site were found fossilized remains of Homo sapiens dated to ca 30.000 BP. The most important of these was that of a female skeleton of biological age 20 ± 3 years. In the lower, middle Pleistocene layers of the site were found fossilized cranial remains which appear to date to between 150.000 and 300.000 years BP and are placed within a group of archaic European forms, ancestral to the classical Neanderthal in Europe (Homo heidelbergensis v. neanderthalensis).

Analysis of the Block Design Test's Results

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The Block Design (Kohs) test is individual performance test for determination of IQ. This test is appropriate for children because of its similarity with popular children game and its nonverbal nature. The Block Design test consists 17 examples (patterns) that should be made by the subject in a certain time with a certain number of moves, which are limited for every given example. In this work, 30 children, pupils of elementary school, at mean age of 9.1 years were investigated. The results show that children finish the test with minimum 2 solved problems (one subject), to maximum 14 solved problems (5 subjects), mean value of numbers of successfully solved examples is 7.04 ±2.9. Mean value of IQ for this group of children is 117 ± 19.6. The solution (creation) of each pattern was analyzed by mean number of moves and necessary time needed to create its perfect duplicate. These results may be considered as standards regarding this test for this young population.

Evidence for Mesolithic Hyperparathyroidism

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Cases of hyperparathyroidism are rarely described in palaeopathological literature. The anthropological analysis of a Mesolithic individual discovered in Belgium (rock shelter »Abri des Autours«, Province of Namur), revealed several lesions suggesting this endocrine disorder. The skeleton was recovered during excavations of an individual burial, carried out by the Royal Belgian Museums of Art and History in 1993. It was covered with ochre but devoid of grave goods. This skeleton is in a very good state of preservation and belongs to an elderly woman. One of her ribs has been radiocarbon-dated to 9,500 ± 75 years BP. The most obvious lesions are unconsolidated fractures of the two forearms leading to pseudoarthrosis and a compression fracture of two vertebrae. The morphometric measurements of metacarpals and the bone mineral density (BMD) were used to quantify the trabecular bone rarefaction. Both methods indicate a moderate osteoporosis. The same analysis was also applied to two other prehistoric individuals coming from the same site in order to reject the effects of post-mortem demineralization. Furthermore, some unusual aspects have been observed. Firstly, the lamina dura (thin layer of lamellar bone lining the dental alveoli) is completely resorbed on the mandible and the maxilla. Secondly, there is resorption of the tufts of the terminal phalanges in the hands, the interruption of the cortical bone line delineating the tuft giving a lace border appearance. These two aspects are classically described in hyperparathyroidism, suggesting this diagnosis on the Mesolithic skeleton of »Abri des Autours«, which could become the most ancient evidence of this disease.

Housing and Quality of Life

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The interest and the studies analyzing the existing situation in the housing field are constantly present both abroad and in Croatia. At the same time there are attempts at tracing the directions in its development to make the housing suitable both for the present as well as for the future user. A permanent study of the »housing totality« is necessary in order to answer to the demands related to the dwelling and housing sphere asked of us primarily as architects-designers. The thesis has shown that the starting point for the research should be man's objectivized needs and their satisfaction. They should be regarded through an active dwelling process, the active dwelling-dweller relation where the dwellings usable values represent a level of the satisfaction of defined needs. Through research, classification and evaluation of the housing needs the thesis has proved that their basic characteristic is their tangibility. From this stems the conclusion that the dwelling's design should be based on the recognition of the needs of an individual user family and on the maximum adaptability to the maximum number of changes during its life span. This would today represent a basis for the concept of contemporary dwelling whereas the definition of the needs for space lies in the field of the so-called sociological expertise. The answer to the question of the dwelling evolution lies in the problem of the dwelling exploitation through a space metamorphosis in time. The answer to the question of methods serving to establish the dwelling's properties is directed exactly to inter relation between the user and the dweller representing symbolically two main points of reference for the selection of markers of usable value of an analyzed dwelling. The most important measure of the dwelling's quality is the satisfaction of its users. We could state that the most important criterion of the dwelling's value is its adaptability to various, through time, changeable demands of its users. It represents a basis for the concept of the contemporary dwelling transformations. From the design point of view what is needed is the recognition of the dwelling's desirable properties and therefore it is necessary and right to continually engage in interdisciplinary investigations of all those properties in order to come closer to as well as to clarify genesis of the problem of the dwelling evolution. The reason for this is because the housing is a dynamic process in permanent varying of both needs and changes, so the design process itself should represent a direct evaluation of our goals.

Craniomandibular Growth in the Neanderthals

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Craniomandibular growth in Neanderthals and anatomically modern humans (AMH) is accompanied by considerable morphological changes leading to the differentiation of features which are distinctive for each taxon. Using geometric morphometric methods and computer graphics tools, we study how these characters covary with each other, both along and across taxon-specific ontogenetic trajectories. Our analyses reveal differences and commonalities in Neanderthal and AMH cranial shape variability. The

morphological distinctiveness of the taxa is already present at early postnatal stages while, during later stages of ontogeny, both taxa follow a common pattern of development with only minor heterochronic shifts. It emerges that the evolutionary modification of early developmental processes might have played a key role during the phyletic diversification of humans. (Supported by the Austrian Federal Ministry of Education, Science and Culture, Austrian Council for Sciene and Technology; Project: GZ 200. 049/3 – VI/I/2001.)

Anthropology and Style of Life in Middle Age Women

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The menopause is a time of increment of the risk of obesity in the feminine sex, for what is opportune to know the effect of some decisive of this period of the life in a group of women with overweight highly prevalent. The anthropometric pattern, demographics data, was analyzed the climacteric period, diverse factors of the lifestyle and several aspects of the morbidity of 406 women in frank overweight. The climacteric period was characterized by the evident presence of blushes, hot flushes, throbs, insomnia, irritability, loss of the energy and anxiety in more than 50% of the sample, with a bigger frequency in the postmenopausal women. Some socioeconomic characteristics of importance were the school level with a bigger percentage of women with concluded secondary studies, the most frequent occupation was that of housewife in 44.8% of the sample and the common marital state was the one of married or with stable couple (62.3%). The morbidity square suggests a high set on of vascular and metabolic complications of the obesity in this group; the hypertension, the circulatory dysfunction and the artrosis were the most excellent illnesses, being these in direct association with a morphology typically androgenic, more evident in the postmenopausal women. The number of foods ingested daily oscillated basically between 2 and 3, with a habit of having breakfast unstable, since this practice was instituted in 50% of the study group, in an equivalent way between pre and postmenopausal women. A moderate consumption of rice, was evidenced pastas, candies and vegetables, few candies and fatty, what points to or quite acceptable knowledge of the harmful effect of some foods, to weigh that the shadowy use of the saturated fats and not saturated it was the most frequent thing. The toxic habits of coffee, alcohol and tabaquism can be considered as very established. The analysis of main components corroborated the association of the superior obesity with the decisive of the morbidity; this was more representative starting from the menopause.

What Happens to Children When They Grow Up

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The present study answers the question on how the human body changes in two successive decades after its final height had been reached. One hundred and tree individuals (56 males and 47 females) who were followed up longitudinally by a team of scientists from birth to adulthood were investigated anthropometrically by 18 body measu-

rements again when they reached the age of between 35 and 39 years. The Heath-Carter somatotype was ascertained as a part of the study. The results of the investigation at the age of 35 to 39 years were compared with those from 18 years of age and the somatotypes also with those of the ages 6 and 12 years in cases when the numbers in the groups were more numerous. The means of all measurements in both sexes increased with age (with the exception of stature in females). Relative measurements and indices, which were calculated only in the groups of 35- to 39-year-olds were all on the average greater in males than in females with the exception of relative head circumference and pelvis width, in the pelvis width in per cent of biacromial width, in the sum of skinfolds, and the gross percent of body fat. Somatotypes shifted in both sexes more of less in the same direction in the Sheldon's somatograph. Males as well as females increased in weight, muscle, bone and fat mass, which manifested by a shift towards endomorphic and mesomorphic components away from the ectomorphic one.

Frontal Sinus Cross Section Outlines as Fractal Structures – A Methodology for Identifying Characteristic Points' on Landmark-Free Curves

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It is well documented that the extent, volume and morphology of the frontal sinuses vary greatly in extant populations. Any model will thus be challenged by the extraordinary level of statistical noise in the data. Recently, we could show that the ontogeny of the frontal sinuses is statistically consistent with an autocatalytic process. We now show how such a process can be simulated with a percolation cluster model and that the resultant outline is a fractal. We apply this insight to investigating 1422 digitised outlines in 711 radiograms of H. sapiens frontal sinuses from all regions of the Earth and show how such fractal structures are to be analysed by using the singular value decomposition of the resulting data matrix. The methodology involves identifying the mean outline as the first approximation (in a Frobenius sense) with only the first singular value and using the second approximation to identify fixed points which are remarkably reproducible for the outline forms. The 'interleaved' points between the fixed ones carry the statistical variance and lend themselves to Geometric Morphometrics analysis of the various aspects of symmetry, such as directed asymmetry, fluctuating asymmetry and matching symmetry.

New Upper Paleolithic Finds of Neanderthal and H. Sapiens Sapiens From the Provinces of Rheinland-Palatinate and Hessia, Germany

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A nearly comletely preserved calotte of a Neanderthal from Ochtendung, Rheinland-Palatinate, is clearly identified belonging to Homo neanderthalensis dating to the Typeriss around 165,000 years B.P. Two other individuals belonging to Homo sapiens sa-

piens date to 29,000 years B.P. and were found four km away from the Neanderthal in another volcano deposit. They belong to a male and female. Furthermore a new cranium (Kelsterbach 2) was found in a stratum at Kelsterbach dating to 20,000 years B.P. somewhat above the individual Kelsterbach 1, which dates to ca. 32,000 years B.P. The earliest appearance of anatomically modern man in Europe represented here by two individuals at around 30,000 years B.P. again strengthens the theory that a migration occurred Out-of-Africa around 35,000 to 30,000 years B.P.

Adapis Wegneri – A New Species of Adapis From Egerkingen, Switzerland

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A nearly complete skull, the mandible missing, was analyzed as a new holotype of the genus Adapis, species Adapis wegneri, and added to the already existing nine species of Adapis. It dates to the Bartonian (Ludien) of the Eocene. Dating is relatively clear on the basis of associated index fossils of molluscae imbedded in the matrix of the fossa temporalis and date in absolute years between 38 to 39 million years B.P. Morphological analysis clearly differentiates the specimen from other species of Adapis, also clearly aligning it within the Adapiformes.

The Late Roman/Early Medieval Cemetery of Novigrad (Istria) – Results of Bioarchaeological Analysis

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The poster presents results of analysis of human skeletal remains recovered from Late Roman/Early Medieval Cemetery cemetery of Novigrad (Istria). The *terminus post quem* for the site was established archaeologically as 5th or 6th century A.D. Despite the fact that the analyzed sample is very small (consisting of 13 individuals) the results are valuable because no other bioarchaeological information is available from the Late Roman and Early Medieval period in Istria. The aim of this work was detailed bioarchaeological analysis of each individual. It included age and a time of death, reconstruction of body height, and detailed description of pathological changes on bones and joint surfaces acquired during lifetime. The analysis provides limited data on demography, health and disease of the ancient inhabitants of Novigrad. Results show unusually high proportion of subadults, a life span range comparable to other contemporary populations, a high level of metabolic stress in childhood and a high level of ske- letal indicators of physical stress suggesting that several of the analyzed individuals were exposed to heavy physical labor during their adulty.

Caries Symmetry of First Permanent Molar

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In preventive dentistry epidemiological studies often should be done. Because of lack of time it is possible to check just one side of the dental arch and multiply that result. Simultaneous tooth eruption on the both sides gives us that opportunity. Examination of only one side of both jaws could be used as a key of the real caries dissemination, but only on the condition that boys and girls are represented in equal numbers. We believe that the right side is the real side, as it was found out than symmetry exists between both jaws, upper and lower, in all children, as well in boys as in girls taken separately, while the left side was shown to be rather serious departure of that rule.

Annual Caries Increase as Indicator of Selective Caries Prevention

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By planning of caries preventive measurements usually are chosen those economically legitimate and easily conducted in all age groups. Epidemiological studies have shown that increase of caries is not the same for all age groups. Because of various presented teeth number, their caries exposure is different, and the most exposed age groups should be separated for additional selective preventive measurements. The most caries exposed age groups are between 1 and 2, 2 and 3 and 4 and 5 class. For them additional control examinations should be done every 6 months, and application of aminfluorid solution by every visit in dental office.

Phylogenetic Implications of the Neandertal Masticatory System

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The issue of the functional significance of Neandertal facial morphology is still far from being settled. Essentially, the morphology is viewed in two ways: as a derived adaptation and as an intermediate stage between a primitive, ancestral condition and the derived morphology of modern humans. With its extreme specializations, the Neandertal mandible seems to support the notion that the masticatory system is, indeed, responsible for the unique Neandertal facial morphology. The mandible is easier to interpret biomechanically than the face; thus, once we understand the mandible, we can extrapolate the same degree of specialization to the face, as the opposing structure in the masticatory apparatus. Viewed as a highly specialized system, the Neandertal masticatory apparatus has profound phylogenetic significance, since it removes Neandertals from the human ancestral lineage.

Relationships Between Body Composition and Postural Disorders

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Postural disorders refer to functional defects of the locomotor system. The types and frequency of these disorders also depend on age. The present research has tried to find an answer to the question if such functional disorders were related to the various stages of structural differences. In our studies body composition and somatotype of kindergarten-age children of the same age and postural disorder without manifest functional impairment were compared. Somatotype was assessed by the Heath-Carter anthropometric model. Body composition was estimated by the Drinkwater-Ross four-component model (bone, muscle, fat and residual mass). Anthropometry followed recommendations. Postural disorders were classified by observing basic orthopaedic principles. For the upper half, the arm-lift and breathing tests and the Matthias test were applied while for the lower half Trendelenburg's test was used. The results can be used by the experts dealing with exercise therapy, physical education, in early health preservation and in physical training.

Influence of Model Segmental Variations on the Total Anthropodynamics

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Biomechanical analysis of human movement often requires application of appropriate geometric body models. This paper was aimed to develop parametric computer models for calculation of dynamic anthropometric measures for arbitrary percentile group of specific population for adult males and females, as well as for taking into consideration characteristics of particular person. There is also presented the application of these models for spatial analysis of human body movement.

Relationship Between the Somatotype and the Blood Pressure in a Group of Institutionalized Venezuelan Elderly

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The study of the ageing process and of the changes in the body composition as a result of ageing is an area of research of growing importance. Therefore, we analyzed the relationship of the somatotype, with the diastolic and systolic blood pressure in a group of institutionalized elderly. The sample is constituted of 591 adults (263 males and 328 females) aged 60 and 102 years. The Heath-Carter somatotype was calculated and the

diastolic and systolic blood pressure was registered. The Pearson correlation and the 25th and 75th percentiles of each somatotype component and of the blood pressure were calculated, with the purpose of classifying them among three levels: low (<P25), average and high (> P75). The values of endomorphy and mesomorphy are higher in the youngest subjects. A decrease of the values of the systolic and diastolic blood pressure was observed in the individuals older than 80 years of age. The correlation analysis showed high associations of the endomorphy with the mesomorphy in both sexes, while the correlations between these components and the systolic and diastolic were higher in the men than in women. The contingency analysis showed that those subjects with high values of endomorphy and mesomorphy were the same ones as those with high values of blood pressure. The results obtained allow us to conclude that those subjects with high values of endomorphy and mesomorphy present a bigger risk of suffering problems like hypertension and cardiovascular illnesses. Project CONICIT S1–9800 3275.

A View From the Trees – Visualization of Inferred Intermediates – Phylogeny, Procrustes Analysis, and Surfaces

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Recent advances in visualization and morphometrics have enabled more quantitative articulation of hypotheses about shape which may shed light on evolutionary patterns. We will present a visualization program which, given an a priori phylogenetic tree or cladogram and laser surface scans of exemplar individuals of extant taxa, backed by statistically powerful geometric morphometric analysis of 3D coordinate landmarks acquired by conventional digitizing arm, allows for the visualization of inferred intermediate forms at the nodes of the tree, or anywhere along the lines connecting nodes. The program is based on the popular TPStree program from the TPS series by Rohlf (http://life.bio.sunysb.edu/morph/), a 2D program, with 3D visualization implemented in Open Data Explorer (http://www.opendx.org/). While the resulting visualizations are based solely on the morphometric properties of the chosen landmarks, and do not include character or genetic data, the resulting forms are still interesting for quantitative comparison with laser surface scans of fossils for a fuller understanding of the role of shape in phylogenetics and the proximity of various fossils to theoretical inferred intermediate forms.

Population Expansions From the Iberian Peninsula Revealed by High-Resolution Y SNPs Haplotype Analyses

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A battery of high-resolution SNPs focused on the evolutionary reconstruction of the populations of the Iberian Peninsula (IP) is carried out. This study encompasses a total of 895 autochthonous male individuals belonging to eight IP groups. PCR-RFLP followed by separation in ultra thin PAGE and Silver Staining is used for Y-SNP genotyping. The results support the interpretation of two major expansions from the IP to Western Europe and NW Africa, in successive stages, with the haplotypes SRY-2627/DYS257/M9/2 and M173/M45/M9/2 being the most informative. Haplotypes which probably emerged in the East-West Neolithic transition, and their arrival and expansion in the IP would appear to have deeply remodeled the previous genetic structure (reflected by haplotypes M35/4064/YAP and 4064/YAP), peripheral and relatively isolated populations (mainly from the northern and north-western IP), these being the groups which have retained that previous genetic memory, which is also supported by Principal Component Analysis as the closeness of these populations to other Atlantic European populations.

Tracing Human Migration Into the Mediterranean Area Through mtDNA

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The development of molecular biology techniques and of robust procedures of inference allows the genetic data obtained from both ancient and living populations to yield conclusions about human evolutionary history. In this way it is possible to shed lights on the relationships between populations and on the mode and dynamic of human expansion all over the word into details. Among the specific merits of the investigation of the phylogeny of human mtDNA lineages, maternal inheritance, lack of segregation and recombination, and fast evolutionary rate have to be stressed. Moreover, a network of combinatorial haplogroups has been worked out for mtDNA polymorphisms which allows to differentiate between human populations and to reconstruct their evolutionary relationships. In fact, during the last decades a set of monophyletic clusters, defined haplogroups or lineages, has been identified. The various haplogroups, which originated during the migration of modern humans out of Africa and their dispersion into Eurasia, appear to be population or region-specific. A hierarchical scheme of classification into haplogroups has been proposed which summarizes the mtDNA genealogy at a world-wide level by using polymorphic sites of both coding and control regions. Notwithstanding in world-wide mtDNA sequence data bases Europeans may appear »oversampled«, a more thorough analysis reveals that, even in western and central Eu-

rope, many of the European and neighbouring populations are only marginally or not at all investigated. The aim of this research project has been to study the mtDNA variability in southern Italian and other Mediterranean populations in order to get a better understanding of the peopling of this area. The diagnostic mutations of each haplogroup has been detected by using both RFLP analysis and sequencing of control region (HV1+HV2). The application of both methods has allowed to identify the principal evolutionary lineages (clusters) present in the Mediterranean area, as well as to detect the molecular variability within each haplogroup. The possibility to compare genetic diversity of these populations with the variation of other peoples from continental Europe, Africa and the Near and Middle East has permitted to check for the presence of clinal distributions and to identify and describe demographical expansion patterns. Moreover, ancient DNA has been used to identify the sex of burials which could not be identified by osteology. This has helped the archaeologists to build up a picture of the demography of past societies. This research has been carried out with the collaboration of many Italian colleagues (F. Mallegni, G. Manzi, G. Castellana, A. M. Tunzi Sisto, G. Maetzke, G. Girelli) and the financial support of the C.N.R. Special Project »Safeguard of Cultural Heritage«.

Age at Death Determination and Cranial Suture Obliteration

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It is still open the scientific debate on the effectiveness of diagnosing the age at death by means of cranial suture obliteration (CO). Here we report the empirical evaluation of such effectiveness obtained by a statistical analysis on 198 skulls of adult individuals whose age at death is known; such skulls form the well-known collection housed in the cranioteca of the Museo di Antropologia ed Etnologia in Florence. For any skull sixteen segments of approximately equal length have been examined on both the internal and external surfaces, evaluating the obliteration degree of each of them according to Ribbe's scale: let us call, shortly, {s} the result of such evaluations in the generic individual. Our statistical analysis follows a Bayesian-theoretic decision paradigm. For each individual we have estimated two ages at death: e{0}, based only on the distribution of the age at death in the collection, and e{s}, based also on the knowledge of {s}. Both e{0} and e{s} are compared with the – known – age at death, measuring the diagnostic error with the square of the difference. Then, after evaluating e{s} for all the individuals, our criterion to measure the effectiveness of CO is the ratio of the mean error using e{s} to the mean error diagnosing uniformly with e{0}. It is worth to hint at the calculation of e{0} and e{s}. Obviously e{0} is the same one for all the individuals; more precisely, it is the expectation of the probability distribution of age at death P{0} elicitated by the frequency distribution of the ages at death in the collection. On the other hand, e{s} is the expectation of the probability distribution Pšs} updating P{0} via Bayes Theorem through the likelihood that {s} gives to each of the possible ages. Each estimated age e{s} takes in full account all the data in our collection. This is done by a hierarchical regression model with mixtures, whose details here we omit. The measure of CO effectiveness we have obtained is 0.52, i.e. the CO information only halves (in mean) the error of diagnosing without such piece of information.

Persistent Social Differences in Adult Stature in Flanders (Belgium)

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In most West-European countries, adult stature is increasing and attainted at younger ages. This phenomenon, known as »secular trend«, is probably due to the improved nutritional and hygienic environment, which results from the improved social background in which children are growing up. Due to the ongoing secular changes, regular updates of reference material for growth monitoring (i.e. growth charts) are necessary. The present study provides an ad-interim analysis of data from a growth survey momentarily carried out in Flanders (Belgium). The main objective is to estimate whether university freshman can be included in new growth standards for the general population. This is necessary since data from young adults (18 years and older) are scarce in secondary schools (general population), but can be easily obtained from university students. Earlier work by Vercauteren suggested that in Belgium, differences in the attainted height between social classes are diminishing, and a recent pilot study in a population of university freshman demonstrated the ongoing secular trend (approximately 1.3 cm and 2.2 cm per decade for girls and boys respectively) without any apparent social differences within this population. Data from this pilot study of 521 university freshman of the Vrije Universiteit Brussel (18–19 years of age) will be compared to the preliminary results of a larger survey in the general population (pupils from secondary school). Special attention will be given to height, weight and socio-economic profile. Estimated asymptotic target height of the general population will be compared to the observed height of the 18–19 year old students. Suggestions will be made about the inclusion of student data in the new growth standard.

The Hominid and Human Gait

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The author is going forth with his work presented at EAA, now in a book, at the subject of a peculiar hominids ecosystem whereabouts they clambered up terrestrial slopes with the aid of one or two hands. Their gait at level with rotary pelvic bursts, hip-knee moderately flexed was not the model of human-like type of gait: the author, through up-to-date researches perceived at best that there is extraordinary similarity between the hominid uphill clambering-gait and modern human gait at level ground. There is at: 1) Touchdown: the tibia lands to the ground in verticality (the body has to be at-

tracted in uprightness on the leg), the straight talo-tibial orientation is permitted for the rearward slight inclination of the tibial ending while the dorsal ankle flexion is checked by the obliquely oriented talar peroneal facet, the body fall is checked also through a forward extended arm; 2) Vertical passage in body elevation: the head reaches its maximum height, the body gains forward-upwards space through the gluteus maximus and quadricipital vasti push, hip-knee are relatively extended and the hind limb launch is prepared with iliopsoas, rectus femori stretching, the hominid foot, relatively flat at touch-down, at this moment receives the spring ligament upward push and changes in arched foot, the gastrocnemi brings the body on metatarsophalangeal joints; 3) Launch: those muscles launch forward the hind-limb in a maximum flexion, external rotation, abduction, valgus knee (sartorius, biceps femori) while the peronei, extensor digiti brevis lead the foot in dorsal flexion-pronation. Correctly, Borelli (1685) saw the human gait as essentially a check trough the advanced leg, of the body forward falling. In the time, Homo habilis then erectus, archaicus, and neanderthalensis, however, all them kept at pelvis and knee osseous imprinting of the above said gluteal-quadricipital forces because they frequently went uphill in bipedalism.

The Geometry of Hominid's Gait Impact to Its Ground

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The author is going forth with his work presented at EAA, now in a book, at the subject of peculiar hominids their own ecosystem which they clambered up onto its terrestrial slopes with the aid of one or two hands. In another Conference he is intended to show the extraordinary similarity between the hominid uphill clambering-gait and modern human gait at level ground. Now he wants to show the production from the merger between the Frankfurt line (porion-orbital basis), substantially horizontal to the ground independently from the inclination of this last, together with the vertical body alignment enhancement which, in its turn yielded a more and more vertical facial plane. Through pre-hominid (Proconsul)-early hominid (Australopithecus afarensis)-late hominid (A africanus)-Homo habilis (OH24) until Homo sapiens archaicus (Petralona), there was a steady diminution of the inclination of the slope they climbed up until this last organism frequented most habitually the flat ground. So, the result which the author wants to show, is the gradual decreasing of the angle—as it is most easily measured on the skulls of the above said members of our own lineage—between the Frankfurt line and the sopraorbital-subnasal line, the representative of the facial plane inclination. The gradual decreasing of that angle goes from 130° of Proconsul to 90° of Petralona's skull: curiously from the first to the last of the above mentioned taxa the decremental values proceed by 10° to 10°!

