P R O G R A M

OF THE

N I N T H A N N U A L M E E T I N G

CANADIAN ASSOCIATION FOR PHYSICAL ANTHROPOLOGY

L'ASSOCIATION pour L'ANTHROPOLOGIE PHYSIQUE du CANADA

T H E B A N F F C E N T R E

December 10th to 13th

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with support from

The University of Calgary
Dean of Social Sciences
Department of Anthropology
Department of Archaeology
and
University Research
Grants Committee

Program Chairman

Dr James D. Paterson
Anthropology
University of Calgary

PROGRAM SCHEDULE

THURSDAY DECEMBER 10th

15 to 19 Registration

17 to 19 SUPPER

19 to 22 Round Table Discussions

1 The Problem of Research Funding

Leaders: Dr S. Pfeiffer, Dr J. Paterson

2 International Congress of Anthropological and Ethnological Sciences

Leaders: Dr E. Szathmary, Dr C. Meiklejohn

3 Contributed slides of primate behaviour in the Andersonian Era.

Anonymous sources, presented by Dr G. Gaherty

22 to ?? Cash Bar

FRIDAY DECEMBER 11

7 to 9 BREAKFAST

9 to 12 Human Biology and Physiology

Chair: Dr Susan Pfeiffer

12 to 13 LUNCH

13 to 14:30 Primatology

Chair: Dr J. Paterson

15 to 16:30 Theory and Methodology

Chair: Dr Braxton Alfred

17 to 19 SUPPER

20 to 23 Hosted Reception 4th floor

SESSION SCHEDULES

FRIDAY

Human Biology and Physiology

Chair: Dr. Susan Pfeiffer

9:00 Eric A. Roth

Historic Fertility Dfferentials in a Northern Athapaskan Community. Eric A. Roth. University of Victoria

Historic fertility differentials for the Kutchin Athapskan population of Old Crow, Yukon Territory, were examined to determine the role of natural selection and random genetic drift on the contemporary gene pool. Cohort data was utilized to construct Crow's Index of Natural Selection for nomadic and sedentary Kutchin women. Demographic and genetic information was combined to investigate random genetic drift with respect to: 1) the fate of a neutral allele, 2) decay of heterozygosity and, 3) the average half-life of a polymorph. Results point to neither selection nor drift as the primary determinant of the present gene pool. Consideration of the population's history indicates that the founder and lineal effect are responsible for genetic micro-differentiation previously documented for Old Crow.

9:20 L. Sawchuk and A. Herring + P. Dribben

Recent Trends in Infant Mortality in a Northern Indian Reserve Isolate. L. Sawchuk and A. Herring. Scarborough College, University of Toronto

r 73% mort <15yr up to 1964, life expect. 22

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PROGRAM SCHEDULE (Continued from Page 1)

SATURDAY DECEMBER 12

7 to 9	BREAKFAST
9 to 12	Skeletal Biology and Forensics Chair: Dr Mark Skinner
12 to 13:30	LUNCH
13:30 to 15:30	Palaeoanthropology and Fossil Primates Chair: Dr Larry Williams
16 to 18:30	Annual General Meeting
19:00 to 22:00	Banquet and Keynote Address by Dr W.D. Ross, Professor of Kinesiology, Simon Fraser University

SUNDAY DECEMBER 13

7 to 8:30	BREAKFAST
8:30 to 13	Symposium in honor of Dr James E. Anderson Chair: Drs F. Jerome Melbye and Jerome S. Cybulski
13 to 14	LUNCH

9:40 Emoké J. E. Szathmary and Nasha Holt

Patterning in the Deposition of Body Fat in Dogrib Indians: Association with Glucose Intolerance and Village Location. Emoke J.E. Szathmary and Nasha Holt. McMaster University

Glucose tolerance tests on 157 adult Athapaskan-speaking Dogrib Indians residing in three small communities in the MacKenzie District of the Northwest Territories of Canada were carried out in April and October, 1979. 3% of the males and 1% of the females showed fasting hyperglycemia (> 140 mg/dl), and 27% of the males and 20% of the females, respectively had hour-2 glucose levels > 160 mg/dl. The regression of log (hour-2 glucose) on age was significant within each sex (males: $y = 1.887 + .0044X$; females: $y = 1.993 + .0023X$). Skinfold measurements were also obtained at seven body sites (4 on the trunk, 3 on the appendages) and compared between low glucose (hour-2: ≤160 mg/dl) and high glucose (>160 mg/dl) categories within each sex. Significant differences were observed at 2 sites in males only. Principal components analysis was also done on the skinfold measurements. Three components were identified, reflecting "fatness", "centripetality" in the distribution of fat independent of "fatness", and an "arm-leg" vector of fat distribution independent of the previous two. Hierarchical analysis of variance was used to test age-adjusted principal components for effects of sex, glucose level and localities samples in different seasons. A significant effect was observed only on the second principal component, indicating that a trunkal deposition of body fat is significantly associated with elevated glucose level ($F = 3.968$, $P < .05$) and locality/season ($F = 6.77$, $P \leq .01$). Examination of the same data in more rigorously defined glucose groups (low: < 200 mg/dl; high: ≥ 200 mg/dl) increased the significance of these associations. Persons at risk for developing diabetes are those who begin to deposit excess fat centripetally, rather than those who are merely "fat", but do not show a differential distribution of body fat relative to age/sex appropriate members of their own population.

10:00 Becky A. Sigmon

Growth Patterns During the First Decade of Life of a Toronto Sample of 47,XXY Boys and 47,XXX Girls. Becky A. Sigmon. University of Toronto

Anthropometric measurements which have been taken annually, since 1972, on a randomly selected sample of 29 47,XXY boys and 10 47,XXX girls reveal that there are differences in the anthropometric dimensions of these children when compared with normal 46,XY boys and 46,XX girls. A discussion of these differences will be presented. Some consideration will also be given to the etiology of these deviant growth patterns.

10:20 COFFEE BREAK

11:00 L. Sawchuk and L. Wake

A Historical Enquiry into the Changing Pattern of Religious Exogamy Among the Jews of Gibraltar. L. Sawchuk and L. Wake. University of Toronto

11:20 A. Demirjian, R. Tanguay and L. La Palme

Adolescent Spurt in Cranio-Facial Growth. A. Demirjian, R. Tanguay and L. La Palme. University of Montreal

The cranio-facial growth pattern of French-Canadian children has been investigated in a longitudinal study of 116 boys and 108 girls between 6 and 18 years of age.

The reliability of 37 cranio-facial points has been evaluated and 14 distances have been selected for further investigation. All analyses have been performed by chronological, skeletal and dental ages in both sexes. Among these 14 distances, 5 were selected as representative: 3 for the mandible (gonion-pogonion, articular-gonion, articular-pogonion) the anterior facial height (nasion-pogonion) and the anterior cranial base (sella-nasion). Distance and velocity curves are presented for both girls and boys, by chronological and skeletal ages.

A more detailed investigation of adolescent spurt for stature and 5 cranio-facial measurements have been carried out in a complete longitudinal data for 50 girls from 6 to 15 and 30 boys from 10 to 16, by chronological age and in relation to age of peak height velocity (PHV).

Adolescent growth spurts for the 5 cranio-facial measurements occur between 0.5 and 1.5 year after the age of PHV for girls and those for boys occur a little earlier. Multivariate analysis of variance using orthogonal polynomials applied to dependent variables representing age has been performed against sex. In analogy with the height velocity, it was expected that the cranio-facial distances should yield no sex X age interaction, no sex difference, but a quadratic trend for age. Analysis for velocity of