Lessons Learned From the Distribution of Y-Chromosomal Haplogroups in Central and Eastern Europe

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Present distribution of paternal and maternal lineages in Europe is a result of great many demographic events: initial, Upper Paleolithic peopling of the continent, post-LGM re-colonization and Neolithic expansion being probably the main players. We have analyzed Y-chromosomal variation in 16 central and eastern European populations (Nč1200), belonging to Indo-European, Finno-Ugric and Turkic language groups. Y-chromosomal haplogroups, as defined by binary markers, were established and further characterized by a set of STR markers. A nomenclature proposed recently by Y chromosome consortium, is followed. Among studied by us populations, haplogroup R1a (defined by SRY 1532) is nearly uniformly (30%–50%) present all over the area from the Ukraine to the Ural mountains, supporting a suggestion that its phylogeography is likely determined by re-colonization of the northwestern Eurasia after the LGM. Another dominant haplogroup among central and eastern European populations is haplogroup I, defined by M170. It has arisen, probably in Europe, about 20 000 years ago. High frequency of haplogroup N3a was detected in Baltic region in Estonians, Latvians and Lithuanians (also in Finns, Karelians and Saami), and in some Volga populations. Much higher STR diversity of N3a in Eastern Europe compared to that in Siberia suggest a massive eastward Y-chromosomal flow across all linguistic borders en route. The story told by Y chromosome is but a part of the demographic history, but clearly a very intriguing one.

Morphological Integration and Predictive Value of the Mandible in the Cranio-Facial System of Hominids – A Test With the Atapuerca-SH Sample

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Many factors influence the craniofacial variation of modern humans. The implications of allometry and sexual dimorphism have recently been described, but also basicranial/cerebral determinations of head form are discussed as important constituents of variation in modern humans. In the present study we explore the integrated nature of the craniofacial system. Certain aspects of mandible and cranial shape co-variation in modern humans (and chimpanzees) are employed as a proxy to possible interpretations of craniofacial evolution in Mid-Pleistocene hominids. The Atapuerca SH mandible sample offers a unique possibility to study aspects of intra-populational variation in Middle Pleistocene hominids. Partial warp scores are used for constructing morphospaces, relative warps- and partial least squares analysis are employed in order to explore the morphological integration of the mandible and the cranium. The following aspects are

considered: 1) Allometric morphospaces (Humans, skulls and mandibles, AT-SH specimens, IMP-software), 2) Relative warps analysis (Dolifacial and Brachyfacial patterns), human/chimpanzee skulls and mandibles and AT-SH mandibles (Neandertals), 3) PLS for identifying cranial and mandibular patterns of covariation in humans/chimps. Similarities and dissimilarities between fossil hominids and modern humans and their possible implications in evolutionary changes in morphogenesis are discussed.

Facial Identifications on Pictures – Method, Principles and Cases

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Not always persons on surveillance photos can be recognised reliably, i.e. in a judicially useful manner. Then a systematic anthropological identification is needed. The method is based first on the general knowledge of the human face: definition of shape traits and population frequencies from the literature. Beyond this, more specific and personal shape traits are regarded and assessed, particularly in the nose and ears. In a forensic expertise the traits are described, their rarity is assessed, the ease of recognition is indicated and intercorrelations between the traits are given. The experience so far, external blind tests and court results have shown the value of this method. In principle, »doubles« do not exist, also monozygotic twins may be identified, the only influential factor being picture quality. An important forensic principle is »pre-selection«: if a person has been named after investigation with the offender picture, then he will be similar to the offender, be he identical or not. One of the cases presented shows the devastating consequences when this principle is ignored.

Skeletal Identification in the Schönberg Case – Variability of Reconstructed Faces

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In September 1999 a largely decomposed body was found near Pfullingen, on the slopes of the Schönberg. These were the remains of a male of 18 or 19 years of age at death. Time since death was reconstructed to roughly years. Heavy perimortal damage to the skull points to the cause of death. A Sonderkommission was formed, a large police investigation squad. Autopsy etc was performed by M Graw, additional forensic anthropology statements were given by Fw Rösing. A total of three facial reconstructions were made, by KT Taylor/Fw Rösing, M Taister/D Ubelaker and S Burrath/Fw Rösing. The differences between the faces are considerable and thus illustrative for some of the pitfalls of this method.

Fluoride Uptake in Sound Enamel After Different Treatment With Amine Fluoride Solution

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The uptake of fluoride in dental enamel after topical fluoride treatment is considered to be an important factor in caries prevention, although the effects of tooth bound fluoride have not been clearly demonstrated. The aim of this in vitro study was to quantify the formation of structurally bound fluoride taken up by enamel after application of amine fluoride solution with different fluoride content and different frequency of use. Four enamel slabs were cut from buccal or lingual surfaces of 11 impacted human third molars and randomly divided into four groups. All surfaces of the slabs were covered with dental wax except for the enamel surface. Each of the three groups of slabs was shaken for 3 min. in an amine fluoride solution with pH of 3.8 (Aminfluorid otopina, Belupo, Croatia) and with one of the following fluoride concentrations and frequency of use; group A: 1% F twice a day; group B: 0.5% F three times a day and group C: 0.25% F four times a day. These treatments were repeated on 3 successive days. One group of slabs without treatment served as the control (D). Loosely bound fluorides were removed by 24-hour treatment with KOH after which the fluoride content in the enamel was determined after acid etching using a fluoride-sensitive electrode. The amounts of F and the surface areas of the slabs were used to calculate the structurally bound fluoride. The fluoride content in the enamel (etching depth about 20μm) was: group A 23.0 $\pm$ 8.5μg/cm^2, group B 20.0 $\pm$ 5.0 μg/cm^2, group C 10.0 $\pm$ 6.7μg/cm^2, group D 3.0 $\pm$ 1.2 μg/cm^2, the latter differing statistically significantly from all other groups. As there was no statistically significant difference between groups A and B, it can be concluded that lowering the standard fluoride concentration by half, but with more frequent use, the effect on fluoride uptake in enamel could be similar.

Anthropometric Characteristics and Respiratory Functions in Postpubertal Boys

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Some of the studies show that cigarette smoking occurs decrease in lung function during a life time (Xu et al. 1994, Kiter et al. 2000) especially in FEV_1 and $FEF_{25–75}$ in children and adolescents (Tager et al. 1985). The aim of this investigation was to compare the anthropometric characteristics and the indicators of the peak respiratory functions between smoker and non-smoker adolescents. The subjects were 17-year-old volunteer boys (N = 105). Three sub-samples were developed, namely: cigarette smokers (n = 35), non-smokers (N = 35) and athletic non-smokers (n = 35). Physique and body composition were estimated by anthropometric techniques. Graded exhaustive spirogometric test was carried out on a treadmill. Subgroup means and standard deviations were tested by F-test following one-way ANOVA. No statistical differences were found between subgroup means fo height, body mass and metric index. Nevertheless, plastic index, minute ventilation, minute ventilation relative to body mass, oxygen consumption, oxygen uptake relative to body mass were greater at the athletes than the non-athletic

smokers and non-smokers. Minute ventilation relative to body mass was described as one of the characteristics of respiratory efficiency (Demeter 1981). Beyond the favorable consequences of greater relative minue ventilation during exercise (for instance: more effective thermoregulation) the common variance of relative oxygen uptake and relative minute ventilation was remarkable, 50%.

On Using the Mathematical Analysis of Heart Rate Variability as Applied to Problems of Human Ecology

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Development of human ecology and biology in last decades is dealt with wide spread of new methods, some of them coming from medicine. The method of mathematical analysis of heart rate variability was worked out in space medicine. It allows evaluation of functional capabilities and status of adaptation mechanisms of whole organism using mathematical and statistical parameters of heart rate, which is possible as a cardiovascular system is an indicator of adaptive response of human organism. We propose to use this method in populational researches related with problems of human ecology and in studying of anthropological aspects of adaptation. Firstly, the level of stress and adaptation to environmental conditions of human population (also called as population health) can be indicated. Then, studying and comparing human groups different in origin and living in different territories we can detect inter-populational differences in adaptation potentials of whole organism and in functional status of a cardiovascular system. Besides, properly selecting the groups of comparison we can understand which factors mainly determine these differences. So, the use of this original method in populational researches can give to human ecology some new fields to investigate. First data was gained among the Gagausians in the south of Moldova Republic (grant RFH 02–01–00297a) when testing the possibilities of such approach.

Considering Human Reproduction in Slovenian Anthropology – The Contribution of Božo Škerlj

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It is not an exaggeration to hold that Božo Škerlj (1904–1961) stirred up the institutionalization and consolidation of Slovenian anthropology despite its predominantly »physical« orientation at the very beginning. Parallel to exercising anthropometrics on the selected population samples (schoolchildren, sportsmen, prostitutes and »less gifted« children), Škerlj extensively investigated their genealogies mainly in the view of reproductive behavior and population statistics. The latter was at that time (in the 1930s and 1940s) a »hot« topic in Slovenian experts on reproduction, particularly in the view of the competitive nationalisms in the first Yugoslavia; the non/endangered »national reproduction« was in the limelight of such debates. Therefore the paper mostly deals with the impact of Škerlj's work on eugenics on politically tainted debate on human reproduction, birth control, and abortion. However, some of Škerlj's writings on reproductive behavior are viewed as problematic for their eugenicist beliefs. Škerlj's

endeavor for family planning was founded in extremist eugenic arguments revolving around the axe – the »inferior«/»superior« individuals – thus making it the matter of »biological necessity«. Inspired by the social darwinism, Škerlj held by the so-called positive and negative measures for stimulating fertility in certain segments of national population; »superiors« were encouraged while »inferiors« were excluded as possible contributors to the national stock.

Progressive Changes in Brain Size and Musculo-Skeletal Traits in Seven Hominoid Populations

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Neurological complexity has increased over evolutionary time for invertebrates and vertebrates alike, with the hominid brain tripling in size over the last 3 million years. Since magnetic resonance imaging (MRI) studies among humans indicate a significant correlation (mean $r > 0.40$) between individual differences in brain size and general cognitive ability, it is reasonable to hypothesize that increasing brain size confers greater intelligence. However, larger brains have associated costs, taking longer to build and requiring more energy to run. Sufficient advantages must have accrued for them to override these trade-offs. The present paper documents that in hominoids, as brain size increased from 380 to 1364 cubic centimeters over seven hominoid groups (chimpanzees to australopithecines to Homo habilis to Homo erectus to differences among Homo sapiens), it was accompanied by changes in 74 musculo-skeletal traits ($rs = 0.90$). These occurred on both cranial traits (temporalis fossae, post-orbital constrictions, mandibles, dentition, nuchal muscle attachments) and on post-cranial traits (pelvic widths, femoral heads, tibial plateaus). It is concluded that in the evolutionary competition to find and fill new niches, there was »room at the top« for greater behavioral complexity and larger brain size, leading to cascading effects on other traits.

Human Life Span and Mortality in Medieval Bulgaria – End of the 7^{th} – 10^{th} c. A. D. According to Anthropological Material of Necropolises

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Data for age and age-sex distribution of the anthropological material from 25 pagan and Christian necropolises dated from the end of 7^{th} to the end of 10^{th} c. A.D. from North-East, Central North, North-West and South-West Bulgaria are analyzed. The low percent of infant skeletons in some necropolises is more convenient to be explained with the bad preservation of bones and insufficient investigation of sites. Serious distortions of sex distribution in biritual necropolises are not found and probably the two burial rituals have been practiced with equal frequency for both sexes. An exceptional age and age-sex distribution shows the material from the round mass grave in the necropolis Devnia 3. It proves that in this ritual, probably a scarification, the females of a special social-religious group were treated. Life tables have been constructed according

to the distribution of the material in five years age intervals and in both sexes for adults. In necropolises with infant skeletons over 40 percent highest life expectancy at birth shows population of Karamanite – 28 years and lowest it is for the population from Durankulak – 15 years. In other cases life expectancy varies between 19 and 25 years. In all necropolises young females in age groups between 20–30 years have lower life expectancy than males in same age groups. The number of skeletons determined as such of over 60 years old persons is very low in all of the necropolises. In most of the sites skeletons from these age groups are missing at all.

Computer Tomography in Studies of Bone of Long Bone Cross-Sections – Trigonometric Versus Image Analysis Method

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The trigonometric approach developed by Nagurka and Hayes 1980 is frequently used to compute biomechanical properties of cross section of long bone. However, computation of larger samples and/or studies of more cross sections of respective bone can be difficult. Computer tomography of long bones offers a possibility for serial image preparation but the strategy of computation of biomechanical parameters must be adjusted to the specific parameters of the images. We tested two different methods of calculation for biomechanical parameters from cross section CT images. Trigonometric approach is derived from Nagurka and Hayes, inner and outer outlines are transferred to x and y-coordinates and later used for computation. We also developed an alternative strategy for computation of biomechanical properties of cross sections using pixel unit density. However, both approaches are not just leading us to the different computation problem but also to a different biological meaning of computed biomechanical parameters. The trigonometric approach reduced long bone to the engineering model of hollow beam. However, pixel density (or area density) approach is connected with other factors like preservation, taphonomy and pathology, and not exclusively with biomechanical properties. Both approaches are therefore discussed from mathematical/computational as well as biological points of view using long bones of a sample of 70 individuals from Early Bronze Age groups of Lower Austria.

Genetic and Environmental Sources on Familial Transmission in Basque Families – Body Fatness Indicators

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A cross-sectional sample of 357 individuals (104 fathers, 104 mothers, 72 sons and 77 daughters) from 104 nuclear families living in the Biscay province (Basque Country,

Spain) was studied. The aim of this study was the estimation of transmissible and non-transmissible components acting on familial resemblance for several body fatness indicators. The standardized data for each generation and sex were fitted to a BETA model of path analysis without sex effects. This model allowed to separate the transmissible (biological and cultural) and non-transmissible (environmental) components of the phenotypic variance observed in Biscayan children. The results allowed to accept the full model of familial transmission for the 6 studied variables. In addition, the most reduced models are proposing a familial transmission without social homogamy between mates, or the non-influence of siblings shared environment on transmitted environment or the absence of genetic effects for all the variables were accepted. The most parsimonious model was built based on these last hypotheses of transmission and it was accepted only for CFR index and rejected for the 4 skinfolds and their sum. Total transmissible component of the variance (t^2) presented a wide range of variation, between 31% for suprailiac skinfold and 83% for subscapular skinfold. The obtained estimations for the Biscayan sample were in the range of variation or above those given in the literature. However, it should be remembered that these estimations are specific for each population.

Analysis of Seroproteins C3, Gc and Bf in Some Populations of the Italian-French Alps

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The aim of the »Dauphiné Project« is to reconstruct, with a wide perspective and multidisciplinary approach, the anthropological history of some mountain populations in both the French and Italian parts of the ancient Dauphiné. Mountain populations present peculiarities that make them interesting to anthropology: living in difficult climatic conditions; a history that from time to time has brought them together and then separated them; continuous biological and socio-economic adaptation. Moreover, although these populations have become homogeneous in the past on account of the high degree of endogamy and geographical isolation, they are currently at risk of rapidly losing their peculiar genetic characteristics because of the development of communication routes and their changing lifestyle. Within the »Dauphiné Project«, the present study is an analysis of seroproteins conducted on blood samples of subjects living in mountain communities of the Italian-French Western Alps; they are male and female adults from families native to the zones for at least two generations. In particular, the third component of complement (C3), the group specific component (Gc) and properdin B factor (Bf) were considered, these being very important markers in human genetics research. The data for these systems are the first results of the biological study of populations of the Western Alps. They add to our otherwise scanty knowledge about the distribution of these polymorphisms in the populations under study. Determination of the phenotypes was carried out by means of cellulose acetate electrophoresis followed by immunofixation with specific anti-C3, Gc and Bf sera. The results were compared with those in the literature on European populations, particularly of the Mediterra-

nean area, in order to identify origins and microevolutionary processes, as well as biotransformations related to environmental adaptation. In general, the results for these mountain communities agree with the literature data for European populations, even though there are peculiar allele frequencies for one marker, probably due to the combined effect of drift and very low local gene flow.

Anthropometric Changes From 1986 to 2001 in Urban Pre-School Children From Sardinia

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The aim of this study is to describe and discuss the changes in body and head dimensions of urban pre-school children from Sardinia in a fifteen-year period. The values of eleven anthropometric variables measured in 2001 in 414 children (209 males and 205 females) from 3 to 5 years old has been compared with those measured in 1986 in 252 coeval children (131 males and 121 females). The t-test has been used to evaluate whether the differences between the two samples, divided by sex, are statistically significant. For each age class and sex, the differences between the means are significant for the following anthropometric variables: weight, stature, estimated lower limb length, biacromial breadth, bicristal breadth, body mass index, relative sitting height index, head length, cephalic index. Instead, the differences between the means are not significant for sitting height and head breadth. Therefore, the pre-school children of Cagliari measured in 2001 are on average taller and especially heavier than their peers of the same sex measured in 1986; the increase in height was clearly due to the increased length of the lower limbs. The transverse dimensions of the trunk also increased while its length remained largely the same. Head length also increased, while the relative sitting height and cephalic indexes decreased.

Non-Human Homininae – The Point of Their Preclusion to Culture

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There are many acceptations of the term Culture. Culture meant »in its proper sense« includes the attribution of a »surplus of meaningfulness« to the things and events of a living. The capacity for Culture is a controversial matter, when referred to Anthropoids and Non-Human Homininae. Language is a means for culture, for it widens & transforms the meanings; language is not the same as Culture, but language and Culture tend to meet and call at each other. Homininae is a classificatory term that includes Homo, Gorilla, and Chimpanzee. These species share relation. Evolutional outdistancing is supposed at 6 Ma or little more. The question of Homininae separation is tremendously important with regard to Culture. Out of the three Homininae species, only Man is able to speak, the other two cannot. In their natural habitat Non-Human Homininae do not produce Culture; instead, after proper training they do. That hints at a sufficient brain capacity. A 1:3 brain size and a lesser cortical surface extension in com-

parison with Homo's are not preclusive in regard to Culture production. As a matter of fact non-human Homininae cannot produce Culture because they are not able to speak (»central« and »peripheral« causes hinder). On the contrary, training in American Sign Language, and control of some 50 – 100 words, show to be sufficient for an approach to Culture. Being a kind of language ASL replaces the incapacity for spoken language. In nature, the passing on of any intellective data is impossible because of the lack of speech. What a Hominina knows remains simply »personal« capital of knowing, which cannot be transmitted. Shared feelings instead can instruct collective behaviour. This factuality shows sub-cultural conditions.

Analysis of Human Mitochondrial DNA in the Azores Islands (Portugal)

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The Azores islands (Portugal), discovered uninhabited by Portuguese navigators in the fifteenth century, are distributed in three groups based on geographical proximity: Eastern, Center and Western. The first settlers came mainly from various regions of Portugal and Madeira Island, but many foreigners also contributed to the peopling of Azores. Variation in the human mitochondrial DNA (mtDNA) is now routinely described and used to infer the histories of peoples. To improve the genetic characterisation of the Azorean population, and to clarify some aspects related with its origin, a study of mtDNA was performed for the entire archipelago. In 146 samples of unrelated individuals with Azorean ancestry (50 from the Eastern Group; 60 from the Center Group and 37 from the Western Group) the HVRI region was sequenced and specific RFLPs were screened. Samples were classified into haplogroups on the basis of the information obtained from both sequencing and RFLP analysis. Distribution of haplogroups in Western group was significantly different from the one observed in Eastern and Centre groups. The AMOVA corroborated the previous result, with the Western group which had a major contribution for the between groups variation. African haplogroups (L1, L2, L3 and M1) were found in all groups of islands, being the highest frequency registered in the Eastern group (8%). The sub-haplogroup U6a, typical of north-African populations was found in the Eastern group in a frequency of 6%. These results are in accordance with historical data that refers the presence of African and Muslim slaves in the islands, mainly in the Eastern group. Nucleotide diversity was higher than that observed in European populations as well as the mode of mean pair wise distributions. Similar results were obtained for mainland Portuguese population and were interpreted as the result of wits recent demographic history. Reynolds genetic distances were calculated and used to build a phylogenetic tree. The three groups of islands are located in a profound and isolated branch, and more close of European populations than African ones. Part of the variation in the Azorean mtDNA can be explained by historical data. However, we cannot ignore the influence of biodemographic and genetic processes like genetic drift, founder effect, endogamy and even recent mutational events in mtDNA lineages.

Distribution of Glutathione S-transferase M1 (GSTM1) and T1 (GSTT1) Polymorphism in North Italy Populations

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The glutathione S-transferase is a group of multifunctional proteins that detoxify many different endogenous and exogenous compounds catalyzing the conjugation of electrophilic substances to glutathione. GSTM1 and GSTT1 are polymorphic in human populations. Since a relation between the polymorphism and cancer susceptibility was found, their distribution in human populations is of great interest. In the present study the distribution of GSTT1 and GSTM1 genotypes was studied in a total sample of 238 individuals of Northwest Italy (Postua, Cavaglià, Torino, Genova and Pavia) by PCR test. With this technique it's possible to differentiate between GSTT1 and GSTM1 positive and GSTT1 and GSTM1 negative genotypes. The frequency of negative GSTM1 and GSTT1 (gene deletion) was respectively 26,47% and 14,71%. Statistically significant regional differences were found within the population, with the lowest frequency of GSTT1 negative in Postua and Cavaglià. The GSTM1 polymorphism (positive 73,53%, negative 26,47%) differs from the data reported in the literature (~ 50%). The analysis of frequencies of GSTT1 and GSTM1 polymorphism among different age groups (in Postua and Cavaglià) showed a minor frequency of negative genotype in the older group, although these data are not statistically confirmed. A similar relationship between age and gene frequencies was described by other authors. This study is part of a more general project on the population of Postua (Piemonte, Italy) coordinated by Prof. Emma Rabino and Gabriella Sella –University of Turin).

Lamendin's Dental Adult Aging Method Applied on Bosnian Population

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Identification of skeletal remains requires use of accurate aging techniques. One of them is Lamendin's method for age determination of adults from single rooted teeth, based on the periodontosis and transparency of the root. This technique was developed on French population. Lamendin's proposed simple equation for age assessment: A = 0.18 x P + 0.42 x T + 25.53 (where: A = age in years, P = periodontosis height / root height x 100 and T = transparency height / root height x 100). While majority of aging techniques is not accurate for aging remains of older individuals, Lamendin's method shows very good results, especially for those who are of age 40–70. Skeletal remains found in mass graves in Bosnia-Herzegovina present additional problem for age determination. They are often commingled with skulls separated from the rest of the skeleton and therefore teeth aging methods are additional help in process of re-association of commingled remains. This study tests the accuracy of Lamendin's aging technique on Bosnian population. The sample consists of 200 teeth from 50 males; age 28–66 years, collected from remains recovered in 5 different exhumation sites in Bosnia-Herzegovina. Research on Bosnian population from recent war (1992–1995) might be help-

ful not only for identification process of skeletal remains recovered during exhumation process in Bosnia-Herzegovina but also in new forensic cases.

Childhood Health and Selective Mortality in a Medieval Danish Village Community

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The osteological paradox points to the inability to conclude from lesion seen in skeletal samples to well being in the once living human population. Previous research has shown it possible to find evidence for selective mortality and thus heterogeneous frailty in skeletal samples. To achieve this it is necessary adopt an analytically epidemiological approach and carefully design the research as a historical cohort study. This poster sets out to analyze the effect of childhood stress – as market by linear enamel hypoplasia – and subsequent relative risk of dying. The material comes from the rural medieval cemetery, Nordby, in the suburbs of Århus, Eastern Jutland, Denmark. The dating of the cemetery is somewhat controversial but it was in use prior to AD 1200 and went out to use before 1300. Remains of approximately 230 individuals were excavated. The site has been completely destroyed by modern building activities and it was only possible to salvage around one sixth of the assumed burials in the cemetery. Linear enamel hypoplasia is taken as a sign of developmental disturbances and thus an indicator of childhood stress. Age at death is estimated by dental development in children, by epiphyseal fusion in adolescent and through transition analysis among adults. Analyses are carried out as hazard analyses taking an age interactive Cox regression approach. The null hypothesis is that hypoplasia did not affect subsequent survival. This hypothesis is tested against two alternative hypotheses: 1. hypoplasia leads to a constant change in the risk of dying (hazard); and 2. hypoplasia leads to increased mortality early in life and decreased mortality late in life.

Relationship Between Number of Emerged Permanent Teeth and Body Mass Index

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The process of growth and maturation are influenced by genetic and environmental factors. Under these circumstances it appears appropriate to consider relationship of maturational and nutritional factor with dental development. Most developmental parameters are clearly affected by extremes of nutrition. Fat children, for example, grow faster, mature earlier, and have advanced bone ages. Eruption timing may also be influenced by maturation and nutrition. This study attempted to examine relationship between body mass indices, a measure of the nutritional status, and dental development. A prospective longitudinal study of growth was done at an elementary school. Each of the healthy children was examined annually from 1975–1981. At each examination, a plaster dental cast was taken on each child. Data on growth in body size (stature and body weight) were obtained from school health charts. In this study, number of

emerged permanent teeth except for the third molars was counted on each plaster dental cast. Body mass indices were calculated from stature and body weight. Percentage of adult stature attained at a given age was calculated on the basis of predicted adult stature at 25 years of age using the BTT model. Relationship between percentage of adult stature, number of emerged teeth and body mass indices was investigated in a sample of 204 boys and 252 girls of 6–12 years of age. Girls attained greater percentages of adult stature at each age, but there was no clear sex difference in number of emerged teeth. Correlation coefficients of number of erupted teeth were higher with percentage of adult stature, stature and body weight. The coefficients between body mass indices and number of erupted teeth were not so high.

A More Detailed Look at Fluctuating Asymmetry in Anthropology

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Studies of fluctuating asymmetry (FA) face serious challenges – theoretical as well as methodological ones. This has resulted in a »furious activity and an increasingly bewildering array of analytical methods« (Palmer and Strobeck 2001) within the last decade. We compare and evaluate different approaches so as to present an orientation of their potentials and their flaws. The biological questions we explore derive from the concept that FA (manifest as random departures from bilateral symmetry) reflects disruptive effects of environmental and genetic stresses, and therefore provides a useful measure of developmental precision. As a sensitive indicator of an individual's ability to cope with these stresses during ontogeny, FA is hypothetically linked with phenotypic and genetic quality, and shall covary positively with inbreeding and negatively with physical attractiveness. As material we have (1) dental casts from 222 children from a Croatian island population, having inbred in a fragmented community for centuries, and (2) photographs of 100 women in standardized views, along with attractiveness ratings for each image. Our data sets consist of landmark coordinates of (1) the upper and lower dental arches, and (2) cranial as well as postcranial somatometric points. We discuss the results relating to the linking hypotheses and in light of the current methodological debate. (Supported by the Austrian Federal Ministry of Education, Science and Culture, Austrian Council for Science and Technology; Project Nr: 200.049/3 – VI/I/2001 and by the Ministry of Science and Technology of the Republic of Croatia; Project Nr: 0196001).

Non-Invasive and Invasive Determination of Bone Structure and Mineralization in Historical Skeletal Material of Rachitic, Osteomalacic and Normal Individuals

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Suitability of non-invasive and invasive methods for studying bone structure and mineralization on historical skeletal specimens was tested on the skeleton collection of the Federal Museum for Pathological Anatomy in Vienna. Mazerated, or partly dissected, or fluid conserved lumbar vertebral body preparations from altogether 61 individuals with known age (1 to 80 years) and gender were examined. In 37 specimens with gross pathological changes rickets or osteomalacia had been diagnosed (group 1), 24 specimens without known/evident bone disease served as age-/gender-matched controls (group 2). Non-invasive radiological methods comprised conventional radiographs, computerized tomography (CT), and in 13 selected specimens from both groups quantitative CT and DEXA. For invasive examination, midsagittal surface-stained and carbon-sputtered undecalcified ground sections of these 13 vertebral bodies were analyzed by light microscopy and scanning electron microscopy (BSE- and SE-mode). Corresponding microradiographs served for computer-assisted morphometry of bone structure parameters in the cranial, middle, and caudal third of these vertebral bodies. Original diagnoses could be confirmed in most cases by corresponding radiological changes, histomorphologies, and histometric parameters. Compared to vertebral bodies without known bone disease, rachitic (juvenile) vertebrae showed increased bone volume densities (BV/TV) and trabecular numbers (Tb.N), while in osteomalacic (adult) vertebrae these parameters decreased with increasing age. Accordingly, surface densities (S_v) and specific surfaces (S/V) were reduced, suggesting increased bone resorption. Disturbed mineralization, together with a loss of mineralized trabecular structure by aging were held responsible for vertebral deformations in both diseases. However, clinically used mineral density (BMD) determination by quantitative CT and DEXA failed in all preparation modes of historical bone specimens. In conclusion, most applied techniques were found suitable for examination of bone structure and mineralization on usual preparations of historical bone specimens. Furthermore, establishing radiological standards on such samples of defined bone pathology could be useful for diagnosis of disturbed mineralization not only in historical or archaeological skeletal remains, but also in recent clinical patients.

Introduction Into the Topic – Paleoanthropology, Ethnohistory And Genetics

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Contemporary genetic diversity of humans reflects their ethnohistory. According to this view, the main aim of the Plenary Session „Human Evolution in the Light of Molecular Genetics« is to relate the genetic data to a model of modern human origins and migrations. The focus will be laid on the analysis of paleoanthropological data and genetic evidence in an attempt towards a synthesis. Speakers are asked to contrast the fossil record or historical data of human populations with genetic data (mtDNA, various nDNA systems and Y-chromosomal information). The Session starts off with a description of the neanderthals, of their origins, their geographical distribution and their genetic make-up (Feldhöfer, Mesmaiskaya, Vindija), followed by a consideration of the archaic and anatomically modern human fossils across time and space. The fossil record of early modern humans from Africa, Eurasia, South-East Asia, Oceania and America is discussed in the light of recent genetic evidence. Greater African diversity in numerous genetic systems analyzed so far seem to support the African origin and replacement of Non-African archaic populations (Out-of-Africa hypothesis). A special attention is called to the mtDNA-characterization of global and local populations (African Pygmies, Mediterranean areas etc.).

Primate Genetics

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Anthropology studies the evolutionary biology of humans and nonhuman primates (NHP) across time and space. Whereas the formal aspect of evolutionary biology looks at the phylogeny of morphological structures and gene sequences, the causal aspect concentrates on evolutionary forces which maintain or change the composition of gene pools. Numerous gene sequences of the mitochondrial and nuclear genome as well as chromosomal structures inform us about the similarities and differences between humans and their closest relatives. The present paper attempts to reconsider the genetic evidence. In contrast to the morphological and behavioral similarities and differences, respectively, between humans and NHP, molecular sequences can be quantified, adequately compared and transmitted into a genealogical tree with a last common ancestor (LCA) at the nodes. By doing so, numerous estimates of the molecular sequences between humans and other higher primates have been attempted by a variety of methods. All the estimates both by the older and the newer techniques have yielded a similar outcome. For example, the nuclear genome of humans and chimpanzees differ at approximately 1–2 percent of their nucleotide sites, their mitochondrial genome at 8.46 percent of their sites. The majority of all loci analyzed so far supports the assumption, the chimpanzee rather than the gorilla is Homo's nearest living relative. In addition, recent studies have shown that not only the percentage of nucleotide similarity counts but also the mode of gene expression of similar genes. On the other hand, it becomes evident that our main interest should also aim at detecting factors in primate societies which are responsible for genetic relatedness between and change of gene pool

composition, respectively. Recent results of field studies will be evaluated to call attention to a great variety of factors which govern the gene pool composition of NHP, such as differential reproduction, migration pattern, ecological conditions, differences in population size, group fission and others.

Proteins, nDNA, Y-Chromosomal Microsatellites and the Genetic Structure of the Habans from Slovakia

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The previous results on coding genes (proteins) have shown that the genetic distances between the compared populations (Habans versus Non-Habans) are negligibly small. Only the villagers of Moravský Ján exhibit a greater genetic distance, apparently due to genetic drift and inbreeding effects what is also corroborated by the narrowest heterozygosity value of 0.297. In addition to the proteins, four autosomal DNA systems (VWA, FES, CD4 and THO1) were screened and they demonstrate similar results. The mean value of heterozygosity of the four populations ranges from 0.701 to 0.747, where the villagers of Leváre and the neighboring Slovak population have slightly higher values of 0.731 and 0.747, respectively. Sobotište and Moravský Ján have the smallest heterozygosity values. The genetic distance based on proteins and autosomal DNA microsatellite systems is not very distinct between the villagers of Sobotište, Leváre and the neighboring Non-Habans. This indicates that local migration occurred regularly between the villages. Except for this, Moravský Ján stands a little apart due to its small population size, genetic drift and inbreeding effects. Therefore special attention has been paid to the migration pattern within the area of the Habans. Y-chromosomal microsatellite markers (DYS 19, DYS 390, DYS 393) were chosen to follow up paternal lineages. mtDNA studies are planned to check the genealogical pathways of matrilineages.

Biocultural Adaptations to Subsistence Change – An Ecological Model

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Human populations pursue subsistence strategies, which allow a flexible co-ordination of matter and energy flows and consequently long-term settlement in a habitat in accordance with its specific ecological conditions. This usually results in a sequence of temporary dynamic equilibria between a human population and other components of the ecosystem. Nevertheless, there is ample evidence for major subsistence transitions in the past. This paper therefore aims to analyze the processional nature of subsistence change and, by introducing a descriptive predictive model, to identify how subsistence change leads to a re-arrangement of flows of energy and matter in a given habitat. The abandonment of a successful and adaptive mode of production and its replacement by a new subsistence strategy occurs, when ecological and/or socio-cultural circumstances change. From an eco-systemic viewpoint this corresponds to disequilibria between the

human population and other components of the system. The transition can be divided into three sequential phases: preparation, substitution, and consolidation. Under ideal conditions, the re-installment of a temporarily disturbed dynamic equilibrium is achieved through a long preparation phase that allows testing a new subsistence technology as well as preparing and implementing a gradual adjustment of the socio-cultural basic conditions, followed by a short substitution phase. This is particularly important in the transition to subsistent agriculture, where the yield of agricultural production has to be large enough to compensate for fluctuations in resource supply and energetic uncertainties during the transition. Subsistence change, therefore, serves both the function of re-defining flows of matter and energy for a novel food procurement strategy; and facilitates that new culturally defined goals associated with improved resource control, such as property or status, can be achieved. For subsistence change to be efficient and energetically beneficial, it needs to be large-scale and the substitution quickly, with a high input and planning aiming at sustainability. The transition model will be applied to major historic subsistence transitions in the Near East, the American Northeast and Southern Scandinavia, taking into account the bone chemistry and/or archaeological evidence.

Stature, Body Proportions, and Social Inequality in European Archaeological Populations

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Stature and body proportions of humans are influenced by factors of the natural environment, such as climate, altitude, and latitude. However, since humans are cultural animals, bio-cultural factors, such as social, economic, and political status, general health, and nutrition, have a noticeable influence on stature and body proportions. These bio-cultural factors leave a distinct signature on human skeletal remains, which is observable in archaeological skeletal material. Populations from sites such as known leprosaria and medieval hospitals, rural and urban parish cemeteries, monastic cemeteries, and victims from the battle of Towton in A.D. 1461, are analyzed and compared to very high status individuals, such as the medieval emperors Charlemagne, Heinrich IV, Heinrich V, and Queen Beatrix of Brabant, as well as modern population averages. The data from the archaeological populations are viewed within their environmental, cultural, social, and economic context, to test for effects of social distinctions in state-level societies, effects of peasant life on growth attainment, and how the transition from less centralized early medieval societies to later medieval states affected growth. First results show a relationship between socio-economic status and body proportions, weight-to-height ratio, sexual dimorphism and general stature from Roman times to the post-medieval period. Stature and body proportions from human skeletal remains provide a time depth by which to study socio-economic inequality, thus extending documentary sources of more recent date.

Physical Anthropology as a Tool to Determine Hard Spaces in Ship/Industry

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In a complex system, such as ship, there are more or less all types of human movements and postures, which exist, in an industrial system. Some of the postures are frequently repeated in any different space of ship. In this work we have investigated this, through observation and interview. And shown what kind of postures is frequently repeated in each space. Using some common methods, we have determined the profile of each workplace and then the grade for each workplace. The results could be used as one of the important factors of Physical anthropology for allocating crew for each workplace, or as a factor which could affects salary, or could affects the duration of crew working shifts, retirement, etc. This method could be used not only in ship industry but also in other industries.

Anthropological Geography of Genetic – Historical Processes in Population

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The work presents a composite genetic-anthropological description of the total population of Russia and Contiguous Countries, based on mean values of anthropometric, anthroposcopic and genetic (blood groups, proteins and enzymes) characteristics for individual ethnic population. The work is based on the information from the Anthropological Atlas of Population of Russia and Contiguous Countries in the form of electronic version (Moscow State University& Vavilov Institute of General Genetics, Russian Academy of Sciences). The atlas is based on the information from the computer database »Anthropofond« of Department of Anthropology, Moscow State University. In the framework of this approach it is suggested geographical treatment of analysis of the correlation between the variations of the systems of morphological and genetic polymorphism. The analysis includes maps of the PCs (principal components). The general trend of geographical variation of anthropological characters in East-West direction was found. Visual similarity of the 1st gene pool PC and the 1st of anthropologic pool one was approved by significant correlation r=0.88 and value of correlation ratio 0.9. Statistical-cartographic approach to the analysis of anthropogeographic information opens up new possibilities for applying the geographical method in anthropology.

Hand Phalanges Dermatogliphic Correlation

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Fingerprints of middle and proximal phalanges some ethnic groups of Russia have been studied. Materials of investigation allowed representing the data in ethnic, family and morphological aspects. Ridge phalanges configurations were examined and compared according to adequate formed method.. The patterns occurrence in different ethnic, sex groups was determined and compared with each other, in bilateral symmetry; lateral distribution and some another sign aspects. The higher symmetry of patterns types of phalanges on the nonfunctional finger (IV, V) then functional (II, III), confirmed the ulnar -radial decrease symmetry gradient of the whole hand papillary surface, as Homo sapiens species – specific sign. Correlation analysis of pattern types revealed the most marked bilateral connection between homologous fingers of the same name phalanges. Correlation between middle and proximal phalanges are more lower then homologous phalanges of the same name hand. The higher correlation was marked between II and III, III and IV fingers both the middle and proximal phalanges; III and V finger are not correlated practically. The second and V, II and IV fingers are positive correlated in the diverse (ulnar – radial) epidermal relief lateralization. Distal phalanges relief homolateralization are positive correlated with the same name of middle and proximal phalanges, not by the pattern types. Frequencies of middle and proximal phalanges pattern types are different. Statistics of occurrences reproduction of parental pattern types confirmed the high degree of heritability of this signs system. The phalange epidermal surface are controlled, evidently, by the individual genes systems, formed the most typical and peculiar phalangeal configurations of distal, middle and proximal phalange region.

Contraction of Condensation Silicone Impression Materials

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The aim of this study was to examine the magnitude of contraction of two silicone condensation-type impression materials (Xantopren and RTV) mixed in two different ways: by hand and mechanically, and in humid and dry conditions, and to determine in which conditions the contraction are smallest. A total of 56 samples were prepared: 7 samples of each silicone. Specimens were poured into a brass mould until the materials was set, followed by removal and storage of samples. Using optical instrument (SIP-414 with a digital microscope) dimensional measurements were made at different time intervals after setting (2, 3, 8, 24 and 48 hours) in order to check for material shrinking. The referent value was the measure of the brass mould. T-test showed statistical significant difference in the contraction of both materials in relation to the referent value in all time intervals and all conditions and mixing methods. Comparison of the mutual magnitude of the contractions in particular conditions and mixing methods, showed statistical significant difference in the contraction of RTV material in humid (24.4 ± 0.01 mm) and dry conditions (24.5 ± 0.01 mm), regardless of the mixing method ($p < 0.05$). Contraction of Xantopren was not statistically significant in humid and dry

conditions, only when the material was mixed by hand. In both silicone condensation-type impression materials continuous contractions were observed during the time intervals studied. The contractions was always greater when the materials had been mixed (either mechanically or by hand) in humid conditions

APOE Distribution in World Populations With New Data From the Indian Sub-Continent and the British Populations

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Human apolipoprotein E (apo E) is a plasma glycoprotein that plays a major role in lipoprotein metabolism. Three common variants (*E2, *E3, & *E4) of APOE show interesting population genetic variation. Epidemiological studies have found that the *E4 allele is associated with longevity, increased plasma cholesterol levels and increased prevalence for cardiovascular and Alzheimer diseases. In this study, we have analyzed the distribution of apolipoprotein E (apo E) polymorphism among 15 endogamous groups of India and 7 regionally divided populations of the UK. Also, we examine the level and extent of genetic variation at this locus in world populations and its utility as a population genetic marker using multivariate analyses like PCA and spatial autocorrelation analysis. There are marked differences in phenotype and allele frequency between the populations of England and India. Indian populations showed extensive genetic diversity at caste, non-tribal and tribal levels. The interesting feature of this analysis is low incidence or virtual absence of *E4 allele in many caste and tribal populations, even though cardiovascular diseases are relatively common. The UK populations showed higher allele frequency of *E4 allele that is compatible with observed North-South cline. Overall, the observed variation at this locus in Indian and UK populations is comparable to many Caucasian populations. A comprehensive statistical analysis of world populations showed that APOE is a useful genetic marker for population and anthropological studies. The data presented also suggests that autochthon groups like tribes in India may throw better light on the role of apolipoproteins in disease.

Ethnic Differences in Body Build and Maturation of 6–18 Year Old Schoolgirls From Merida, Yucatan, Mexico

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The patterns of physical growth (stature, BMI, sub-scapular and arm fat-fold thickness, upper and lower extremity length, chest circumference, arm and hip breadth, and age at menarche) were studied in 857 of Maya and Mestizo girls and 1314 of Creole girls aged 6–18 years. Data were collected between 1998–2001 in primary, secondary

and high schools of Merida, Capital City of the Yucatan State, Mexico. Ethnicity of girls was defined using their two surnames (from the father and mother side). The results show that Creoles are taller, have more abundant fat tissue and greater BMI, especially at the age of 11 years, what means that they are better prepared to start pubertal spurt. Maya girls have relatively longer upper extremities to lower ones, greater biacromial breadth and chest circumference to stature than Creoles, what shows their more stocky body build. The adolescent (pubertal) spurt in height starts earlier in Creoles (9–10 years) and its rate is greater (max. = 7.48 cm/year) than in Maya and Mestizos girls (10–11 years; max. = 6.25 cm/year). In Mayas and Mestizos there is only a slight difference between the rate of changes before and during pubertal spurt. There is no significant menarche age difference between girls from both ethnic groups (11.96 in Mayas and Mestizos and 12.04 in Creoles), but there are statistically significant menarche age differences between the studied girls and their mothers (12.4 for both groups) in each ethnic group. There is evidence that the onset of pubertal spurt in height and its rate may depend on ethnicity. Creoles may lead more »westernized« style of life than the Maya and Mestizos girls. Studies were performed using the CONACyT grant number: 26469H

Urban-Rural and Ethnic Differences in Body Build and Physical Fitness of Schoolchildren in Yucatan, Mexico

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Body build and physical fitness of schoolchildren of low socioeconomic strata from urban and rural areas of Yucatan were studied. The material consisted of 552 children from Merida (the capital city of Yucatan State, Mexico) and of 526 children from Yaxcaba horticultural community, 7 through 14 years of age. These are cross-sectional samples studied in 1996–97 in Merida and in 1999 and 2000 in Yaxcaba. The ethnic origin was evaluated using two surnames of children (from the father and mother side). The studied variables included stature, BMI, arm circumference, grip strength, agility run, Sargent vertical jump index (explosive strength), spine flexibility index and reaction time. Urban children are significantly taller than rural ones, and BMI and arm circumference show also a tendency to be greater in urban areas. Physical fitness tests are better performed (better results) in rural areas than in urban ones. If the whole material is divided according to two ethnic groups (Mayas and Mestizos, and Creoles) the differences in body build are still observed but those in physical fitness disappeared. Creole children are taller than Mayas and Mestizos and they show tendency to have more weight for height and greater arm circumference. Generally, the differences in physical fitness are only observed between rural and urban children what may be caused by more active way of life in villages than in towns resulting from an agricultural activity. However, differences in stature are observed between ethnic as well as between rural and urban groups. This may have the genetic origin (Creoles and Mayas), and in case of different localities it may also be caused by more various nutrition in towns than in villages. Studies were performed using the CONACyT grant number: 26469H.

Family Aggregation of Blood Pressure and Morphological Characteristics – Path Analytic Approach

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The family data used in this study are a subset of the extensive material collected from the random (non-selected) sample of inhabitants of the Middle Dalmatia's islands of Brač, Hvar, Korčula and the Pelješac peninsula. The number of subjects included in this study (1126 examinees, 526 males and 600 females, aged 17 to 87) was determined by the coincidence that two (or more) participants of the original random sample are the members of the same family. The Path analysis was performed with the presumption that each family member (F= father, M = mother, O1, O2 = offspring 1, 2) has a latent environmental variable (*C*) that influence both, blood pressure values (*P* = phenotype) and morphological dimensions (*Q*) significantly correlated with blood pressure (*C* $\rightarrow$ *P, C* $\rightarrow$ *Q*). According to the estimates revealed from the general Path model, diastolic blood pressure has a more pronounced genetic component (h^2 = 30%) than systolic blood pressure (h^2 = 14%). The most parsimonious submodel for both systolic and diastolic blood pressures was the one which does not assume a difference between father and mother in the influence of their environment on the environment of offsprings, and that parental environmental influence (C_F,$C_M \rightarrow C_{O1}$, C_{O2}) was estimated to be very low (4% and 7%) for systolic and diastolic blood pressures, respectively. In contrast to this low intergenerational influence, the members of the same generation showed a pronounced shared environment component: shared offsprings' environment explains 35% of variance of the individual offspring's environment (B–> C_{O1}, C_{O2}) for diastolic and 44% for systolic blood pressure. The correlation of the father's and mother's environment was high in the case of systolic blood pressure (33%) but for the diastolic blood pressure it was not significantly different from zero.

Craniofacial Anthropometric Pattern Profile in Hypohidrotic Ectodermal Dysplasia – Application in Detection of Gene Carriers

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Hypohidrotic ectodermal dysplasia (HED) is characterized by clinical manifestations of severe hypodontia or anodontia, hypotrichosis, hypohidrosis, and specific facial appearance. Affected males show complete expression of clinical features of this condition. Their mothers, who are gene carrier, express only some signs that are usually very subtle. Currently available clinical methods are not sufficient for the routine identification of the HED heterozygous gene carriers. The purpose of this study was to identify and describe the facial characteristics of HED patients and their mothers. The purpose was also to evaluate usefulness of craniofacial pattern profile analysis (CFPP) in diagnosis of this syndrome and gene carriers. In this study six families with six affected males and their mothers were evaluated by means of craniofacial anthropometric and anthropometric pattern profile analysis. Z-scores for each variable were calculated and compared with age- and sex-matched controls. Anthropometric analysis

showed specific dysmorphic pattern in CST patients that includes decreased skull base width (t-t: –1.67 Z); decreased forehead width (ft-ft: – 1.8 Z), decreased midface depth (sn-t: – 2.02 Z), strongly decreased total facial height (n-gn: – 3.4 Z), and strongly decreased maxillary arc (t-sn-t: – 2.5 Z). Gene carriers show similar tendency in their pattern profiles. Their values fall between those of the affected and healthy controls. The most pronounced findings were increased head width (eu-eu: + 2.83 Z) and lower face width (go-go: + 2.06 Z), and reduction of total facial height (n-gn: – 0.95 Z). They also displayed increased nose width (al-al: + 2.41 Z) and increased biocular distance (ex-ex: + 2.01 Z). When used in conjunction with other methods the anthropometric pattern profile analysis can considerably enhance detection of gene carriers for HED and increase objective assessment of craniofacial region in HED patients.

Activity Pattern Differences Between Early Bronze Age Groups of Central Europe – The Bone Biomechanics

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It has been demonstrated that bone as a dynamic tissue is sensitive to environmental stimuli. It has the capability to change its distribution of cortical bone to adjust predominant mechanical load. Past population studies also showed that predominant mechanical load might well be caused by contrasts in behavior between groups. Structural differences in distribution of cortical bone have been found for example between groups with different subsistent strategies or different predominant locomotion patterns (e.g. foragers versus sedentary agriculturalist). We tested activity pattern differences between three principal cultural groups from the Early Bronze Age of Lower Austria: Únìtice, Wieselburg and Unterwölbling. These groups are well defined from a geographical and archeological point of view. A sample consisting of humeri, femora and tibiae of 70 individuals has been used. Biomechanical data has been obtained using computer tomography of cross sections. Eight parameters of biomechanical properties of each cross section (CA, MA, TA, Ix, Iy, Imax, Imin, J) have been computed using newly developed software and were later analyzed with respect to behavioral contrasts between the respective Early Bronze Age groups.

The Application and Analysis of Generalized Shape Trajectories

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Geometric morphometrics provides a statistically powerful and theoretically mature framework for landmark-based shape analysis. It can also provide a solid foundation for the extension of geometric methods to the analysis of higher-order data sets of potential importance in anthropological research. In this presentation, I will describe

several such extensions wherein sequentially related landmark configurations are parameterized as trajectories through shape space, size + shape space, or adjusted figure space. Examples of the application of this approach include the analysis of periodic motions such as encountered in gait analysis or jumping, the analysis of a periodic motions such as the sit-to-stand task, and the characterization and comparison of serially homologous structures such as vertebrae. Because the proposed extensions adhere to the central geometric morphometric philosophy of retaining all geometric information in the original data throughout an analysis, the results of the multivariate statistical analysis of these trajectories can be represented as intuitive and effective visualizations in physical space.

Africans, Neanderthals, and the Origins of Modern Europeans

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The existing pertinent human fossil record demonstrates a very different morphological trajectory for human evolution in the African, compared to European, late Pleistocene. This evidence suggests an earlier appearance of anatomically modern human morphology in Africa, at a time when Neanderthals are the only humans present in Europe. Combined with genetic evidence, the morphological patterns indicate that modern populations migrated into Europe, possibly totally replacing the Neanderthals. While the first part of this last statement seems unequivocal, the »total replacement« issue is open to serious debate. Evidence from certain aspects of the morphology, and even from some interpretations of the genetics, do not support total replacement. The Neanderthal morphological pattern was indeed replaced by at least 25,000 years ago, but there is a strong argument to be made that Neanderthals were biologically »assimilated« into the early modern populations in Europe.

How the East Met the West – Genetic Admixture of Northern Chinese

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Nineteen SNPs within the non-recombination region of Y chromosome were typed in a total of 884 males sampled from 11 northern Han populations, 6 southern Han populations and 5 ethnic groups from northwestern China. The HVS1 segment of mtDNA was also sequenced and the sites defining Haplogroups A?G were typed in all of the aforementioned samples. The relative contribution of the Central Asians to the northern East Asians is estimated to be 17% while the rest of its gene pool (83%) was derived from those of southern origin, as exemplified by southern East Asians. Principal component analysis using Y-SNP data showed a correlation between genetic data and linguistic classification, with clear distinction between Altaic and Sino-Tibetan populations. The age of M120, a mutation derived from M45 after entering East Asia from Central Asia, was estimated based on the variance of microsatellites, to be about 34,400 years. MtDNA data show somewhat different patterns from Y data. The distinc-

tion between the northern and southern East Asian populations is not as prominent as those observed with Y data. The Fst with YSTR and YSNP show increasing clines from Northern Han, Southern Han to Altaic and Central Asia, indicating that the Northern East Asians are more homogenized than the Altaic and Central Asians, while the Fst based on HVS1 of mtDNA are similar in all populations.

Genograms of Sickness and Health in Exile and Return Families – The Necessity of Narrative and Psychotherapy Within the Framework of Medical Anthropology

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The presented work is based on a four-year long-term follow-up of return families living in Zagreb, awaiting their return to Vukovar (1998–2002). During the course of this multifaceted research, the usage of the genogram (borrowed from the family psychotherapy) method became very useful in achieving research agendas, while at the same time respecting the complex nature of the forced migration experience and the dignity of those that underwent its traumas. The problem of studying and presenting these complex experiences is heavily under the domination of medical discourses. Over the past decades the medical idiom has become the leading one in dealing with displaced, refugees and their underwent suffering. Furthermore, the danger of reducing the complex experiences to a matter of health issues is fortified through a frequent presentation of experiences by psychosomatic and other somatic dysfunctions. The method of the genogram helped in revealing the often obscured fact that the experiences are also of political, economical and cultural nature. It also helped in identifying a number of diverse problems (welfare and health insurance issues, legal aspects, moral concerns, etc.) that all tend to be superficially glued to the cultural idioms, while in fact are a measure of the social force which inflicts the individuals and their families. In a wider perspective, the presentation of the ways in which the tool of research was adopted and the results it gained testifies that there are many efforts to be put into ones retooling and continuous »sensitization«, in order to be a good researcher and amplifier of the problems that complex situations, such as that of exile and refugeedom present. It is also confirmed how the position of narratives and psychotherapy within the framework of medical anthropological investigations are becoming a growing necessity in a situation where there is a globally rising number of marginalized populations.

Polymorphism Pro12Ala of the PPARgamma Gene in a Group of Czech Obese Children

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Introduction: The peroxisome proliferator-activated receptors (PPARs) are member of the nuclear hormone receptor subfamily of transcription factors. PPARgamma2 plays a key role in regulation of adipocyte differentiation and energy balance. Numerous re-

cent studies provide the evidence that the Pro12Ala polymorphism is linked to obesity and type 2 diabetes mellitus but the results are controversial and depend on the ethnicity. Aim: The aim of this study was to determine genotype frequencies in a group of Czech obese children and to study the influence of the polymorphism on anthropometric parameters. Material and methods: The group of subjects consisted of 71 girls (age = 13.29 ± 2.48, BMI = 29.19 ± 5.51) and 41 boys (age = 13.06 ± 2.47, BMI = 29.98 ± 4.19). The Pro12Ala substitution was detected by PCR-RFLP method (HgaI). The body composition was calculated according to Matiegka's equations. For statistical analyses, the NCSS 2000 program was used. Results and conclusions: The frequency of the Pro12Ala polymorphism corresponds to Central European population (Pro/Pro 69.64%, Pro/Ala 26.78%, Ala/Ala 3.57%). No significant differences in body composition (BMI, % of total body fat, lean body mass) were found between the particular genotypes. Supported by Internal Grant Agency MofH of CR, registration number NB6597–3/2001.

Genetic Polymorphism of Cytochrome P450 CYP2D6 and CYP2C9 Enzymes Among Croatian Population

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Greatest part of xenobiotic metabolism includes oxidative reactions on enzyme system Cytochrome P450. Persons with two defective alleles poorly metabolize particular drugs (Poor Metabolizer phenotype – PM), those with only one disrupted gene are Intermediate metabolizers (IM), and those with both completely functional alleles are Extensive metabolizers (EM). CYP2D6 is one of the most important polymorphic cytochrome P-450 and metabolizes more than 30 commonly prescribed drugs. Wild type allele is CYP2D6*1, and most abundant null alleles are CYP2D6*3, *4, *6, *7, and *8. Another important enzyme is CYP2C9. Polymorphic null alleles are CYP2C9*2 and CYP2C9*3. The genetic polymorphism of those enzymes has an important role in adverse therapeutic effects or even in the prevalence of cancer or other diseases. Our study aim was to assess the CYP2D6 and CYP2C9 allelic prevalence, genotypes and predicted phenotypes among Croatian population. We genotyped 145 healthy subjects on CYP2D6 (mean age 31, SD = 11, 31% women) and 142 subjects on CYP2C9 (mean age 38, SD = 11, 30% women). Between-sex frequencies were concordant to Hardy – Weinberg equilibrium (pCHI > 0.05). CYP2D6 genotyping was performed by multiplex allele specific PCR method (Štefanović M. et al., 2001) and CYP2C9 genotyping by PCR-RFLP (method by Yasar U. et al., 1999). Allelic frequencies for CYP2D6 were as follows: *3 – 1.4%, – *4 – 11.0%, *6 – 1.0% and *1(wt) – 86.6%. CYP2C9 allelic frequencies were *2 – 21.9%, *3 – 5.3% and *1 – 72.8%. Genotype frequencies for the CYP2D6 were *3/wt – 2.8%, *4/wt – 18.6%, *4/*4 – 1.4%, *6/wt – 1.4%, *4/*6 – 0.7% and wt/wt – 75.2%. CYP2C9 genotype frequencies were wt/wt – 69.0%, wt/*2 – 26.1%, *3/wt – 3.5%, *2/*3 –0.7%, and *2/*2 – 0.7%. Predicted phenotype frequencies for CYP2D6 were IM – 22.8% and PM – 2.8%. For CYP2C9 we found IM – 29.6 and PM – 1.4%. Results showed concordance to similar studies among south European Caucasian population. In the future we plan to continue our work to genotype more representative number of the population.

Birth and Death – Infant Burials From Vlasac and Lepenski Vir (9000–5500 B.C.)

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Vlasac and Lepenski Vir are key sites for the Mesolithic-Neolithic transition in southeast Europe. Both sites provide rich burial records. There are 76 infant burials with an obvious difference between the burial treatment. The studied physical properties of infant skeletons are: estimation of the age at death, examination of possible pre-mortem injuries on the skeletons, a detailed evaluation of represented body parts and a discussion about taphonomic and methodological problems in preservation and recovery of certain body parts in this context. With more detailed osteo-biography of these infants, by plotting, comparing and indicating possible causes of death, interpreting of their mortality rate is given.

Ion Release From Three Different Dental Alloys Under in Vitro Conditions of Imitating Oral Saliva as the Nutritional Source of Trace Elements (TE)

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More than 90% of population (≥35 y) in Croatia wear crowns and/or fixed partial dentures (FPD) made from AuPt or NiCr alloy. In 30% FPDs are combined with metal frame removable partial dentures (RPD) made from CoCrMo alloy. The aim was to assess how TE leached from the crown/bridge Au-Pt alloy, NiCr alloy for dental ceramics and from CoCrMo alloy for RPDs. We soaked ten sets of Au-Pt alloy pieces having 133 mm^2 exposure surface, ten sets of CoCrMo alloy pieces and ten sets of NiCr alloy pieces having 497 mm^2 exposure surface each, from 1 to 30 days (six replicates each) in phosphate buffer (pH 6.0). TE in the phosphate buffer was assessed by ICP-AES (JY 50P, Jobin-Ywon, France, detection limit of 10 μg/L). From the Au-Pt alloy (Refinery of precious coins, Zagreb, Croatia) detectable amounts (μ/L) of TE (Mean; SD): Zn 124 (51), Cu 53 (63), Fe 15 (11) and Cr (< 10) were released. For CoCrMo (Wironit^R, Bego, Germany) detectable amounts (μ/L) of TE (Mean; SD): Co 337 (170), Fe 21 (15) Zn 87 (56), Ni 41 (68), and Cr 49 (42) were released. The NiCr alloy (Wiron 99, Bego, Germany) detectable amounts (μ/L) of TE (Mean; SD): Co 265 (300), Fe 247 (256) Zn 92 (46), Ni 542 (668), and Cr 396 (410) were released. The manufacturers did not indicate the presence of all the elements released from each alloy. All the TE came under non-toxic concentrations and is essential for human health. After laboratory procedures TE may be released in higher amount and other TE may become detectable. TE released are ready available for the human absorption and may be of interest for the nutritionists as the source of TE elements.

Relationship Between Obesity and Persistent Asthma

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Both obesity and asthma are common chronic diseases. The prevalence of overweight and obesity has increased over the last two decades. Asthma in adults has experienced similar trends. Adult obesity is a worldwide problem accompanied by increased cost, now recognized as one of the most pervasive public health problem. In western population the prevalence of obesity is around 25 to 55 percent, while prevalence of asthma over the last 3 decades has increased and now affects an estimated 6 to 8% of the general population. In gaining weight, individuals increase risk for multiple comorbid conditions. According to recent literature, adult-onset asthma may be another risk associated with obesity. Bias into these results was introduced due to psychosocial and cultural influences upon specific health care as well as due to criteria for asthma diagnosis. The aim of our study was to calculate body mass index (BMI) in the group of asthma patients from our allergy outpatient clinic database and correlate it with control group of healthy individuals. 106 patients with asthma diagnosed upon symptom score, medication score, morning and evening peak expiratory flow and functional parameters were selected (37 males, 69 females, mean age 45,25 yrs). 50% of asthmatics were taking short course oral prednisolone 2–4 times a year. Others were taking inhaled steroids. Control group were healthy individuals presenting for regular systemic check up (n = 51; 33 females, 18 males, mean age 43,9 yrs). BMI was classified according to WHO in I, II or III grade. The results have shown that 55,66% of patients were obese. In first grade of obesity there were 34 patients, in second 25 and only one patient was in third grade. BMI for the control group showed that 58,9% of individuals were obese, 21 in first grade, 8 in second. There were no subjects in the third grade of obesity. One person was underweight. According to this results there were no differences in BMI between asthmatics and control group. Patient on systemic steroids did not differ from those taking local steroid therapy. High percentage of obesity in the both groups, surprising higher in the controls one need further evaluation of the asthmatic obese individuals and »healthy«, but obese one.

Symbolism of Materials in Modern Sculpture – A Case Study – Constantin Brancusi's *Gate of the Kiss*

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Symbolic anthropology is used to examine cultural values of stone in Constantin Brancusi's *Gate of the kiss,* a monumental piece of sculpture in the Memorial to the victims in the First World War erected at Tirgu-Jiu, Romania, 1937. The paper demonstrates carving techniques in the lintel of the *Gate* to be of complemental value to the carving of the pilasters. This stylistic binomial seems to correlate to two intrinsic yet opposed stone features: agglutination vs. breakability. Previous findings of similar nature established by the author in other sculpture pieces by Brancusi credits the assumption that stone carving features in the *Gate* carry deliberate symbolic values: they are shown to construct a metaphor on life and death as a paschal (i.e. pacifist) tribute to

heroism in battle. Analyses of material symbolism open up a promising field of investigation of abstraction in modern and contemporary art and may further base complex studies of the cultural information vehiculated by objects of either ethnographical or industrial make.

Correlation of Anthropological Parameters With Plasma Leptin Level in Water Polo Players

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Leptin is hormone produced by the adipocytes to regulate food intake and energy expenditure at the hypothalamic level. It may be important in the regulation of body weight and little information is available on the long-term effects of exercise on leptin concentration. The aim of the study was to examine plasma leptin level and its correlation to BMI, body mass percentage and skin folds in water polo players. Group of 14 male water polo players, mean age 20,36 ± 3.00 (range 17–28 years) as well as 10 male age-matched sedentary control were examined. Leptin plasma concentration was determined using DRG Leptin Elisa kit. Body composition was determined according Mateigka equitation. Leptin concentration was higher, but not significantly, in water polo group (x = 0.74 ± 0.66 ng/ml v.s. x = 0.43 ± 0.62 ng/ml). Body fat was also higher, with significant difference in fat mass (13.44 ± 2.49 vs 10.78 ± 2.50 kg, $p < 0.05$), but not significant in fat mass percentage. Plasma leptin concentration showed good correlation to triceps skin fold thickness (r = 0.53), sub scapular (r = 0.74), and quadriceps skin-fold thickness(r = 0.68), while it showed no correlation to BMI and body weight (r = 0.26, r = –0.05 respectively). It also showed significant correlation to fat mass percentage (r = 0,74) and sum of two skin-fold thickness (sub scapular and triceps) (r = 0.73). This study shows that the main determinant in leptin secretion is body fat that in water polo players exists as an adaptive mechanism in water sports.

Somatic Model of Working Posture

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Ergonomics is based on intra-disciplinary links. Anthropological and psychological investigations play particular role in ergonomics. Synthesis of anthropological and psychological data in ergonomics is based on investigations of working posture. Working posture is a complex psychosomatic structure, based on braking dominant. Sitting posture is the most actual working posture now. Standing posture was formed in the process of human evolution. There are several anatomic structures for its maintenance (bending of spine, angle of rotation of pelvis, foot arch, ligament serous, etc.).Sitting posture is unnatural for the human body and causes several anatomic-physiological changes, creating sensation of discomfort and diseases of skeletal and muscular systems. Ergonomic dimensions of the body do not only create the material image of work-

ing place. They are the tools for projecting of working posture corresponding to its model. Somatic model of rational working posture was proposed on the basis of measurements of depths of spine bending and angle of rotation of pelvis in different postures, and also of electomyographic investigations. The posture should be symmetrical, trunk is straight with lumbar Lourdes's, pelvis is turned forward, angles of bending of joints are obtuse, forearms, hands and feet should have support. The support surfaces (table, chair, footing) with parameters calculated on the basis of body dimensions are necessary to keep up involuntary such posture. Thus a certain level of somatic comfort is created. Somatic comfort is one of the active and constant elements of functional comfort. The methods of psychophysics scale are recommended to evaluate somatic comfort, giving more sophisticated and precise values of sensations of man compare to electromyography.

Detection of Biological Relationship in Skeletal Anthropology

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Three adult individuals found inside the intactly preserved Shaft-tomb of Iufaa in 1998 and in its southern corridor discovered additionally in 2001 by the Czech Institute of Egyptology at Abusir (Egypt, end 7^{th} – early 6^{th} cent. B.C.) were subject to different methods used for detection of mutual biological relationship. Craniometric approach compared separately groups of measurements determined 1) in the neurocranium with addition of the bizygomatic breadth of face, 2) the remaining facial measurements and 3) dimensions of the mandible, using the method of mean distance between pairs of individuals. The old male Nekawer and the medium-aged female Imakhetkherresnet were found strikingly similar, while the young adult male Iufaa disclosed similar, but broader face and a differing low and broad braincase. These results were complemented by comparisons of cranioscopic, radiological, epigenetic, osteometric and osteoscopic features as well as by revealing the common occurrence of some congenital anomalies. An aDNA analysis is underway. Results of the anthropological investigation were confirmed by textual evidence suggesting that Iufaa and Imakheretkherresnet were brother and sister. Nekawer's relation to them (father or an older brother?) has to be established after exploration of the still uninvestigated western corridor of the tomb.

Central Obesity Index in Determining Visceral Obesity

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Central obesity index (COI) has to be an index of visceral body fat distribution (VBFD). In order to discover it, COI was determined in obese women grouped in 4 groups according to their BFD: 1. normal BFD with waist/hip ratio (WHR) < 0.82 and waist/thigh ratio (WTR) < 1.45; 2. moderate VBFD with WTR (1.45–1.65) and WHR (0.82–0.9); 3.

extreme VBFD, WTR (1.65–1.85) and WHR (0.9–1.1) and 4.discovered Cushing's with severe VBFD with WTR > 1.85 and WHR > 1.1. COI was determined by dividing the sum of the truncal circumferences (C) (neck, chest and abdomen) by the sum of the bilateral limb circumferences (upper part of the arms, thighs and lower part of the legs). COI values correlated significantly ($p < 0.0001$) with WTR, WHR, % of the visceral fat (% VF), but didn't correlate with BMI, waist circumference (C), sagital diameter (SD), height and body weight (BW). COI values in the 1st gr were (0.79 ± 0.04), significantly lower compared to 2nd gr (0.83 ± 0.02) as well as to the 3rd gr (0.86 ± 0.04) and 4th gr (1 ± 0.06). BMI (27.5 ± 6.9 kg/m^2), BW (71.9 ± 19.3 kg), waist C (87.2 ± 12.7 cm) and SD (20.4 ± 7cm) were significantly lower compared to the correspondent values in the 3rd gr (42 ± 7; 111 ± 22; 121 ± 15; 29.6 ± 5) but not compared to the 2nd gr (27.8 ± 9; 68.4 ± 22.5; 88 ± 16.9; 20.5 ± 6.7). CS patients with BMI (32 ± 3.5 kg/m^2) had WHR (1.1 ± 0.07), WTR (1.85 ± 0.18), %VF (22.2 ± 6.4%) and COI (0.97 ± 0.09) significantly higher compared to the correspondent values in obese with the same BMI 32 ± 3.4kg/m^2 (0.87 ± 0.05; 1.42 ± 0.1; 5.84 ± 6.7%; 0.8 ± 0.45). Conclusion: COI enabled to quantify the fat distribution in obese women. It is an anthropometric parameter of visceral obesity and a feasible index for diagnostic screening and follows up monitoring of visceral obesity.

Anthropometric Characteristics of Syndrome and Morbus Cushing

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Syndrome Cushing (SC) and Morbus Cushing (MC) are a consequence of excessive cortisol secretion and are characterized with extreme visceral obesity. In order to determine the body fat distribution and some circumferences (C), diameters (D), skinfolds (SF), volumes (V), and their difference between SC and MC, 23 women with discovered hypercorticism were examined and divided in two groups: 1st gr consisted of 13 women with CS and the 2nd gr consisted of 10 women with MC. The 1st gr had: age (43 ± 10 yr), BMI (29.5 ± 4.8 kg/m^2), body weight (72 ± 8.7 kg), height (156.7 ± 5.6 cm), waits/hip ratio (WHR) (1.1 ± 0.04), waist/thigh ratio (WTR) (1.93 ± 0.3), % of visceral fat (25.8 ± 4.8%), not significantly different compared to the correspondent values in the 2nd gr: (41.8 ± 10 yr; 30.8 ± 4.6 kg/m^2; 76.4 ± 11.7 kg; 157.4 ± 8.5 cm; 1.1 ± 0.1; 1.8 ± 0.2 and 25 ± 6.5 %). Chest C (99.7 ± 6.2 cm), waist C (103 ± 11cm) and hip C (95.8 ± 4.97 cm) in the 1st gr were not significantly different compared to the 2nd gr (98.7 ± 6.3 cm, 105.2 ± 6.98 cm, 99.3 ± 10 cm). Sagital D in the 1st gr (28 ± 2.3 cm) was not significantly different compared to 2nd gr (27.7 ± 3 cm). Osseal V (12.2 ± 1.4 %) and muscle V (37 ± 5 %) in the 1st gr were not different compared to 2nd gr (11.4 ± 1.5 % and 36 ± 5.8 %). SF were also not different between the two groups. Conclusion: No difference was detected between the anthropometric parameters of visceral obesity, as well as between the C, D and SF. Extreme visceral obesity in CS and MC was discovered. Anthropometric characteristics were not dependent on the type of the hypercorticism but on it's hormonal activity, which is same characteristic for both groups.

Acculturation Process of Adolescents in Croatia and its Effects on Diet-Related Behaviors and Psychological Functioning

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Recent forced migrations in Croatia have led to potential acculturation situations between different cultural groups. Historical and cross-cultural experiences suggest that sociocultural changes may be associated with increased vulnerability to psychosocial and diet-related problems, particularly in adolescents, who face a double challenge of adjustment to a new environment while integrating past traumas and defining a new identity within and between the two cultures. This study focuses on adolescents with immigrant background (aged 15–18) permanently settled in the region of Dalmatia, Croatia, during the last ten years. The data presented refer to the potential influences of the acculturation process on their nutritional status (measured as BMI – body mass index), eating attitudes and behaviors, perceived body image and psychological functioning and adjustment (measured by stress level and self-esteem). The results obtained indicate that diet-related behaviors and nutritional status appear to be associated with acculturation stress, while there is a significant positive relationship between self-esteem dietary adequacy and body image in acculturating adolescents.

Importance of Mandible Position in Morph Metrics of the Lower Joint Surface

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When speaking about the joint surface capittis mandibulae as an anatomy entity or about joint surface in the Gnatological concept of occlusion it means to have ability of multiple approaches to analysis and measurements. If one whishes to have more detailed insight into the proportion of this joint surface toward to the upper surface of temporomandibular joint (TMJ) i.e. toward facies articularis in the fossa mandibulae in the position of the maximum intercuspidation then one has to approach the surface of the capittis mandibulae from the aspect of physiological position of the mandibulae in the proportion to the maxilla and scull base. This proportion according to the vertical, horizontal and sagital dimensions is closely connected to the existence of teeth and type of occlusion. The purpose of this scientific work was to determine the exact position of the mandibulae (for the ostheometry of the lower joint surface), which under maximum inter cuspidation assumes position in proportion to the maxilla and scull base. Ostheometry was done on the human sculls belonging to the Institute for Anatomy of the Faculty for Medicine, University Sarajevo. The results provided the possibility of locating the correct position and measurement the upper level of the lower joint surface. This gives a precise insight into the proportion of the top of the joint surface capittis mandibulae toward area facies articularis fosse mandibulae. The reference in the determining the position for ostheometry was the Frankfurt horizontal.

Human Ecology and Ethics

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Human ecology is proposing a global approach of the human ecosystems and of the relationship between the biological and cultural aspects of these ecosystems. It is an inter- and trans-disciplinary approach of the effects human beings can have on the environment but also that the environment can have on human beings and their health. Inside the different aspects of the human environment from individuals to populations, from activities to social environment, from climate to production, from reproduction to communication, the psychological and ethical aspects are taking nowadays more and more importance. What is the place of human beings in Nature what are their duties and rights? Are we still in an anthropocentric view of the world? Human ecology must analyze in other words problems related to environmental ethics, to the definition of a person (or of an animal person?), to the rights of future generations, to sustainable development. The author will analyze and comment on these different questions.

Oigarche, Adolescence and Motor Performance

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Somogy county – Southern Hungary – boys (n = 1713) aged 10 and 15,5 years were studied in 1995–97. The performance of boys was compared in the different phases of sexual maturation according to whether or not they had passed their oigarche. The level of physical fitness was estimated by the motor tests (hand grip strength, medicine ball push, standing long jump, sit-up test, Burpee test, 60 m dash and Cooper test). The sexually more mature boys perform better in motor tests except Cooper test.

Sagital Lumbar Spine Mechanical Capacity-Anthropometrical Dependence

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In order to prevent low back pain it is important to find loads that are related with high risk for occurrence of this injury. Many scientists have been occupied with this problem using many different approaches to find some relevant data. Awareness of this problem complexity identify approach to this problem through mechanical capacity of lumbar spine, which is defined as an ability of lumbar spine system to prevail the applied load without risk of loosing mechanical stability. In order to solve problems of obtaining the mechanical capacity of lumbar spine, biomechanical analysis of interrelated influential factors is performed with the intention to obtain the results by using measurements that are applicable to wide range of human postures and related working tasks in sagittal mid-plane, considering anthropometrical measures. Measurement device MedX is chosen considering that isometric lumbar extension moment measurement procedure allows application of measuring results for static and dynamic loads

and fact that the isolation of trunk is necessary. The results obtained by such measurement procedure provide full mechanical capacity magnitude of lumbar spine. This allows an interpretation of different static and dynamic loads and the magnitude of applied loads on lumbar spine, reduced on sagittal mid-plane. A measurement procedure evolved lumbar extension moment as a function of trunk angle. Magnitude of mechanical capacity of lumbar spine depends on posture, circumstances of applied loads and anthropometrical measures, which in calculation of its magnitude represent the need to establish biomechanical model for every analysed case. Mechanical capacity of lumbar spine as described offers path in future handling loads magnitude determination, so it have important contribution to occupational ergonomics, biomechanics and medical sciences.

To the Anthropology of Nogai

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The research of the Nogai anthropology is the main task, because it helps to understand some questions not only of Nogaižs history, but the ethnics of Kazakhstan, Siberia and Low Land of Volga. The forming of Nogai population, as the whole one, connected by the strong ties with the history of Nogai Horde that had taken place on the territory from Volga to Irtish rivers, from Caspian sea to Aral one in the XV–XVI centuries. The ethnical structure of this power state was consisted by the tribes, that had taken part in forming of Kirghizians, Kazakhs, Bashkirians, Uzbeks, Tatars, Rarakalpaks. In this report are considered the odontological morphology particulars of the main Nogai groups of North Caucasus: Karanogai (Dagestan), Kuma Nogai (Stavropol region), Kuban Nogai (Karachaevo Chercessia Republic). By the result of this research it was established that Nogais were mixed Europe-Mongol population. The complex of main odontological signs (Shov I^1 (2+3), Hy (3+3) M^2, CARA (2–5) M^1, DTC, DW, M14, M16, M24, 2 med II) comes to this conclusion. There are three odontological types in the structure of the modern Nogais: middle European, south Gracial and east, connected with the Central Asia by the origin. Researched groups are marked by the different presence of signs of East and West odontological complexes. Karanogais of Dagestan have more East signs, that other one. There are traced the odontological signs differences in the man-women parts of the researched populations. And there is determined the place of Nogai among the populations of Eurasia Steppe, North Caucasus and Middle Asia, whose history is strong connected with Nogai history.

Common Burials in the Bronze Age in the Territory of Poland

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During the late Bronze Age the regions of eastern and central Poland were represented by the Trzciniec Culture. The burial ritual of this Culture is vastly diversified. Among graves there can be distinguished individual and common, flat and mound-like ones. Common burials were found in the whole Trzciniec Culture area. In common graves,

there could be seen a tendency towards an antipodal arrangement of corpses, with heads placed in the northern or southern part of a grave. The majority of the dead lay on one side in a cramped position, with arms positioned in the vicinity of the head. Regarding the mortality pattern of individuals buried in common graves attention should be paid to the balanced ratio between masculine and feminine burials, and a relatively high proportion of infantsž remnants. These findings indicate that the family character of burial customs, with object destined for basic families or tribes, was a characteristic feature of the cult of the dead in the Trzciniec Culture. The anthropological studies of Trzciniec Culture skeletons are of great importance to the research into culture and population transformations in the Bronze Age in the territory of Poland. In the Trzciniec Culture series, women's skulls are long-, medium- and also short-headed, and the majority of them have wide foreheads. Men's skulls are mostly long-headed, but medium-headed skulls are also occasionally found. When the Trzciniec Culture series are compared with the series dating back to the Neolithic Age, Early Bronze Age and the Lusatian Culture, great intra-group differentiation and only slight differences in the variability range of traits can be observed between the groups under study. The only differentiating formation is a series representing the allochtonic Bell Beaker Culture in the Mid-European region.

Gestational Age and Neonatal Body Dimensions in Twins

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The subjects of the study were twins of both genders born between 1970 and 1985 (N = 1580 twin births). Of these only the ones without missing data were selected for analysis (N1 = 1460 twin births). As another group also live newborns of singleton pregnancies between 1973 and 1978 were studied (N2 = 1059922). One of the main considerations was gestational age as an essential indicator of maturity neonatal status. The other points of interest were birth weight (in respect of gender, birth order, and total birth weight), placental weight, the distribution of monochorionic and dichorionic placentas, and a comparison of birth weight and body length in singletons and twins. The linear relationship between gestational age and birth weight was found to hold also for twins. Genders did not differ in this respect significantly, but the relationship was not quite the same. Birth order and birth weight were unrelated in both genders. While the observed frequencies of the placental types were found to differ in the twins grouped by gestation time, no direct relationship could be evidenced between gestation time and placental type although the latter is known to markedly affect the rate of intrauterine and peri/postnatal development. Since gestational age and the centiles of neonatal dimensions of the twins differed considerably from singleton births, in twin births it is recommended to use centiles developed specifically for twins.

Influence of Crematory Process on the Trace Element Content in Human Teeth – Paleodietary Implications

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In studies on prehistoric crematory burial grounds, the possibility of using standard physicochemical analyses is considerably limited, since the explored osseous fragments including teeth are substantially altered as regards both their chemical and morphological structure. The present study was designed to examine the effect of high temperatures occurring during burning down a stake on changes in the concentrations of micro- and macro-elements used by anthropologists during their attempts to determine the palaeodiet of historic human populations. An analysis of the chemical composition of 90 human teeth was carried out with regard to quantitative changes in the content of Sr, Zn, Ca, Cu, Ba, Fe and Mg, which occurred during the process of burning down samples in the core of a bonfire simulating a crematory stake. This model may help to precisely quantify the concentrations of trace elements in the osteological material from crematory burial grounds, with regard to evaluation of the biological condition of populations representing crematory rites.

Color-Blindness During the First Three Years of Car Driving

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The great psychological and social impact of red–green color-blindness in daily life is confirmed by analyzing the difficulties associated with driving a car in a sample of blind-blind males, when compared with a sample of orthochromatic males. The sample populations were interviewed using a phone questionnaire of 20 questions: both the 151 color-blind males and matched orthochromatic males were identified through population screening which was carried out in 1988–1991 in all first grade schools of the 155 towns in the province of Cosenza (North Calabria, South Italy). The answers from each color-blind male were compared with those of two orthochromatic males who were chosen from the same classroom, and thus the same town. Therefore, the sample populations are statistically homogeneous. The color-blind males do not like driving at night, and contrary to all expectation, the number of car accidents in which they were involved was less than for the orthochromatics. This confirms the capacity of the color-blind population to create, in their own peculiar way, strategies to avoid the difficulties of daily life, as the literature shows. Through further subdividing the color-blind sample, according to both their type (deutan; protan) and grade (deuteranomaly; deuteranopy; protanomaly; protanopy), we intend to study whether these characteristics can be shown to be a fundamental part of driving a car, which is just one of life's daily activities.

MtDNA Lineages in the Baltic Sea Region – Origins and Temporal Aspects

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Phylogeography of the non-recombining maternally inherited mitochondrial DNA (mtDNA) and paternally inherited Y chromosome is a valuable tool to study demographic history of human populations. We have analyzed (HVS-I sequencing combined with RFLP typing of informative coding region polymorphisms) about 1000 mtDNA samples from Baltic Sea region obtained from populations that are geographically close, but belong to speakers of different language groups – from Sweden, Latvia, and Estonia. The phylogenetic networks based on obtained data were further analyzed on the background of other Eurasian populations, in particular Finnish, Polish and German. The majority of the found in the four populations mtDNA lineages belong to European-specific haplogroups, with a very limited contribution of eastern Eurasian variants of mtDNA. However, a more detailed phylogeographic analysis of individual lineage clusters (subhaplogroups) allows to reveals a number of specific aspects. In particular, it became evident that several pan-western Eurasian subclusters of mtDNA with very deep coalescence ages, like T1, have probably reached northwestern Europe relatively recently, whereas some others, in particular within haplogroup U4, probably testify about the re-peopling of northern Europe after the LGM.

Developmental Aspects in Teeth of Italian Pleistocene

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High resolution epoxy resin replicas of some teeth of Italian Pleistocene fossil record are examined to SEM in ET mode in order to analyse in detail the enamel surface. The identification and the count of perikymata is utilised for estimate the lateral enamel formation times and from there the crown formation time in adult teeth while the identification of hypoplastic defects in deciduous and adult teeth is utilised to show evidence of growth disturbances. The data collected is confronted with available data to evidence eventual differences in growth process and disturbances between the modern and the earlier populations.

Growth Type and Running Endurance in 13-Year-Old Boys

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Cardiorespiratory endurance is regarded by many investigators as the most important component of physical fitness, nevertheless, the regular physical activity of the growing generation decreases markedly in the developed societies. The aim of the present

investigation was to compare the body built, body fat content, and running performances of boys living in different socio-economic conditions. The subjects were volunteer non-athletic boys aged between 12–51 and 13–50 years of age. The data collection was carried out in Cyprus, Egypt, Hungary and at three nationalities (Chinese, Indian and Malaysian) of Malaysian Republic. The physique was described by the growth type indices (Conrad 1963), body fat content was estimated by the suggestions of Parizkova (1961). Speed and cardio-respiratory endurance was assessed by the time of 30 m dash 1200 m run. The mean relative body fat content was significantly greater than the biological optimum, and the average speed and running endurance could be evaluated as less than the required in all the six compared nationalities. Significant differences between the means of the characteristics of physique can be evaluated as one of the consequences of ethnic differences. However, the great intra-group variability in relative body fat content and very moderate running performances indicate the dominantly sedentary life-style.

Anthropology and Adaptation

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Biological Anthropology provides a conceptual umbrella for a bewildering variety of fields. Diverse as they are, though, these fields are united by a vague belief that various forms of biological and cultural adaptation somehow underwrite the differences – and similarities – manifest among hominid species and populations. Is this belief always justified? I argue that frequently it is not. Our casual acceptance of the notions that 1) structure = adaptation, and 2) that evolution is a straightforward matter of fine-tuning in individual characteristics, has blinded us to the complexities of a process into which many more elements enter. Here I look at those other complexities, and conclude that notions of adaptive optimization lead to distorted expectations of evolutionary process and hence to inaccurate views of evolutionary histories, including that of Homo sapiens.

Man of the Tadrart-Plateau in the Final Pleistocene – Human Strategy From Aridity to Neolithic

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The Tadrart plateau is situated in southwestern Libya and southeastern Algeria. Here, some complex rock floor installations in rock shelters were previously related to the final Pleistocene, essentially on environmental basis. Clearly devoted to collect and store water of low-flow springs, as a response to increasing aridity context, they were the first manifestations of human control on environment in the area. In such arid conditions, controlling water is also controlling some animals and plants, settled around by the permanence of water. It suppose also some major cultural changes in hunter-gatherers societies, in relation to the need to be there to have enough water and wait the game. These appear clearly in a second late pleistocene phase, certainly also in an hyper-arid context, when some of these rock shelters were used as quasi-exclusive supports for the »Kel Essuf« rock engravings: more than 90% of them are anthropomorphic

subjects, mostly in groups, sometimes in social attitudes as family or couple; is that still palaeolithic art? Then, in continuity with the Kel Essuf, around the articulation between Pleistocene and Holocene, the authors of the Round Heads paintings have shown the same will of control over their resources, in spite of better natural conditions for hunting and gathering: pottery, beginnings of animal management, indicate the last steps to Neolithic.

Bayesian Network Modeling Distribution of Constituent Structure Tree for Croatian Language

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Expert systems in computational linguistics use Bayesian networks for modeling constituent structure trees of sentences of natural language. Bayesian network is based on directed acyclic graph (DAG) together with probabilistic context-free grammar (PCFG) and head-driven phrase structure grammar (HDPSG). Network was tested on Database of grammatical sentences of Croatian language (beta version on). Better distribution was obtained by using network based on conditional independence graph (CIG).

The Insertion/Deletion Polymorphism Angiotensin Converting Enzyme Gene in Patients with Coronary Arteries Diseases in the Tuzla Region Population (Bosnia and Herzegovina)

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Intensive development of molecular genetics in last decades has showed that some of known genes increase the risk of coronary arteries disease (CAD). Genetic polymorphism of components of renin–angiotensin system is considered to be risk of CAD. In our study we have analyzed correlation between insertion/deletion (I / D) polymorphism of gene for angiotensin converting enzyme (ACE) and CAD in Tuzla Region population (Bosnia and Herzegovina). We have analyzed 212 patients with CAD who was hospitalized in 1998 – 2001 in Cardiovascular Clinic Tuzla. Diagnosis of CAD was confirmed by coronary angiography. Genotype analysis for ACE I/D polymorphism were performed in Center of Medical Genetics Ljubljana by polymerase chain reaction (PCR) method. Control group has consisted from 165 healthy people. Whole participants included in our study were ages under 50 years. Our results shows statistically significant increase of ACE/DD (deletio/deletio) genotype (risk genotype) in CAD group compared with control group ($P < 0.05$). Higher prevalence of DD genotype in CAD Tuzla Region population (35.8%) confirmed some results from others studies from literature and suggest that the DD genotype of the ACE gene might be associated with positive history of CAD. These examinations are the first in our country and will be continued.

Contents of Trace Elements in Chosen Teeth, Mandible, Zygomatic and Occipital Bones in Skulls From Different Historic Periods

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Our material consists of 32 skulls from XIII–XIX century from collection of Anthropology Institute in Lodz. All contained pathological changes in cranium and bones of the face: tuberositis, callosities in region of the frontal, occipital and parietal bones. Contents of mineral factors and evaluation of such elements as calcium, fluoride and magnesium were measured. The methods were based on the acidic biopsy of the enamel and different parts of the bones: frontal, zygomatic and mandible. The method is easy to perform and non-invasive. At the beginning fluorides were determined by the mean of the fluorine electrode. In second stage anthropologic analysis of skulls according to standard anthropometrics methods were carried out. Estimation of nourishment state and diet is a very popular subject of investigation in many medical sciences. It is known that frequency of the mastication apparatus diseases systematically increases with ages. It is probably caused by evolution of the masticatory apparatus-reduction of the alveolar arch and number of teeth. Gradual relief of the masticatory system led to its evolutional reduction. Traces of chronic inflammations of the parodontium in a form of bony processes on the alveolar arches and strong dental calculus were observed more frequent than present, contrary to carious changes, which were less numerous in the past. The changes, we observed, are probably caused by different »nourish customs«, life conditions and immunity of different population to the caries and parodontium diseases. Determination of contents of the trace elements in the studied skulls, helps to explain the nourishment state of studied population and find reasons of some pathologic changes in the studied skulls (enchondroma, craniostenosis).

Morphologic Evaluation of the Pneumatisation of the Temporal Bone and its Classification

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The aim of this work was to evaluate the degree of pneumatisation in the mastoid part from XIII–XIX century skulls. The studies were carried out on 271 male skulls from the mid of twentieth century. Analysis of the degree of pneumatisation and classification were based on x-ray photos of mastoid taken by means of Shüller's method. The area of mastoidpneumatic cells was calculated using planimetric method. All processes were classified according to a four-degree scale of pneumatisation. A different degree of the mastoid process pneumatisation was observed in all investigated groups of skulls. Significant statistical differences of mastoid process pneumatisation between male medieval and present skulls and in the size of mastoid pneumatisation of male and female medieval skulls were observed. Our study let us draw the following conclusions: The pneumatic type of mastoid process predominated in the whole investigated material. The higher degree of pneumatisation is observed in the male mastoid processes and the most pneumatised mastoid processes were found in the mediaeval male skulls.

Nutritional Assessment in Chronic Renal Failure Children with Anthropometry

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Protein-energy malnutrition (PEM) is associated with increased morbidity and mortality in children with chronic renal failure (CRF). Anthropometry is proved to be a sensitive marker of PEM. In 3-year longitudinal study we have investigated the nutritional status of 30 children with CRF (age 10.5 ± 1.6 y) and 30 healthy children (age 10.3 ± 1.4 y) served as control (HC). Following investigations were done: clinical status, biochemical analysis of blood and urine and 20 anthropometric parameters. 52.0% of the children with CRF were wasted and stunted (Waterlow criteria). In each nutritional category the most compromised parameters were the circumferences of the extremities and upper arm area (UMA), compared with HC. Mid-arm circumference and UMA were reduced in 78.5% and skin-fold thickness was reduced in 45.2% of the children. We evaluated the differences of the biochemical parameters between the different nutritional categories and their correlation with anthropometry. The most sensitive biochemical parameters were hemoglobin, alfa1-antitrypsin and insulin-like growth factor I. Our results support the high prevalence of PEM in children with CRF. We suggested that anthropometric measurements in conjunction with biochemical markers obtained more sensitive information about the nutritional status in children with CRF.

Mortality and Mating Structure in a Mediterranean Population (Tortosa, Lower Ebro Basin, Spain)

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The aim of this study is to analyze the influence of critical mortality in marital patterns of the parishioners from Tortosa Cathedral Parish. Data on birth places, marital status and occupation were collected from marriage acts corresponding to three decades (1703–1712, 1805–1814 and 1817–1826) comprising three major events of mortality: 1707, 1809, 1821. The expected consequence of mortality crises on marital structure is a breaking of homogamy: thus, significant increases of frequencies of widowed and foreign people has been detected in years following crises; on the other hand, results on social status are not conclusive.

The Mitochondrial DNA Phylogeography of the Slavonic Peoples

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4300 mitochondrial DNA lineages of three Slavonic-speakers – southern (Slovenians, Croatians, and Bosnians), western (Slovaks, Czechs, Poles), and eastern Slavs (Ukrainians and Russians) – were identified by HVS sequencing and RLFP analysis. In the context of available for us additional 18,000 mtDNAs from elswhere a vast majority of »Slavonic« haplotypes belong to a common, likely largely early Upper Palaelolithic western-Eurasian pool of maternal lineages. The distribution of a different haplogroups in extant European populations, including Slavs, appears to be profoundly influenced by the recolonization processes after Last Glacial Maximum. The fraction of mitochondrial lineages shared with those found in Near East is relatively low; the presence of eastern and southern Mediterranean lineages are limited as well. However, many more recent haplotypes are shared between western and southern Slavs with Germanic and western Finno-Ugric speakers. Eastern Slavs share more lineages with non-Slavic eastern Europeans.

On the Role of Craniometrical Traits in Appearance of Non-Metric Ones

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Discriminate analysis of Kazach (N = 192, both sexes), Buryat (N = 185, both sexes), Khanty (N = 215, both sexes), Armenian (N = 74, only men) and Ossetyn (N = 72, only men) cranial samples has been revealed the association between standard set of 27 craniometrical characters and presence of inconstant channels (supraorbital and third ethmoidal). This confirms the threshold theory of non-metric variability for inconstant channels and additive (wormian) bones. Because of function of craniometrical factors »neutral» discrete traits are depended on sex and laterality. It is necessary to use regression equations for frequency correction from sex and laterality dependence in ethnic groups comparisons. Such discrete traits as pteric and Inca bones, exostoses of

skull-spine boundary, persistent metopic suture, torus auditivus and so on owing to obvious genetic nature are suitable only for relationship identification. So the discrete set is conditioned by the research purpose.

Body Composition of Students in University of Ljubljana

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Body composition was analyzed in two groups of students in University of Ljubljana. One group was measured in 1987/1988. On the basis of anthropometrical measurements two compartment analyses of body composition was made. With male after Lohman and with female after Jackson and Pollock. On the basis of the calculated body density, body fat and lean body mass were defined. Body fat is considerably higher in female group, while in male group lean body mass predominates. Anthropometrical five–way fractionation of body mass based on phantom values has given tissue masses of skin, subcutaneous fat, muscle, bone and residual. The difference between calculated and measured body mass are as expected. In second group measured in 1999/2000, body composition was analyzed with BIA method using Tanita body fat analyzer with bipedal electrodes. The amount of body fat as an important information for physical anthropologist and other experts will be presented.

Oral Health Issues of Croatian Institutionalized Seniors – Status-Intervention Index and General Anthropometrical Findings

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Proper oral health contributes the overall normal function, and it is the elderly who are at most risk for adverse changes in their health and function status. A cross-sectional epidemiological survey has been performed regarding oral and general health factors of 414 institutionalized elderly residents living in senior housing centers in Zagreb, Split, Korčula and Pelješac (Croatia). The oral and general health survey included a questionnaire, recording of major anthropometrical data (height, body weight, waist and chest perimeter measurements), and an oral examination conducted by calibrated dentists. A structured interview on socioeconomic status, oral health habits, and clinical evaluation of oral and dental health, were performed. In this sample, 62% were edentulous. The dentate subjects had an average of 11.2 teeth. Mean DMF value was 24.8%, and, according to CPITN index, 98.7% of the subjects were in need of periodontal treatment. Moreover, general anthropometrical measurements were compared between subjects with functional or satisfactory rehabilitated masticatory status, and those who had unsatisfactory functioning oral status, and the data revealed that those subjects' percentile weight categories were significantly less in the latter than in the former group ($p < 0.05$). Status-intervention index was surprisingly high, and correlated the anthropometrical findings. The overall oral health of Croatian adults aged 65

and older is poor, and our findings suggest that the balance of diet is impaired because of the state of the dentition.

Appearance of Menarche in Actively and Non-Actively Training Girls

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The article summarizes the data about the important role of sport on the sexual maturity in girls. 326 actively training and non-training girls with normal body weight, and 73 girls with overweight and obesity, aged from 11 to 15 are investigated. Their sexual maturity, the appearance of menarche and the interdependence of these from the level of the fat tissue were examined. No acceleration has been found in their sexual maturity and in the appearance of menarche. The menarche in the actively training girls delays from 2 months up to 3 years in comparison with the non-training ones. Depending on the appearance of menarche, the authors offer the following classification of the girls: Non-training girls with normal body weight – menarche at 12 years and 3 months (12, 3); Non-training girls with overweight and obesity – menarche at 12 years and 1 months (12,1): Actively training girls: Sports Shooting and Volley-ball – menarche at 12 years and 10 months (12,10); Basketball – menarche at 13 years and 1 month (13, 1); Track-and field athletics – menarche at 13 years and 3 months (13,3); Rowing and swimming – menarche at 13 years and 10 months (13,10); Sports gymnastics – menarche at 15 years and 8 months (15,8). A scheme of the hormonal and enzyme mechanisms, explaining the puberty development and the menarche in the girls, is suggested and their dependence from the level of the fat tissue is proven.

Fluctuating Asymmetry of Dermatoglyphic Features in Patients With Down's Syndrome

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The fluctuating asymmetry level of four dermatoglyphic features (palmar ridge count on 2nd, 3rd and 4th interdigital areas, finger ridge count, *atd* angle and patterns' type on the homologous digits) are studied. The investigation encloses 116 boys and girls with Down's syndrome, as well as a control group of 260 healthy boys and girls. Generalised the Down's patients showed a higher level of fluctuating asymmetry compared to the controls. In boys with Down's syndrome, the highest level of fluctuating asymmetry is established for the ridge count on 4th digits and the type of pattern on the 4th homoplogous digits. In girls with Down's syndrome the highest level is founded for »*b-c*« and »*c-d*« palm ridge count and the pattern's type on the 4th homoplogous digits. The data obtained can give an interpretation to the results from the disturbances in the ontogenetic development of the individuals with Down's syndrome.

Growth and Body Composition of Chinese Children Born in Italy and Living in Bologna

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A longitudinal sample of 221 healthy Chinese children (103 females and 119 males) born in Italy and living in Bologna was examined from birth to 24 months. The surveillance of growth includes measurements of weight, length, 3 circumferences (head, abdomen and calf) and 5 skinfold thickness (triceps, biceps, subscapular, suprailiac and calf) at birth, 2, 3, 4.5, 7, 12, 18 and 24 months, on the occasion of immunizations. As regards the assessment of body composition, besides skinfold thickness, BMI, Arm Area, Arm Muscle Area and Arm Fat Area were calculated. Our sample shows an adequate growth. In the comparison with Chinese children living in China and abroad, the children of our sample are generally taller; the trend of weight and BMI is more variable being in some cases comparable, in other slightly higher or lower. The growth pattern of Chinese children of Bologna is into the normal limits according to the NCHS reference standard: the curve of weight in Chinese overlaps the same mean curve for standards, while the length is slightly above. The results of the present study support the hypothesis that they live in an appropriate environment

Immigration and Quality of Life in Bologna (Italy)

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An evident process of increase in immigration of people, coming especially from Asia and Africa, has been taking place in Italy with a tendency to grow with time. The city of Bologna, as other many cities in Northern Italy, is a destination for the arrival of several migrants looking for a working occupation. In this context, a national research program conducted for promoting health care conditions took place during the last two years (2001,2002). In the present study data about psychosocial indicators in the different groups surveyed (Senegalese, Moroccans, Tunisians, Slavish, Pakistanis) will be presented. There is, in fact, a real necessity to analyze the adaptation efforts of the migrants to the new environment. The precarious conditions of life of migrants can cause practical and psychological difficulties in the new Country. The method used, to the aim of collect information on stressing events for migrant people in Bologna, is based on clinical-metric principle (Raffi et al., 1998). In all the considered groups, the stress due to external events (objective factors) has resulted low. Instead, the self-perception (subjective) of stress was of middle intensity, from a higher intensity in Tunisians, to a lower one in individuals coming from ex-Yugoslavia territories. The psychological discomfort resulted higher than stress, and again higher in Tunisians than in the other groups studied. In spite of these factors, the general status of psychic comfort has resulted middle-high. In particular, the quality of one's life was considered good for Tunisians, between good and satisfying for Senegalese and Moroccans, mediocre for Pakistanis and Slavish.

Body Composition and Motoricity in School Children

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In order to evaluate body composition and motricity during growth, a sample of 296 Italian children (147 Males, 149 Females), from Cento (Ferrara-Emilia Romagna), 6–9 years, was surveyed. The present results are preliminary to a larger longitudinal study dealing with the evaluation of the modifications of body composition and mobility induced by growth. The anthropometric characters examined are height, sitting height, weight, eight circumferences, humerus and femur breadths and eight skinfold thicknesses. BMI was calculated to value the prevalence of underweight, overweight or obesity. Physiometric characters included general flexibility (sit-and-reach test), shoulder and elbow flexions and handgrip strength. Body composition parameters (Fat Free Mass, Fat Mass, %Fat) were assessed by the skinfold equations of Slaughter et al. (1988). The children of our sample generally grow according to the reference standard proposed for Italian population (Cacciari et al., 2002). In particular, females show weight, height and BMI values comparable to the 50th percentile of the standards, while in males higher values of weight and BMI are shown. These results are supported by the different percentage of overweight and obese subjects in the two sexes that are considerably higher in males. Also in the motricity characters we observe a difference between the two sexes: the flexibility is always higher in females while the strength is always higher in males. This is in accordance with what reported in literature.

Age at Natural Menopause in Various Groups Patients

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Menopause is a natural transition from the female reproductive phase to the non-reproductive one. Menopause indicates the termination of ovarian follicular function. The mechanism responsible for it refers to the continuous loss of ovarian follicles. This process leads to an increasing variability in menstrual cycle length, and finally to the complete cessation of menstruation. This is associated with a series of changes in weight and somatic composition. Our study was carried out in Western Hungary. Ages of menarche and menopause were taken in account. Besides the evaluation of relevant background information (such as smoking habits, alcohol consumption, number of pregnancies and births, adequate medicament therapy), somatometric measurements and body composition analysis were made. Various groups of patients were involved in the study. Neuropsychiatric disorders (for example neurotic, stress-related and somatoform disorders, affective spectrum diseases) and endocrine diseases (I and II type diabetes, hyper- and hypo-thyroidism) solved as distinguished topics our interest. Acknowledgements: Scientific Committee of the Berzsenyi Daniel College. Acquirement of the somatometric equipments was supported by the Phare »Szikra« Project.

Direct and Indirect Health Care Cost Obesity – Related Medical Conditions

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Obesity and overweight have become an epidemic problem in Croatia, as in the most western countries too. The comorbid diseases have the important implications on the overall of health and premature mortality. Higher body weights are also associated with the increases in all-cause mortality. Obesity is responsible for numerous increases in: type 2 diabetes and its complications, hypertension, coronary heart disease, dyslipidemia, stroke, respiratory disorders (sleep apnea, Pickwickian syndrome, asthma), degenerative joint disease, gallstones, the increased risk of malignancy, including breast, prostate, uterine and colon cancer. The patients are not affected not only by these problems, but also by poor self-image, depression and possible employment discrimination. Obesity grade I, II and III according to the World Health Organization (1995) now affects approximately 69% males and 49.9% females in the Croatia. According to the recent Croatian data severe or morbid obesity, defined as a body mass index (BMI) 30.0–39.9 kg/m^2 and > 40.0 afflicts approximately 21% males and 15% females, total 18%. Number of overweight people has climbed to 1.1 billion worldwide. The costs of managing obesity are often not reimbursed. The statistics from U.S.A. (1995) presented total cost of overweight and obesity of 99.2 billion. Because of the high prevalence of overweight and obesity in Croatia, it is necessary to take into account the direct health care cost (health care costs refer to preventive, diagnostic and treatment services) and the indirect ones (the value of wages lost by people unable to work because of illness or disability, premature death). According to the raising trend of the obesity, effective collaboration among government, health provider as well as a commitment of action by individuals and communities across the nation, are needed. The existing epidemiological data on overweight and obesity require estimation of the total economic cost of these conditions together with related diseases.

Secular Changes in Height of Lithuanian Population During the Last Two Millennia

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It is assumed that during the last two millennia no significant migrations took place in the territory of contemporary Lithuania. Hence osteological samples can be used for the validation of environmental impact. In skeletal samples, definite geographical gradient during both millennia was detected: stature decreased from Northwest to Southeast of Lithuania. This could point to differences in gene pools. Stature was gradually increasing during the Iron Age, but in Medieval and Early Modern samples significant stature decrease was evident. Certain stature decrease in 16th–17th c.c. could be at least partially explained by the drop of the average annual temperature. Social status in some Iron Age samples significantly correlates with the male stature. In Medieval-Early Modern times, negative effects of urbanization were noted; males of the upper class were significantly taller. In all cases, skeletal data point to higher eco-sensitivity

of males. Data on height of living population in Lithuania are available since 1875. At the end of 19th century the mean height of men in Lithuania was 165.60 cm, the mean height of women was 154.14 cm. Geographical differences at that time were also evident. Men as well as women were the tallest in Western Lithuania (167.5 cm and 155.5 cm respectively), the shortest population was in South Lithuania (163.9 cm and 152.6 cm respectively). Most evident acceleration of height of Lithuanian population started from the middle of 20th century and lasted approximately till 1985 – the mean height of men reached 180.5 cm, of women – 167.0 cm. During the last 15 years acceleration process slowed down – no statistically significant differences in height between data in 1985 and 2000–2001 were found (the tallest population at present time also is living in Western Lithuania). The possible factors of stature variation in Lithuania at different centuries will be discussed.

Kinesiographic Analysis of Dental Occlusion Morphology

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The objective of this research was to determine the characteristics of dental occlusion in eugnathic subjects, by means of an objective method, and on the basis of the results, to recommend the form of the occlusion to use in prosthodontic reconstructions. The examined group comprised 73 students of the Faculty of Medicine in Rijeka, aged between 19 and 24 (22.03 ± 1.42). During clinical examination, 60 eugnathic subjects were selected for the research. The cuspid guidance (CG) was present in 61.67% of cases, and the group function (GF) in 38.33% of cases. Subjects with balanced occlusion were not selected, since it is not considered physiological. The kinesiographic recordings were made with the model K5AR (Myotronics Inc.) designed for the specific purpose of recording mandibular movements by tracking a magnet secured to lower incisors. The eyeglass frame with the sensor array was placed on the patient's head. The position of the magnet was recorded on the monitor as a dot. In every moment it is possible to measure the movement of the mandible related to the cranium. The Student t-test analysis demonstrates that statistically significant difference between angle values of kinesiographic registration appear at 2 and 3 mm of lateral slide in frontal plane (CG 63 ± 0.84°, 56.84 ± 1.04°, and GF 58.43 ± 1.24°, 52 ± 1.24°, $p < 0.01$) and at 2 and 3 mm of longitudinal movement in horizontal plane (CG 69.16 ± 2.06°, 75.3 ± 2.08°, and GF 82.57 ± 2.44°, 87.26 ± 2.46°, $p < 0.001$). The kinesiographic registration eliminates the description of cuspid guidance, by which, the lateral movement is guided by canine with momentary disclusion of other teeth, thus proving that there is a progressive disclusion, by which premolars assist, and that the canine takes over the movement only after 2 mm of lateral slide.

Prevalence and Significance of Minor Anomalies in Children With Impaired Development

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Objective: The study examined the hypothesis that the prevalence of Waldrop's minor physical anomalies in children with developmental disorders (DD) (mentally retarded – MR, with impaired hearing – IH and impaired vision – IV) is higher in relation to a control group of healthy schoolchildren (HS). Methods: The study was carried out on a sample of 469 children; 223 children with DD (109 MR, 64 IH, 50 IV) and 246 healthy schoolchildren. Those children with recognizable genetic syndromes were excluded from the study. Results: The examined groups of subjects with DD and HS significantly differed according to the number of minor anomalies and also their weighted scores according to Waldrop. Multivariate discrimination analysis with two discriminational functions explained as many as 96.51% of the total variability, significantly distinguishing the HS group from the DD group. However, it was not possible to achieve clear distinction between MR and IV. The interrelation of the number and sum of the weighted scores of minor anomalies according to Waldrop show similar minor anomalies in the MM group (mean per person 3.65 and 3.82 respectively) and the IV group (mean per person 3.24 and 3.50 respectively) and in the IH group (mean per person 3.84 and 3.67 respectively) and the HS group (mean per person 1.70 and 1.46 respectively) although at different levels. Conclusions: The significantly higher number of minor anomalies and their weighted score according to Waldrop in all three groups of children with DD compared to healthy children, suggest that during early development the factor which is the cause of a specific developmental disorder (handicap) and the occurrence of a minor anomaly, have a joint effect.

Secular Growth Changes in Hungarian Girls

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Differences between the mean height and body mass of the various generations were evaluated as positive effects of secular growth trend (Wieringen 1978). The more or less expressed variability in physique and body composition can also be evaluated as the consequences of the trend (Bodzsar 1998). The aim of the present investigation was to analyze the consequences of secular growth trend in 10 to 14-year-old girls within 20 year observation period, as well as in physique, and bone diameters. The number of studied girls was 1328 in 1981 and 1642 in 2001. The growth type was described by the suggestions of Conrad (1963) and relative body fat content was estimated by Parizkova's method. The differences between the means of height and body mass were significant at 5% level of random error only at the 11, 13 and 14-year-old groups, although the girl in 2001 were numerically taller and heavier consistently. The metric index

means (describing the relative linearity of physique) were more negative (the girls were more leptomorphyc) at plastic index means (the absolute indicator of bone-muscle development). The average humerus widths and also the knee width means were greater in 2001. The significantly greater body mass could be observed with the more linear physique and with unchanged bone diameters. In these reasons the greater body mass cannot be evaluated as positive consequence of secular growth trend.

Shape Analysis of the Mid-Sagital Cranial Profile in Adult and Infant Neanderthal Crania

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The morphological features that characterize the lateral shape contour of the Neanderthal cranium, considered together, constitute an apomorphic feature of the group. In order to evaluate these distinctive features, the shape variations of the mid-sagittal profile (glabella-opisthocranion) in adult Neanderthal remains were earlier examined. In this study attention is focused on infant remains. The analysis was performed on the Neanderthals from La Quina (H18) and Teshik-Tash compared with sapiens from Montgaudier, Predmosti VII, Quafzeh 10 and 11 and 2 modern skulls aged 6, 12. Size normalized boundaries, digitally acquired as ordered series of coordinates, were decomposed by using a Fourier polynomial, into a series of sine/cosine coefficients. The extracted amplitude and phase angles were used as variables to carry out multivariate discriminate analysis (PCA). The first and the second components accounted for 79.3% of the total variance. In the single point distribution, adults are distributed almost without superimposition suggesting significantly different morphological models. With respect to the adult models, the infant remains seem diversified: the infant sapiens is more similar to the adult, as the element of specificity is constituted by a steep craniogram contour with a noticeable equilibrium between the anterior and posterior district. It is possible to hypothesize a prevalently isometric growth model in which the allometric elements, due to natural growth differentiation, appear secondary and do not significantly modify the base model. In the Neanderthal infants, the adult model already seems delineated. Here too, it is possible to hypothesize a growth model of the isometric type, which, however, reveals greater elements of allometric differentiation in the passage towards the adult form.

Analysis of the C677T and A1298C Mutations of the MTHFR Gene in Mediterranean Populations

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Cardiovascular disease has a multifactorial aetiology that is influenced by both genetic and environment factors. Moderately increased plasma concentrations of total homocysteine (tHcy) have been shown to be an important risk factor for vascular diseases. The methylenetetrahydrofolate reductase (MTHFR) C677T and A1298C are two common polymorphisms that have been proposed as being genetic risk factors for cardio-

vascular diseases. The C-T substitution at nucleotide 677 (C677T) of the coding region is linked with elevated total plasma homocysteine levels in homozygotes compared with heterozygotes or normal individuals. Another mutation, an A-C substitution at nucleotide 1298 (A1298C) results in mild decreases in MTHFR activity. In this study the allele frequencies of both the C677T and A1298C mutations were analyzed 10 Mediterranean populations (Sardinia and Sicily) (Italy), Continental France and Corsica (France), Andalusia's and Basques (Spain) Arabs Moroccans and Berbers (Africa North).

The Greenland Norse – Analytic Morphometry of the Neural Cranium

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The study of Norse skeletal material from Greenland, constitutes a topic of great interest being related to the study of numerically reduced and/or environmentally isolated human groups. The material described in this study represents the human remains of the Norse who sailed out from the Iceland to colonize the southwestern part of the Greenland one thousand years ago, maintaining two major settlements there for five hundred years. Several theories have been advanced to explain the demise of the Norse settlements. According to metric analysis performed by one of the authors (N. L.), the Greenland Norse appears to be homogeneous and characterized by tendency to a smaller body size. In this work a shape analysis of the neural cranium in performed on 29 Norse skulls, which are compared with Inuit and Middle Ages Danish skulls. Size normalized boundaries were digitally acquired as ordered series of coordinates; the glabella-opisthocranion contour and the vertex-porion contour were acquired for the lateral view and for the occipital view respectively. Each contour was interpolated using a Fourier trigonometric polynomial; amplitude and phase angle were used as variables to carry out multivariate discriminate analysis. The occipital norm supplies a significantly improved differentiation, between Danish and Eskimo groups, with respect to lateral norms, giving a correct discrimination of 98%. On the basis of the obtained equation, 26 Norse crania out of 30 were attributed to the Danish group, 4 out of 30 were attributed to the Eskimo group. The hypothesis that the morphology that characterizes the Norse group is the result of variations originated by genetic drift, following differentiated migration and stabilized by a low level of genetic exchange, is discussed in relation to the obtained data.

Three-Dimensional Topographic Survey of the Human Remains in the Lamalunga Cave (Altamura, Bari) and Further Morphological Observations

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As part of the project to install the technological instrumentation for the scientific and cultural access to the Lamalunga cave (Altamura) and to the human skeletal remains,

conserved in situ, observations and surveys were conducted to define aspects regarding the distribution of the human remains and their morphology. The survey of the cave, carried out by specialists from the group CARS (Centro Altamurano Ricerche Speleologiche), offers an indispensable tool for knowing the cave; specific technical solutions were developed to increase precision and accuracy with respect to classic speleological surveys; in addition a three-dimensional topographic distribution of the human bones was obtained guaranteeing the possibility of creating a spatial map of the remains. Three-dimensional spatial coordinates describing the collocation of the skeleton were sampled; these points were used for the spatial positioning of mathematical models reproducing element of an adult male skeleton; for the skull, a model reproducing a Neanderthal morphology was used. The bone elements were re-composed in a virtual space using the real points sampled; the relationship between the skeletal elements was then verified in the laboratory using a video-photographic data-base. The survey allows the interactive observation of the remains and their relationship with the site, which can be observed from points of view impossible in reality as, for example, an underneath view. Based on such views, the relationship between the skeletal elements confirms the original hypothesis that the skeletonization phenomenon probably occurred in the actual site where the remains are now found and that, at a later date, it underwent only very limited movement with respect to its original position.

Screening for Temporomandibular Disorders in Young Adults

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The examination was performed on 198 young adults (dental students at the Department of Prosthetic Dentistry, School of Dental Medicine, Univ. Zagreb) who were at final clinical year in two consecutive terms. Data was obtained using specially developed »student questionnaire« which was modified version of our standard patient's anamnesis and clinical chart. Charts were transferred to appropriate database and data was then statistically described. During the course in Gnathology it is essential that students are able to recognize and evaluate the clinical and subclinical signs of Temporomandibular Disorders – TMD (which were formerly termed Craniomandibular dysfunction). Distribution of the signs and symptoms in Croatian dental student population presented results that were similar to those in current literature. Slight increase in prevalence of signs related to TMD was accounted to increased awareness of the students skilled by prior education. Serious findings were only in small number of cases, which were than subjected to clinical functional analysis and specially treated. In great majority of cases objective findings were well tolerated and compensated and there were no permanent and significant symptoms of TMD.

African Pongids and Humans – Superficial Similarities and Profound Differences in Their Social Structures

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The reconstruction of the social structure of human ancestors is of great importance to many scientists searching for a social key-character that started the human career. As a general model for our ancestors, chimpanzee behavior is widely accepted. Similarities among the African apes consist mainly in weak genealogical bounds and females leaving their parental group for reproduction. Patrilinearity is a character belonging only to the two species of chimpanzees, and their social structures are very specialized. Here, a social organization is suggested for the last common ancestor of pongids and humans, that is much closer to the general old-world-monkey matrilinear, non-promiscuous system, and the important social key character for human evolution is supposed to be monogamy. Circumstantial evidence clearly points to monogamy to form the basis of the human specific form of this sexual system. Monogamy is understood here as a relationship between one man and one woman at a time, based on an emotional bonding. The evolutionary advantage of monogamy compared to the sexuality of pongids primarily lies in mastering a typical pongid problem, bringing them close to extinction. Pongids have long birth intervals, which are the consequence of the long phase of learning and depending on the mother forced upon pongids by their large brains and their high, mainly social intelligence. Their long birth intervals do not allow pongid populations to recover from severe reduction of the number of individuals. This problem was solved in human evolution in having the father emotionally bonded to the mother and her young, caring for protection and in part for food. In combination with female relatives living in the same matrilinear group, birth intervals could be at least halved compared to pongids. Secondary monogamy severely reduced the sexual competition of adult men, setting their spirits free for the intellectual invasion of their non-social environment. Competition among men was transferred into the abilities in handling this material surrounding. Another major new effect of monogamy was a patrilinerar system built aside to the pre-existing matrilinear group structure. This enables the rise of typically male, material traditions. A matrilinear and a patrilinear social system in one group requires the avoidance of incest by cultural marriage rules and by another unique human character – the ability to fall in love. Considering the arguments put forth here, the social system of chimpanzees considered as a model for human ancestors should be viewed in an much more critical light. We should no longer expect to find the key character initiating human evolution in the behavior of today's chimpanzees.

Biological Relationships Among Populations of the Circum-Caribbean Area Inferred From Migratory Flow From the 4th Millennium B.C. to the Conquest

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The migrations that led to the peopling of the Caribbean area took place beginning in the 4th millennium BC. By the time of the conquest, the islands were populated by the Ciboney, Arawak (Tainos) and Carib cultures. This paper investigates the extent of biological relationship among various groups from the circum-Caribbean area through the analysis of dental morphological traits. Six different groups have been analyzed: Florida, Cuba, Santo Domingo, Virgin Island, Puerto Rico and Venezuela. We tried to investigate the biological affinities of groups from the same and different migratory movements. A separation between cultural groups arose, along with different relationships among island groups compared to the continental ones. The Tainos (from Santo Domingo, Virgin Islands and Puerto Rico) always clustered together and separated from the Ciboney of Cuba. The preceramic sample of Cueva Roja (an earlier non-Taino group from Santo Domingo dated between the 3rd and 2nd millennium B.C.) merges towards the Cuban Ciboneys, indicating its origin from one of the first migrations towards Hispaniola during the 4th millennium BC. Instead, no clear affinity of the samples from southern Florida and Venezuela emerges. The former ones, even the more ancient, do not seem to have any relationship with the Ciboneys. Their less distinct biological collocation related to the island groups could result from within the sub-continents demic movements and a higher gene flow, contrarily to what occurred to the geographically and genetically more closed island populations. Research granted by MURST COFIN1999, MAE and 60% Grant by the University of Rome »La Sapienza.«

Palaeoanthropological Material From Neolithic Burial of Sakharovka (Moldova)

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The unique character of the Palaeoanthropological pieces from the Neolithic Burial of Sakharovka is, in the first place, due to the fact that it is the only site, representing the population of the Pruth-Dniester interfluve in the Neolithic period. From the viewpoint of the funeral rite and a set of artifacts the necropolis of Sakharovka can be attributed to the category of Mariupol type burials, the majority of which were unearthed on the Lower Dnieper and in the Dnieper-Donets interfluve. This culture is dated back between 6.5–4.5 millennium B.C. 23 persons were buried in this burial. The children prevail. The palaeopathological analysis has not revealed any adverse factors, affecting the development of the population. The analysis of the physical activity of the Sakharovka population allows us to speak of undifferentiated load on the skeleton. This development type is characteristic of the hunters and collectors and the popula-

tion, with a complex type of economy. As for the mane sizes the Sakarovka skeletons are intermediate between the massive Dnieper-Donets groups and the gratial Mediterranean groups of the Balkan-Danubian area and are very similar to last by no clearly expressed massiveness. This type was, in all probability formed on the basis of the Late Paleolithic groups of the Brunn-Pszedmosti type in the long process of contacts with the foreasian and the ancient Mediterranean forms.

The Problem of Taxonomy of Transitive and Cross-Breeding Fossil Hominid's Forms

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The position of the so-called »disputable finds« in the modern taxonomy of fossil hominids is a very complicated. Among them the Palestinian hominids are most hotly discussed. Mosaic structure of the skull and skeleton of these hominids forced the scientists to accept the different points of view concerning their status. One believed, that Palestinian hominids were half-breeds, the others supposed that they were transitive forms, third scholars considered them as predecessors of Homo sapiens. We carried out the analysis of a line of the disputable Paleolithic forms according to supra-orbitalis and zygomaxillaris areas, trigonometrical angles of neurocranium and facial cranium, and also parameters of the mandible. We found out that remains Shul V, Shul IV and Amud have about 50–60% of sapiens' attributes of facial cranium. The neurocranium of the majority of »disputable finds« mostly by the erectoid parameters, although sometimes it has neanderthaloid and sapientoid features. As a matter of fact our research confirmed once more non-uniformity of development of various parts of a skull and dependence of taxonomical importance of some attributes on misbalance of their phyletic development. Our data confirm statistically the earlier stated hypothesis that the development in human evolution of a facial cranium attributes were faster, then the development of a neurocranium. Probably, the reason of such non-uniformity in development of skull's parameters could be cross-breeding. In this case it is obvious, that the cross-breeding forms could be transitive at the same time. This considerations force us to describe the origin of the Palestinian hominid as the form of the neanderthalo-sapientoid (Shul), erecto-neanderthaloid (Tabun, Amud) or erecto-sapientoid (Qafzeh 6) type. We determine taxonomical rank of the Palestinian hominids according to their predecessors' species.

Anthropological Research of Human Remains of the Medieval Coptic Population (Fayoum, Egypt)

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The human remains of the medieval Coptic population of the Fayoum oasis were studied in the framework of the project jointly launched by Institute of Ethnology and Anthropology, RAS; the Center for Egyptological Studies, RAS in January-February 2002. The following results were achieved. Males: judging from the average cranial index

male skulls are mostly mesocranium. According to the high indexes of cranium we could notice that in majority male's skulls are rather high. The skull's shape from above among brachicranium skulls is sfenoid and among dolichocranium – pentagonoid. According to a high-mandibular index a face skeleton among males is leptennic (narrow face). Orbit index gives an middle figures of orbits. Nose had a middle size in majority of cases. Horizontal profile of a skull is very prominent especially in the middle part of a skull. This kind of a profile is characteristic for Europe populations. Females: judging from the skull index the female skulls could be characterized as mezocranial with a tendency to dolichocrany. According to high indexes female skulls are relatively high and homogeneous. According to face indexes faces are relatively narrow with high orbits and middle sized nose. Faces in comparison with males are more prominent. Thus we could assume a possible genetical heterogeneity among the male's part of a population and relatively genetical homogeneity of its female part.

Comparative Analysis of Communication and Locomotion in Some Catarrhini

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We studied communication and locomotion of some non-human monkeys. There were more mimic elements in repertoire of Macaca nemestrina. This species was characterized of pattern connected with labium's moving. Papio hamadryas and Macaca mulatta had more elements of opening mouth and ones of brow movements in their mimic repertoire. We observed body attack (as an element of postural communication) frequently in baboons. They used gesture communication as well as tactile elements in aggressive contexts often too. Olfactory patterns had mainly significant for males of all investigated species. Acoustic elements were differed into three categories: aggressive, buffer, friendly. We observed some articulation sounds (»a«, »o«, »ou«, »ar«) in baboons frequently in aggressive contexts. There was mostly various and difficult communicative process in P.hamadryas. We described 16 postures and 16 moving elements in locomotor behavior. The mostly different posture repertoire was in M.nemestrina, M.fuscata, M.fascicularis, P.hamadryas. Mostly interesting locomotion was in P.hamadryas, M. fascicularis, M.nemestrina. These monkeys used non-typical elements: brachiation, hanging, crawling. The poor moving repertoire was observed in M.mulatta and M.arctiodes. Quadrupedal walking, running, standing and body inclination had mainly significant in P.hamadryas and M.arctoides – mostly terrestrial species. The progressive evolution posture – sitting with free forelimbs – was observed in P.hamadryas and M. fuscata more often because they used grooming (cleaning) frequently then other species. M.fascicularis used arboreal postures and especially locomotion more then other. There were many variants of hanging and climbing in its behavior (near 28% of all motion behavior in activity period). All monkeys used bipedal postures and movements in different situations. The study was supported by RFBR, grant # 02–06–80258.

The Impact of Policy Interventions on a Pre-Industrial Population System in the Austrian Alps

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In this paper we set out to explore the relevance of culture to demography. More particularly, in this case study demographic data will be used to illustrate intervening cultural factors into the social organization of reproduction and into the marriage system of the Austrian village Großarl during 1700–1900. The main methodological focus of this study is on following questions: Is it possible to evaluate the impact of institutional change in a demographic time-series approach by using statistical techniques detecting structural changes in demographic data? Is there empirical evidence in the data for the effectiveness of historical policy interventions? Using a mix of qualitative and quantitative approaches at both the micro-level and the macro-level, we develop a simple linear regression model to analyze the longitudinal pattern of demographical time-series data that reflects historical policy interventions and institutional changes-concluding with a consequence question: Does institutional change really matter? More precisely, we derive a set of explanatory variables based on the qualitative information gained from historical analysis. To assess and visualize their effects on several demographic variables we fit regression models and use moving sums of regression residuals as diagnostic tests. Thus, we check if changes in the demographical data coincide with changes induced by policy interventions. This method is similar to intervention analysis combined with tests for structural changes — both common techniques for the analysis of econometric time-series, which we adapted to this demographical case study. This procedure leads to a sufficiently good descriptive model of the data that highlights the effects of the variables derived from the historical analysis on multiple demographical outcome variables. There is much evidence that normative regulations through policy and social institutions were effective: Especially, social disciplining and marriage restrictions had a strong impact on the reproductive behavior concerning the fraction of illegitimate births and marriage.

Body Build Peculiarities of 12–15-Old Boys and Girls in Tartu, Estonia

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On the bases of 31 most essential anthropometrical characteristics, the body build peculiarities of 12–15-year-old children were investigated. In addition, differences between boys and girls were analysed and data compared with earlier studies. The sample included 396 girls and 361 boys selected randomly from different schools of Tartu (about 100,000 inhabitants), Southern Estonia. In addition to anthropometrical measurements, means of 10 indices and Heath-Carter anthropometric somatotypes were calculated. Differences in age and sexual maturation level of children were also ana-

lysed. Tendency toward slenderness was also observed in children. In comparison with earlier (1971 and 1985) studies, the studied children were more narrow-hipped and narrow-shouldered, more dolichocephalic, their subcutaneous fat was distributed more unevenly over the body surface. Analysis of Heath-Carter somatotypes indicated that children, especially girls, have relatively low endomorphy and high ectomorphy values than in many other populations. Mean somatotypes of boys were 3–4–4 at age 12 and 2–4–4 at ages 13–15 (dispersion decreased with age). In 12–15-year-old girls, the average somatotype was 3–3–4 (dispersion increased with age). The most frequent category for boys was mesomorphic ectomorph (23.9–49.0%). Besides high percentage of dominantly ectomorphic girls (45.8% at age 12; 35,9% at age 15) remarkably high was also percentage of girls in central category (18.1–31.5%). This is the somatochart zone that is characteristic to men rather than women and has the largest clusters of potential somatotypes. In conclusion, the slenderness of body build in 12–15-year-old children of Tartu was reflected in their somatotypes.

Application of the Cluster Analysis Methods in Evaluation of Sagital Intermaxillary Relations in Patients with Complete Unilateral Cleft of Lip and Palate

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The investigation is based on a longitudinal cephalometric investigation of lateral teleroentgenographic pictures of male patients with a complete unilateral cleft of the lip and palate. Using two methods of cluster analysis (joining-tree clustering, k-means clustering analysis) the authors investigated the developmental relationship of 48 (resp. 26) patients during the time interval from 10 to 18 years of age. The methods of cluster analysis proved useful for the detection of developmental patterns of sagital intermaxillary relations and the assessment of their frequency in the investigated patients. Some clusters of the dendrogram meaningfully joined patients who developed a similar adaptation and compensation mechanism in response to their skeletal impairment. Investigated group of patients is very heterogeneous in regards to the development of the jaws If the depth of the maxilla is more reduced, patients in whom the length of the mandible grows less intensely develop well. In case of more marked growth, an inferior direction of growth of the mandible as a whole (not only of the chin) and a backward displacement of the TM joint is an advantage. Most serious is the position of patients with a greatly reduced depth of the maxilla combined with intensive growth of the mandibular body length. Forward growth of the mandible is unfavorable and so is posterior growth rotation, which may lead to an open bite.

Epidemiological Characterization Great Moravian Population in Connection With Social and Economic Structure

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The aim of the contribution is to propose (get) the information about the shape and health situation of the South Moravian population in the 9th century. Characteristics will be evaluated which may inform about the state of living conditions and style of living inhabitants in Great Moravia. These characteristics are mostly linked with the load of human organism – either -of physiological or physical type, e.g. demographic determinators, sexual dimorphism, lateral bone asymmetry, appearance of cribra orbitalia, Harris lines, hypoplasy of enemal, denture varieties and health stage, characteristics attributed to the motion apparatus (e.g. degenerative changes in the joint connection¨, entezopatia), appearance of skeleton injuries, appearance of morphological varieties. Characteristics will be evaluated with respect to the population group (burial ground), social stage of buried individuals (grave inventory), and the presumed socio-economic state of the settlement (castle, subcastle, closer and further hinterland). Attention will be paid on the cemetery of Mikulčice. Mikulčice settlement agglomeration, which will be evaluated, is considered as the possible centre of Great Moravian Empire – first early state formation on Czech territory. The conclusion of research contributes to the knowledge of old Slavic population in the Middle European territory. Research was realized with the financial aid of Grant Agency of Czech Republic (GACR 206/1140).

Degenerative Changes in Vertebral Column and Occupational Activity – Methodological Aspects

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In this preliminary study we try to examine the relationship between occupational activity and degenerative disease of vertebral column. We focus our attention on specific habitual movements that could have an important role in the beginning of degenerative changes. In order to evaluate the degenerative lesions we suggest a standardized method of data scoring. Marginal bone proliferation, pitting of articular surfaces, eburnation and changes in the bony contour were scored macroscopically for the large fibrocartilaginous joints between adjacent vertebral bodies as well as the small apophyseal and costo-vertebral articulations of the spine. For vertebral body were also considered Schmorl's nodes and avulsion injuries. Moreover, were scored the ossification of the anterior longitudinal ligament, posterior longitudinal ligament, *ligamentum flavum*, supraspinous and interspinous ligaments. Our scoring system was tested on a sample (70 individuals) of the Frassetto Skeletal Collection located in the Museum of Anthropol-

ogy, University of Bologna, which comprehends individuals died between 1925 and 1932. Human skeletal remains derive from the cemetery of Sassari (Sardinia, Italy) and includes individuals of known sex, age and work activity. In our sample marginal bone proliferations are more prevalent on the vertebral bodies than on the apophyseal facets and in males who carried on heavy physical activity. Schmorl's nodes are more frequent in males than in females: in males are more prevalent in the lumbar segment while in females in the thoracic ones.

DNA Minisatellite Diversity in Different Ethnical Groups of Eastern Europe

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Eastern European region is an area of the contacts between populations of Caucasoid and Mongoloid anthropological types. We have analyzed both Caucasoid (Adyheys, Mordovians and Eastern Slavs – Russians, Belorussians), and Mongoloid populations (Kalmyks and Yakuts). Ural region ethnic communities (Komi, Bashkirs, Udmurts, and Mari) were regarded as admixture populations with different levels of a Mongoloid component. Due to high discrimination power, the polymorphism of minisatellite loci D1S80 (pMCT118) and 3'ApoB was used to study DNA diversity in Eastern European populations. The analysis of DNA minisatellite polymorphisms was carried out using the PCR and subsequent electrophoresis followed by silver staining. We detected 28 alleles of the D1S80 locus and 27 alleles of the 3'ApoB locus. Observed allele frequency distributions (AFD) in Eastern Slavs, Adyheys and Mordovians were appeared to be similar with European Caucasoid populations. Minisatellite AFD in Kalmyks and Yakuts are differ from Caucasoid but similar to other Mongoloid populations, whereas Uralic populations AFD exposed intermediate position between these main human groups. Multidimensional scaling of Nei's genetic diversity distances revealed certain differentiation between East European ethnic groups. It should be noted that minisatellite DNA types of variability in different ethnic groups of Eastern Europe are in agreement with ethnic lineage of populations.

The Secular Trend of Height and Menarche in Young Belgian Adults – Are there any Signs of a Stop?

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The goal of the present study was especially to check whether there is still a secular trend in adult height and age at menarche in a well-off group of young Belgian adults. The data consists of measures of height of 240 males and 281 female students collected at the Medical Centre of the VUB (Flemish speaking University at Brussels) during the academic year 2000–2001. Compared to the university population at the ULB (French speaking University at Brussels) some 14 years ago, we noticed a shift towards a higher representation of middle class and lower class families among university students. We can also conclude that there was a significant positive secular trend for male and female students, which is fairly similar to the respective values in surrounding countries. Our results showed evidence that the generally higher mean stature of university students, compared to the general population, is nowadays reduced to approximately 1 cm. It seems that mean age at menarche is stabilized at 13 years of age since the 60's, which indicates that there is (at least in girls) no secular trend in sexual maturation or in tempo of growth.

Demographic Situation in Aboriginal Communities of Northern Siberia

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In 1989 the aborigines of the North of Western Siberia amounted to 1.44% of the whole population of Khanty-Mansi District (Khanty – 22520, Mansi – 8470 people). Up to the middle of the XX century, modification of traditional communities of the natives was going rather smoothly. However, since the 1950-s a sequence of abrupt transformations has been performed. It significantly influenced the demographic structure of the population. In former isolates, the number of interethnic marriages has increased sharply, and in 2/3 of them, it was females who represent the natives. Later they usually moved with their husbands. Consequently, in the aboriginal populations there is a significant disproportion in sex distribution: about 13% of males in the age of 20–50 are unable to find a nuptial partner within their ethnic group. This disproportion is connected to a structure of mortality. The death rate is very high among the young males: in 1996–99 the share of males who died at the age of 20–29 accounted for 16.8%. In 1998 the rate of violent deaths for native males was 3.3 times and for females – 3.9 times as higher as the average throughout Russia. The high percentage of the violent deaths has led to a decreasing of the average age of the population. In 1996–99 the average age of the dead for native males was 43.5 and for females – 52.4 years. Murders, suicides and accidents reduce an average duration of life approximately by 20 years. Alcohol mortality among the natives is 2 times as higher as in the migrants. The share of drinking females in the aboriginal population is about as big as that of males. Alcohol mortality of the indigenous females is five fold of it in Russians of the North (15.2 and 3.5% accordingly).

Molecular Variation in Endothelial Nitric Oxide Synthase Gene (NOS3) in Western Mediterranean Populations

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Endothelial nitric oxide synthase (eNOS or NOS3) is the main responsible for nitric oxide (NO) production in vascular system. Different gene polymorphisms have been associated with several cardiovascular pathologies with conflicting results about which allele or genotype is associated with the disease. Population stratification, as a consequence of ethnic diversity, may have decreased the power of these association studies. In this context, the aim of this study is to define the genetic background of a set of populations belonging to a geographic area with decreased susceptibility to ischaemic heart disease: the Mediterranean Basin. Two polymorphisms of the NOS3 gene (the 27-pb VNTR in intron 4, and the G894T substitution in exon 7) have been genotyped in 6 Western Mediterranean populations (3 from Iberian Peninsula, 1 from North Africa, and 2 from Sardinia) and a sample from Ivory Coast. The VNTR frequencies in Western Mediterraneans and Ivory Coast fit well into the ranges previously described for Europeans and Sub-Saharans respectively. Furthermore, a typical African allele has been detected in polymorphic frequencies in the Berber sample. The G894T substitution presents the highest frequencies ever described for the T allele in the North Mediterranean populations. Allelic and haplotypic data suggest a certain degree of Sub-Saharan admixture in Berbers. Linkage disequilibrium is present between both markers in all populations except in the Ivory Coast sample. Populational differences in cardiovascular risk could be partially explained by genetic differences and deserve further investigation.

Demographic Structure of Inhabitants of Celje, Slovenia, in the 19th Century

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We compare biodemographic data and demographic structure of inhabitants of Celje, Slovenia, in the 19th century. Data from the birth and death parish registers of St. Danijel Parish in Celje were studied. The following parameters were analyzed: natality, infant mortality, and common mortality, mortality regarding to causes of death. Infant mortality was high in the whole century, it ranges around 20%. Most frequent causes of infant deaths were Freisen, weakness, respiratory and infectious diseases. The most common causes of death of adults were tuberculosis along with other infectious diseases. In the whole century the expectation of life is higher for females. It ranges from 33.2 to 41.8% for females and from 29.7 to 38.6% for males. We can notice slight fluctuations of the expectation of life values in the first half of the century with higher values in the last three decades. Censuses have been held in 1869, 1880, 1890 and 1900 and following parameters are calculated for these years: natality rate, mortality rate and vital index. Natural increase was negative, but constantly increasing in proportion to increasing vital index.

Marriages Among Relations are Presented Using an Isolated Mountain Valley (Selška) as a Research Model

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Knowledge of a population and the dynamic processes within it may be of key significance for public health. Mating structure is the main determinant of the genetic structure of a population and, together with mutation, selection and genetic drift, causes changes in genetic and genotype structures. Reduction of the mating pool leads to the drift effect and has a highly nonrandom effect on population characteristics, particularly inbreeding, with associated biological hereditary consequences. In populations with a high percentage of consanguineous marriages, the probability of two recessive genes meeting in a single individual is considerable and thus a higher disease incidence than in the general »open« population may be expected. The most significant genetic parameters of a population – kinship, inbreeding and genetic distance – may be determined using the »isonymy« method, which is based on the analogy of genes and surnames functioning as genetic markers. In patrilinear societies, surnames are inherited as if determined by the father's gene linked to chromosome Y. Our study has confirmed that the marital isonymy method provides a satisfactory genetic interpretation on the level of the population. The sample includes 5100 persons from the autochthonous populations of 9 villages – 5 valley and 4 mountain villages, i.e. 1700 married couples (3400 persons) and their 1700 children, randomly selected on the basis of archival materials (birth registers) for the period from 1850 to 1993, that is 4 to 5 generations. In the past, marriage among relatives resulted in a larger number of isonymes. The collected data was analyzed with the help of population genetics mathematical methods. The results of these analyses will be presented.

Relationships Between Lifestyle and Stress Hormones in the Inhabitants of Three Mountain Villages in the Selška Valley of Northwest Slovenia

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The small villages of Spodnja Sorica, Zgornja Sorica and Spodnje Danje, lying on glacial terraces on the slopes of Ratitovec Mountain, are the highest settlements in Slovenia at 1000–1200m above sea level. The population derived from German colonists in the late 13th and early 14th Centuries and the villages have largely remained reproductively isolated. A major integrative anthropological investigation of the people in the Selška Valley has focussed on ascertaining the population structure in this region. We report here a study of salivary cortisol and testosterone levels in a sample of 55 autochthonous adults as a first step in ascertaining the physiological impact of isolation and other lifestyle parameters in these communities. Each individual was measured on two occasions, a day on a weekend and a weekday as they went about their usual activities in the afternoon. Cortisol (mean = 3.32 ng/ml 0.4–27.9) and testosterone (mean = 121.2 pg/ml 17.1–424) values were similar to other populations. Basic

anthropometric measures (stature and weight) and the time of sampling were not associated with hormone concentrations. On the days of collection, cortisol and testosterone values were correlated (r = 0.76 and 0.64 for weekend and weekday respectively). For females, but not males, testosterone values were higher on the weekend than the weekday. Cortisol mean values for the weekend and weekday were not different. The changes in testosterone levels from the weekend to the weekday were associated with the presence or absence of spouses and other adults in the house. Husband and wife testosterone values are correlated on the weekend (r = 0.67, p = 0.02) but not on the weekday. These results, although based upon a small sample size, indicate marked relationships between endocrine hormones and lifestyle situations.

Dynamic Oscillations of Population Effective Size of Villages on the Island of Hvar

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We used cybernetic model LOPI in the investigation of anthropological demography, which is relevant to gene condition in the population. The basic idea of the applied model was that the rate of reproduction is given by non-linear controller: Y2/Te*(1-(Y3/G). Constant G represents an environmental carrying capacity of community respecting the post-reproductive compartment (Y3). The proportional constant 1/Te connected with the pool of reproductive inhabitants (Y2) corresponds to the reproductive maximum. Long-term model prediction reveals oscillating characteristic of both population and effective breeding size. System structures are influenced by ecological valence of their environment, which affects the system through input and output. Investigating a long-time period, population dynamics oscillates in its development and varies between minimum and maximum, for example number of inhabitants on the island of Hvar reaches its maximum every 200 years. The character of oscillations depends on the relationship of constants in the main controller. In this investigation we tried to apply the model to the villages of the island of Hvar. Our Aim was to determine inter-compartmental flows (F) and corresponding constants (Te and G). A purpose of constant investigation was to determine transit time (Tt) and investigate whether constant G correlates with the surface of a particular village. Theoretically it is simple to show that flows through some compartment can be defined by the mean sojourn time. According to LOPI model every village census was distributed to three age structures (0–20; 20–45; 45-above years) placed in three compartments. CAS program was created (Computation age structure) for this purpose. It is the program that calculates values for each compartment in a specific period of time on Croatian age structure historical data basis. On the basis of obtained values we calculated F, Te and G (non-linear fitting). We do not bare illusions that cybernetics could ever replace anthropological fieldwork, we propose however, that cybernetics could be a guide for a holistic approach in anthropology.

The Letter Y in Man's Body, as Well as the Letter X in Woman's Body Define the Cut of Men's and Women's Garments

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Silhouettes of man's and woman's body are different. Differences in bodily appearance are prominent between sexes, less in the internal organization, and more in the plasticity, investigated by plastic anatomy and used in artistic garment construction. Differences in bodily appearance are defined by the skeleton, man's and woman's respectively. Differences in the clavicle size and width, with brachium heads, as compared to the shape of the pelvis, are evident. Linking shoulder tips and pelvis bones with a line yields distinct forms of man's (Y-shaped) and woman's (X-shaped) body. Y shape occurs in man's body if shoulder tips are linked to the pelvis center, i.e. medial line of the body, to form a triangle. The other lines are parallel to the medial line, as pelvis is narrower and longer in man's body than in woman's. Parallel lines are vertically positioned rectangulars. Linked with a triangle, they constitute the letter Y, recognizable in the cut of men's garments. Woman's body is of a gentler constitution. This is seen in the narrower and thinner clavicles and smaller brachium heads, which make shoulders narrower and gentler. Compared to man's pelvis, woman's is, for the purpose of giving birth, more rounded and wider, which determines the position of the hips. Its shape causes the lines to cross when a line is drawn from shoulder tips. They are repeated in the torso, forming the letter X. The differences in the constitution of man's and woman's body described here as the differences of Y and X, can also be found in the basic cuts of men's and women's garments. Men's articles of clothing are Y-shaped, as the beauty of man's body is in broad shoulders, narrow pelvis and hips. Woman's body, on the other hand, is distinguished by narrow shoulders and broader hips, stressing femininity of its X shape.

On the Use of the Proximal Femur Internal Architecture for the Reconstruction of Positional Behavior in Primates

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In the very last years, biomechanical research saw a significant increase in the use of internal structural bone morphology for inferring direction/amount of the locomotion-related stresses. This was facilitated by recent developments in medical imaging technology and digital image processing, as well as by advances in bone biology understanding. Our research focused on the architectural variation detected at the proximal femur on a variety of primate taxa. In a radiographic sample of over 100 specimens, we investigated macroscopic trabecular patterning by means of advanced digital image processing techniques, and detailed textural anisotropy though the Line Fraction Deviation index. Finally, we assessed the potential influence of different factors – includ-

ing age, sex, body mass, and positional behaviour – on trabecular patterning and anisotropy. In order to tentatively reconstruct the positional-locomotor mode of an extinct taxon, we utilized the same analytical protocol to investigate the proximal femur of the Miocene Pliopithecus vindobonensis. Results indicate that primate proximal femur is less influenced by positional behaviour than other skeletal regions studied with comparative methods (e.g., the iliac blade).

Apolipoprotein H Genetic Variability in the Populations of Krk and Susak Islands, Croatia

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Apolipoprotein H or β_2-glycoprotein I is a single chain glycoprotein and a polymorphic constituent of human blood involved in the triglicerid metabolism. It is also associated with coagulation processes, apoptotic cells phagocytosis and, by binding to anionic phospholipides with development of antiphospholipid syndrome and its accompanying disorders. Antibodies to apoH are also among parameters predictive of coronary atherosclerosis. As in the case of other lipoproteins apoH polymorphism makes it a suitable genetic marker for the study of formation of human populations, but in the contrast to apoE the data regarding apoH variations are only beginning to accumulate. By blood plasma isoelectric focusing and immunoblotting, the distribution of apoH phenotypes at East Adriatic islands of Krk and Susak were analyzed in this respect. The sample form Krk included 192 males and 205 females, all autochthonous from 7 villages, while sample from Susak consisted of 37 males and 17 females as well autochthonous from the only village on the island. The frequencies of the apoH alleles on the island of Krk were: *ApoH*2* = 0.877, *ApoH*3* = 0.098, *ApoH*1* = 0.025, with the majority of the sample being homozygous. No significant differences between villages were observed. All examinees on the island of Susak were homozygous for *ApoH*2*. When these data were compared to those of other populations so far studied, a significant association between apoH allele frequencies and latitude was observed. We hypothesize that this association reflects differences in diet composition across various climatic zones.

Comparison of Different Methods for Age Estimation in Adults

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The estimation of age at death is a crucial step for the identification of all individuals. We used dental and osteological techniques (both morphological and histological) to estimate the age, on recent samples of 35 teeth and 47 ribs, of which the time of death is known, and of 36 individuals from historical skeletal material. Altogether we produced 161 sections of one-rooted teeth (mainly incisors) and ribs (81 sections from the recent and 80 sections from the historical sample). We also produced 72 X-rays of femurs and

humerus from the historical material. In our study we performed different methods estimating age at death – modification of Gustafson method, osteon counting in the rib cortex, and standard morphological methods. Based on the results of this study, it can be concluded that the histological dental technique is the most effective method for the estimation of age. We also support the use of standard morphological methods in their combination. The worst results were established after the age estimation on the basis of evaluation of the rib sections. The results are useful not only for the anthropologists but also for the forensics in the identification of solitary skeletal remains. The research was partly supported by the Grant of the Ministry of Education, Youth and Sports of the Czech Republic – grant project No. 608/2001.

The Concept of Race in Chinese Biological Anthropology

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This paper examines the status of the concept of race in China through a survey of research papers in *Acta Anthropologica Sinica*, China's leading journal devoted to biological anthropology. From the journal's inception in 1982, 78 issues were published up to the end of 2001, four of which were dedicated to topics not related to human variation. In the remaining 74 issues, Out of 779 research papers, 324 (41%) were directly related to the study of human variation. The authors of these papers fall into five major categories: paleo-anthropologists, human biologists, forensic anthropologists, anatomists and geneticists. We assume that the attitude towards »biological race«, expressed in their publications, reflects the general view of Chinese anthropologists and associated researchers. In 324 analysed papers we observed the following features: 1) All the papers describing human variation used the race concept. 2) Over 80% of papers investigated biological differences of ethnic groups in China, acknowledging, however, that they are of the same Mongoloid race. 3) There were many attempts to demonstrate the racial background of ethnic groups living in remote or marginal regions within China as well as different adjacent regions. 4) Paleo-anthropological research on hominid fossils demonstrated that some Mongoloid traits could be recognised in Middle Pleistocene *Homo erectus* populations. It can be concluded that the concept of race is deeply rooted and uncritically accepted in Chinese biological anthropology. This concept underlay research on human variation in China, with emphasis on differences among various populations, and may have great influence on the new generations of anthropologists.

Physical Activity of Parents of Children From Small Town Environment

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A questionnaire study relating to the physical activity was conducted on parents of over 100 children. The questions related to both the forms of spending free time and the frequency of participation in these forms, self-assessment of health and physical

fitness. The type of preferred forms of physical activity is very strongly co-related with the parents' education, nature of their work and their age. The lack of some forms of spending free time characteristic for a large city environment is noticeable. A different nature of the structure of physical activity in the studied group results to a large extent from the nature of living environment with all consequences thereof. It is probably worrying that 80% of the questioned parents declared watching television as an everyday form of spending free time. Among active forms most often (approximately 25%) cycling and walking were mentioned. Compared to the parents of children in a city environment, the subjects did not mention such forms as swimming, aerobics, horse riding, tennis, or a very small percentage of them did. The studies will be repeated in three years time (at the time when the children go to grammar school) and in six years time (when the children finish secondary school). This will allow capturing both the structure of physical activity and the changes taking place in time.

Shape Analysis and Reconstruction Using Parameterized Skull Reference Models

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For comparative studies of modern and fossil skulls in general, and for the reconstruction of fragmented skulls in particular, specific Skull Reference Models (SRMs), first designed for modern hominoids (e.g. SRM–Homo sapiens; SRM–Pan troglodytes, etc.), later also for fossil species (e.g. SRM–A. africanus), provide both the possibility for an integrated skull shape analysis as well as the statistical information for the desired independence of subjectivity. Working within a computational environment (Virtual Anthropology), the digital 3D-data sets acquired by computed tomography-, laser- or mechanical surface-scanning allow to investigate external as well as internal morphology. Each skull is represented by Cartesian coordinates from traditional landmarks and semi-landmarks on curves and surfaces. Shape features of individual skulls are then described using Procrustes metric and the Thin Plate Spline. The SRMs based on these shape descriptors are used to characterize individual deviations. The main goals of this project (supported by the Austrian Science Foundation, Project No. P14738) are 1.) To provide methods and empirical standards for interspecific and intraspecific comparison of skull shapes; 2.) The development of methods to cope with missing data problems by combining statistical and biological reasoning for the completion of forms, and 3.) The integration of procedures for the SRM-based reassembly of fragments. We will demonstrate our approach and some results of the first stage of the project.

Amplification of Nuclear Genome From Human Teeth of African Origin

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Nuclear genome fragments were successfully isolated from ancient human teeth of North African origin using standard procedure. 5 specimens from the Neolithic site at Kadero, Sudan dated to 4850–4250 B.C, and 3 specimens from locality Saqqara, Egipt, dated to the Late Period (about 600 B.C.). Each tooth was separately cleaned before UV irradiation using dry and wet procedures. At least two teeth from one individual were analyzed separately. DNA was extracted from powdered specimen according to the following conditions: 10 mM Tris-HCl (pH 8), 10 mM EDTA, 50 mM NaCl, 2% SDS/ Proteinase K, 56 °C overnight. Yields of DNA ranged from 21.3 to 243.6 μg/g of teeth sample. Amplification was performed in the laboratory other than the isolation procedure was finished. Two genes were amplified: *CTLA-4* locus as a preliminary marker of isolated DNA (173 bp) and amelogenin locus as a marker of gender. Application of three primers (two of them allele-specific) allowed not only to verify the presence of X and Y chromosomes but also provided an internal control. Two sets of primers were used. One of them initiated amplification of 106 and 112 bp products on highly degraded molecules. The second set was used to identify much longer sequences i.e. 218 and 330 bp (not degraded e.g. contemporary DNA). Amplification with the second pair of primers did not produce amplicons in case of all studied specimens. DNA was successfully isolated from seven of eight studied samples (e.g. specimens Kadero 140 and 169 are heterozygous at +49 position of *CTLA-4* gene, and were identified as male remains).

Verification of Particular Methods for the Analysis of Nuclear and Mitochondrial Genomes From Human Teeth Dated to the Early Middle Ages

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Fragments of nuclear and mitochondrial genomes were successfully isolated from ancient human teeth dated for X–XIII century. Eight specimens from locality of Brzeœć Kujawski, central Poland were studied. Each tooth was separately cleaned out before UV irradiation using dry and wet procedures. If possible, at least two teeth from one individual were analyzed independently. DNA was extracted from powdered specimen according to the following conditions: 10 mM Tris-HCl (pH 8), 10 mM EDTA, 50 mM NaCl, 2% SDS/ Proteinase K, 56 °C overnight. Yields of DNA ranged from 124.0 to

297.3 μg/g of teeth sample. Amplification was performed in the laboratory other than the isolation procedure was finished. Sequences from a number of loci were amplified: HLADQA, HLADQB, CTLA-4, Amel and CFTR. Isolation of aDNA fragments was successful in case of five out of eight specimens. Four specimens produced amplicons of CTLA-4 gene, of which two were sensitive for ItaI digestion at position +49. Delta F508 of CFTR loci was identified in two specimens. A number of $DQA1^{52}$ and $DQB1^{57}$ variants was characterized in four cases. The set of three primers provided the possibility of typing Amel on X and Y chromosomes, and the gender was established in four specimens. Mitochondrial genome fragment of 238 bp was amplified successfully from 5 specimens as HVR I sequence between positions 16182 and 16420. Obtained results suggest that the possibility exists to study different archaic genomes, which is the subject of our further research.

Advances in Estimating Age-at-Death From Cementum Annulations

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Tooth cementum annulation (TCA) is one of the most reliable methods for estimating skeletal age-at-death in forensic anthropology. The validity of the TCA method was assessed in a validation blind study with a sample of more than 300 teeth, conducted by the Max Planck Institute for Demographic Research in Rostock, Germany. The mean error is ±2.5 years (95% confidential interval), when the few outliers can be detected and eliminated. These teeth ma leed to highly erroneous age estimates. This problem can be solved by combining TCA analysis with Lamendin et al's dental aging method, modified by Prince and Koenigsberg. This combined technique will help diagnose and eliminate problematic cases, while minimizing the standard error of age estimates. The author suggests applying the combined methods of tCA and Lamendin et al as the most reliable multivariate age estimation method for unknown bodies and skeletal remains.

Mortality Disparities and Their Socio-Economic Determinants in Different Regions of Germany

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Differences in mortality by region are of considerable amount in Germany. It shows, that living conditions are not the same in Germany. Depending from the infra-structural, especially economic and educational situation of a region migratory processes interact with the socio-economic situation of the inhabitants to form local mortality patterns. What differences may result from these processes, will be shown with the examples of Mecklenburg-Vorpommern and Hessen. Especially between the rural areas and the towns great differences are apparent. The observed patterns, however, are completely different between the two States. When subdivided total mortality by causes of death, explanations for the raise and stability of mortality patterns can be proposed.

Human Biodiversity – Genetic Versus Phenotypic Variation in Phylo- and Ontogenesis and Adaptive Capacity

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Genetic variation of Homo, at least according to body size and mass, and brain volume shows only small fluctuations over last 100 000 of years (Henneberg '97, 2001). However, at least from Neolithic period inter-populational phenotypic differences decrease (Henneberg et al. '78, Piontek '79) probably due to more similar living conditions between various groups of agriculturists, who use similar technology for food production, than variation established in isolated groups of hunter-gatherers who were depended from local sources of foods. In this time, especially since medieval times, intra-population phenotypic variation increases probably due to social and economic stratification and crossbreeding between populations. In contemporary populations phenotypic variation of stature in low socioeconomic strata (LSES) is greater than in high SES (Bogin 1991), which reflects greater variation in living conditions in LSES. This result support previous statement, but show also how developmental adjustments modified phenotypic variation. In course of ontogenetic development genetic diversity represented by newborns decrease in infancy as phenotypic expression (at least by body size) due to unified or similar living conditions and cultural practices created by contemporary civilization (Chrzastek-Spruch & Wolanski 1969, Siniarska, Krumina & Wolanski 2000). Again variation increase due to genetic control of neuro-hormonal stimulation of puberty, thereafter ones more decrease in adulthood and old age (Wolanski 1962, present own studies 1993–2002). In such situation of rather stabilized genetic diversity, but reduction of phenotypic variability, there is some potential adaptive capacity. It is a bioethic problem if we can exploit such adaptive capacity to adjust human organism to changing environment, especially to harmful side effects of urban and industrial living conditions. Studies supported by grant No 26469H of Mexican CONACyT.

Tempo of Regression and Involution and Factors of Aging

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Various traits show different rates of progressive development and reach maximal values at different ages. In living organisms long-term stability does not exist, the end of progressive development means beginning of regression. The tempo of development, age at peak value and velocity of regression may be related to each other through some type of an individual self-regulation mechanism, as well as through lifestyle and external environmental conditions. Earlier end of progressive development of a certain trait is related to more marked regressive changes. The age at peak values is different not only for various biological traits, but for the same trait can be different between populations, between various ethnic and social groups, and even between various individuals. These differences depend also on the influences of environmental, nutritional and lifestyle conditions. Possibly, any stimulation of progressive development of particular

traits may cause a retardation of the onset of regressive changes. Because of this stimulation, not only does development of a particular trait last longer, but also it may attain a higher value. This implies that decline might not only start later, but from a higher level of performance as well. Probably we lose our life vigor with age, and such vigor might be the agent influencing the intensity of developmental changes, both: progressive and regressive. If the regression (decline) starts earlier in one's life, it might be more rapid and intense because the individual's life potency has been greater. Decline that occurs during a period of reduced vigor potentially would be slower. In the term of »aging« two phenomena are important: the first would include regressive decline, a process opposite to progressive development; the second called involution would include declines of very important life functions of individuals. Studies on aging supported by grants Nos 1325-S9206 & 26469H of Mexican CONACyT.

Population Genetics of the Human Angiotensin – 1 Converting Enzyme (*ACE*) Locus

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An *Alu* indel (I/D) polymorphism in intron 16 of the *ACE* gene, previously thought to be associated with plasma ACE activity, has been characterized in numerous human populations. We have typed this locus in 1288 individuals belonging to 26 worldwide populations and observed a distinct cline of the *Alu*I* allele increasing geographically from Africa (.34), extending through Europe (.40), South Asia (.54) and East Asia (.72), with the highest frequency in Oceania (.85). We typed a sample (N = 39) of chimpanzees and surprisingly found to be polymorphic (**I* = 0.18), contradicting the earlier assertion that the *ACE-Alu* indel locus is human specific. Sequencing confirms this polymorphism to predate human-chimpanzee split. To further characterize the population genetic properties of the *ACE* gene, we have analyzed three additional SNPs downstream to the *Alu* locus in Benin from Africa (N = 56), German (N = 59), Chinese (N = 62), chimps (N = 38), and two isolated island populations, viz., Adriatic Island Korculan (N = 79) and Samoan from Polynesia (N = 90). One of the SNPs, 22982, reported to be in strong linkage disequilibrium (LD) with ACE determining variants, is in complete LD (D′ = 1) with the *Alu* indel site among the Samoan and the Korculan. The two sites are approximately 9 kb apart. The two other SNPs (17634 and 20120), located between the above two markers, are monomorphic in the examined populations excepting the Benin and the Samoan. At the four-locus haplotype level, diversity is the highest in Africa, intermediate in Europe and Asia and the lowest in Samoa and Korcula. These features together with the least number of observed haplotypes, the Samoans and the Korculans present the strongest evidence of an LD block, which has important implications for disease-gene association mapping in isolated human populations.

Menarcheal Age of Girls From Southern Poland in Relation to Socio-Economic Factors

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Menarcheal age shows high sensitivity to environmental factors, and it belongs to the most precise indicators of the standard of living of children on the turn of the eighties and nineties, remarkable political changes took place in Poland, which significantly altered the picture of social inequalities in our country. Economic situation, work conditions, life style and prestige of different professional groups can be listed among those, which underwent the most prominent changes. The main objective of the present work was to establish to which extent social inequalities in Poland in the nineties were reflected in variation in the age of onset of maturation measured by menarcheal age. The data were obtained from 2660 girls from southern Poland, aged between 15 and 18 years. Menarcheal age established with retrospective method averaged 13.04 ± 1.12 years, ranging from 8.9 to 16.95. ANOVA and multiple-comparison test – LSD test were applied to determine significance of the influence of the analyzed variables on menarcheal age. Statistically significant differences in maturation age were found between girls from families differing in socioeconomic status. Results of the present study indicated persistence of social distances in the rate of development of children from southern Poland. Earlier menarcheal age was observed in the girls from families belonging to groups of higher socioeconomic status than in those from lower socioeconomic classes. This result can suggest persistence of considerable differences in living conditions between social groups.

The Traditional Concept of Race in the Russian Anthropology

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From the very ancient times and in our days the territory of Russia was settled by the number of populations that were differ from their both cultural and genetic origin. This territory also includes numbers of the contacts zone between the populations having different physical type. The history of Russia is considered as history of the constant interaction between heterogeneous populations. That is way physical types investigations are traditional for Russian science that always occupied hard anti-racist position. It is necessarily to study the mechanisms of human physical differentiation to have the weapon against racist's concepts. Russian physical anthropologists agree about the fundamental biological unity of modern people. Various morphological variants do not destroy unity of mankind. The variability is extremely important because it is a biological precondition constant adaptive evolutionary process that has allowed to effectively respond to constantly changing, geographically variable environmental selective pressures. Historically, through these evolutionary processes, major morphological variants have arisen among people living in different geographical regions. These are the groups that anthropologists have traditionally called »races«. We have a great need for racial investigations of the many Russian collections that are currently available to demonstrate scientific groundlessness and absolute inanity of any racist's concepts.

What is the Ethical Structure of Homeric Society?

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The Iliad and the Odyssey are the greatest epics of the ancient Greek world, which have been recited and read for over two thousands years. According to Xenophanes, Homer's epics were used as a textbook for the education of the young in the ancient Greek world. Plato wrote in »The Republic« that some Greeks claimed that as poets such as Homer knew everything to do with the arts and all things human pertaining to virtue and vice, they should order their entire lives by the guidance of poets. Homer's epics therefore came to represent the ethics and value system of the ancient Greek world. According to Plato, the society reflected in Homer's epics is one without state power, though an incipient state power appeared in Illium. Therefore we must analyze the ethical structure of Homeric society from the viewpoint of a society without state power, if we truly want to understand its ethics and value system. There has been no theory on the ethical structure of Homeric society analyzed from the viewpoint of a society without state power. In the present study, I will elucidate the ethical structure of Homeric society in terms of the ethics in a society without state power, which may provide us with further insight into the origin on the ethical concepts in human society.

Specificity of the Physical Development and Anthropometric Nutritional Status in Newborn From Sofia at the Beginning of the 21st Century

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The results presented here are a part from a large anthropological study. The program of the study includes 39 anthropometrical features. The data obtained give possibility to assess the specificity of the physical development, the obesity predisposition and some diseases of the locomotory system in newborns from Sofia at the beginning of the 21st Century. The aim of the present work is to characterize basic data about physical development of 219 full-term and healthy newborns (110 boys and 109 girls) during 2001. The results about stature, weight and 6 standard skinfolds on the body and limbs (triceps, forearm, thigh, calf, subscapular and abdomen) are analyzed. The intersexual differences are assessed and secular changes in stature and weight are presented. The newborn boys are longer and heavier than girls. High correlation dependence is established between stature and weight in both sexes. Bigger mean values of skinfold thickness are found in newborn girls than in boys. The intersexual differences are statistically significant. The evaluation of the topical distribution of the subcutaneous fat tissue shows, that newborn boys relative share is bigger on the upper limbs and abdomen. In the newborn girls the subcutaneous fat tissue is thicker on the lower limbs and back.

Growth Processes in Armenian Children and Adolescents Belonging to Two Successive Generations

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From the early 90s Armenia experiences a dramatic decline in social-economic development which has strong negative impact on population health status. We had opportunity to compare the rates of morphological growth and sexual maturation in two succes- sive generations of the Armenian population: the data describing growth processes in 7–17-years old boys and girls were collected subsequantly in 1980 and 2000. The results reveale a noticeable differences (not always statistically significant) between the two ge- nerations according to the rate of morphological growth and sexual maturation. The biggest disparity between two generations is revealed in the age range 7–11 years for girls and 7–13 years for boys. Thus, the children of previous generation had higher rates of physical growth especially before the stage of pubertal processes. The results indicate the abscence of any significant differences between two generations after 14 years in girls and after 15 years in boys. Moreover, to the end of attaining to sexual maturity the children of the second generation surpass their counterparts according the majority of morphological traits observed. Remarcable decrease of the average age of menarche has been found in contemporary generation – 13.4 years vs. 13.1 years in 1980. The partitioning of total phenotypic variance into genetic and environmental components revealed a noticeable change in the level of genetic control of the age of menarche in the Armenian population during last 20 years. The results obtained witness to certain changes in genetic structure of the Armenian population caused presumably by the high level of emigration during the last decade.

A Comparison of Mortality Patterns and Terms of Human Life Span in Two Populations From XI Century A. D. From Northeast Bulgaria

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Data for age and age-sex distribution, obtained from the anthropological material discovered in necropolises by the village of Odarzi dated in sequence of the XIth c. AD, are analyzed. The data for the two populations, lived in short time one after another, show differences in age and age-sex distribution. These specific characteristics of the two populations could be most conveniently explained with the funeral rituals and different terms of life in the conditions of the late migrations of nomadic peoples.

Aberrant Genotype B0 of AB0 Blood Group System

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Determination of AB0 blood group system is still important tool in forensic sciences, although its value for personal identification is very small. We focused on the possibility of determination of this system from blood stains degradated by heat. We took blood samples from six volunteers (three men, three women) and made blood stains on pieces of sterile cotton cloth. These stains were incubated at three different temperatures (22 °C, 37 °C, 56 °C) up to one year. For determination of AB0 system we used PCR amplification with two pairs of primers previously published. There were no discrepancies among the used method and tested genotypes A0, AA, 00. But we have found an aberrant genotype, when we tested samples with genotype B0. The existence of this pattern has been confirmed with the sequence analysis.

A Substantial and Specific Share of European Maternal Lineages Among Samoyedic Speaking People

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Traditionally, Samoyedic-speaking people – Nenets, Nganasans, and Selkups – are considered as largely Mongoloid-type native Siberians, with but a weak linguistic affinity to Fenno-Ugric languages and their genetic relatedness, if any, to Finnic people, has been so far largely unclear. To solve this long-standing problem, as well as to shed some new light to a more general questions of the peopling of Siberia and gene flows between northern Europe and Asia, we have analyzed mtDNA diversity among all extant Samoyed-speaking Siberian populations – Tundra and Forest Nenets, Selkups and Nganasans, living in Ob and Yenisey basins and in Taimyr Peninsula. HVR 1 and 2 were sequenced and an extensive RFLP typing of the coding region was carried out to reveal the phylogeny of the samples and to distinguish, unambiguously, maternal lineages of the east and west Eurasian origin of the Samoyedic-speaking people. This analysis, based on about 400 mtDNAs, showed that both Nenets and Selkup mtDNA pools comprise about a half of maternal lineages of European origin, belonging to haplogroups H, J, T and U (U2, U4, U5), whereas eastern Eurasian subset of lineages is presented by haplogroups A, F, M and Y. Nganasans are a very interesting and informative exception. Namely, they possess only about 20% of European mtDNA lineages, but nearly all of them belong to sub-haplogroup U4, most diverse and frequent among Volga-Uralic and Siberian Fenno-Ugric speaking people. Thus, we conclude that the relatedness of Samoyedic and Fenno-Ugric languages is, in a specific way, matched by genetic relatedness of the people speaking the languages.

A Secular Trend in the Body Fat of Polish Men and Women

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In the recent years a significant growth has been observed in the number of groups, both among adults and youths, with a critical value of the BMI ≥ 30.0 indicating obesity, and thus implying the risk of health hazard. This relates to populations of many countries. The results of the studies do not provide full information on whether directional changes in this index occurred or not, and whether the obesity in the Polish population was intensifying or decreasing. The aim of the study is to examine whether in the last 40 years changes in the BMI took place in the population of young Polish men and women. From 1962 to 2002 in the yearly cycle of studies, the relative body mass of men and women expressed as the Body Mass Index was analyzed. In total 13,829 people were examined, including 8970 men and 4859 women aged 19–20 years, candidates for the University School of Physical Education in Poznañ. In the analysis of the material a seven-degree scale of categories of slimness and overweight was used. In order to establish the direction of changes in the BMI in the period of 40 years and the frequency of changes in occurrence of groups of individuals in separate categories the analysis of curvilinear regression was used. Directed changes of the degree of saturation of individual categories of the index were found. An increasing tendency was observed in the fraction of men with »1st degree of overweight« and the increase in the number of women with »1st degree of slimness«. These tendencies are stronger in groups of women than in men.

Analysis of Re-Amputation Results on the Lower Extremities of War Patients and Their Attitude Towards Any Kind of Prosthesis

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Analysis of re-amputation results on the lower extremities of war patients and their attitude towards any kind of prosthesis. This paper deals with re-amputation procedures in 75 patients who were unable to use prostheses because of complications in the stump. Reasons for re-amputation and the technical problems involved in designing prostheses for stumps that are unfit to receive them, have been analyzed. The most frequent reasons for re-amputations were the presence of neuroma, extrusion of the fibula stump and osteophytes at the top of the tibial stump. All surgical procedures were successful, healing was per primam, and was followed by application of an appropriate prosthetic device. Based on the analysis of the results of the »osteomyoplastic« surgical method applied in the reconstruction of the existing stumps, this method is favored over the standard amputation method. Some of the reamputated in the early beginning had difficulties to get used to orthopaedic prosthesis. The majority of these patients thought that they would also have problems to get used to dental prosthesis, as well ($p < 0.05$).

Application of Silicon Prostheses in Foot Amputations

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Silicon prosthesis is a new method applied in orthopedic prosthetics for foot amputations. The application of silicon in orthopedics first appeared ten years ago. Some problems encountered with the first silicon supplies were that they were disproportionately heavy with reduced elasticity, unnatural in color and difficult to shape. These problems have been overcome with time. Indications for application of silicon foot prostheses are the following: foot amputation up to the level of Chopart's joint, Lisfranc's joint, and congenital anomalies. Based on the results obtained through analysis, the site of and the need for application of prosthesis with an appropriate aesthetic effect and a better static and dynamic function, with the possibility of wearing standard footwear in comparison with application of a standard prosthesis, can be decided.

Neuroma Complications Occurring After Inadequately Performed Below-Knee War Amputations

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A frequent complication following a primary war amputation is pain in the distal part of the stump. The aim of this study was to research the problems occurring after a primary war amputation and the need for re-amputation when neuromas appear. The study involved a total of 70 patients who, due to the appearance of neuroma and the inability to wear prosthesis, were admitted for re-amputation in the period between 1995 and1999. The application of osteomyoplastic as the re-amputation surgical technique enabled us to obtain stumps suitable for the fitting of prosthesis to all amputees. An analysis of results led us to conclude that the osteomyoplastic method is the method of choice in amputations and stump re-amputations, which prevents the appearance of neuromas and, as a result, eliminates possible problems related to the wearing of prosthesis.

4D Reconstruction in Paleoanthropology – Pattern, Process, Biology and Geometry

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In paleoanthropology, computer-based techniques are used for the acquisition of three-dimensional data from fossil specimens, their virtual reconstruction, and their comparative morphometric analysis. As a fourth dimension of analysis, time is of central importance, since patterns of morphological divergence ultimately reflect differences in

the underlying ontogenetic, phylogenetic and/or diagenetic processes. We review computer tools and models to investigate the effects of time on fossil morphology and examine how fossil morphological patterns can be interpreted in terms of underlying processes. (Supported by the Austrian Federal Ministry of Education, Science and Culture, Austrian Council for Science and Technology; Project: GZ 200.049/3 – VI/I/2001.)

Development of the Foetoplacental Unit in Relation to Socio-Economic Background and Maternal Nutritional Status – A Twin Study

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In obstetrics the developmental status of new-borns is assessed by using birth weight as an indicator of impaired development. Only 10–20% of total birth weight variance can be attributed to foetal genotype while maternal environment and intrauterine factors, such as placentation, have a much more important role (Penrose 1961, Robson, 1978). Placental features were found to have important bearing on foetal development, and inhibited placental growth affected foetal and neonatal development considerably (Bodzsár et al. 2001). Many studies have reported on the association between birth weight and socio-economic background. It has been generally assumed that poor maternal socio-economic environment impairs foetal growth and neonatal maturation status (Metcoff 1978, Bodzsár and Susanne 1998). However, almost no research has been published on whether socio-economic factors have any significant effect on birth weight either directly or indirectly through the placenta. The purpose of this study was to quantify the influence of socio-economic factors on the foetoplacental unit in twins. Birth weight and placental weight of 1580 twin pairs grouped by birth order and factors of socio-economic background (parental occupation, parental age,) and maternal »body lineariry« as an indicator of maternal nutritional status were analyzed. Our results evidenced that maternal age, body linearity and parental occupation had significant effects on placental weight and, indirectly, also on birth weight. Between 18 and 40 years of maternal age placental and neonatal birth weights were found to grow with maternal age and ectomorphy, parental occupation and associated level of education.

The Neandertals – Origin, Geographical Distribution and Genetics*

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The anthropological particularity of the human population in Europe during the middle Pleistocene in relation to contemporary human fossil populations in other parts of the ancient world may be attributed to the presence of the Neandertals, a population showing well-distinguished characteristics. In the decades following their discovery (1856), the Neandertals were considered to be a separate species: Homo neandertha-

* Abstract received on July 1st, 2002.

lensis. Later on, in the second decade of the twentieth century, a large majority of researchers adopted the contrary viewpoint according to which it was assumed that they belonged to a sub-species of sapiens, Homo sapiens neanderthalensis. This viewpoint was supported by both anatomical and cultural arguments: anatomical features common to Neandertals and Homo sapiens sapiens – for example, a great cranial volume – as well as the practice of burial of their dead led many researchers to consider them to be two sub-species of sapiens. During the last two decades, some researchers have challenged the idea according to which Neandertals belonged to a sub-species of sapiens and have revived the hypothesis that the Neandertals constitute a separate species, Homo neanderthalensis. Certain researchers have justified this renewal of the initial phylogenetic status of the Neandertals not only by the fact that the Neandertals present so many derived features that they seem to constitute a separate species, but also by the fact the Neandertals are known only in a limited geographic area. Since 1997, this point of view has received additional support from analysis of mtDNA on the Neandertal-type specimen. In this talk we will compare the paleoanthropological data with data derived from a number of paleogenetic studies and we will discuss whether the Neandertals should be considered to constitute, from the standpoint of paleoanthropology, a separate species (Homo neanderthalensis) as suggested by analyses of mtDNA.

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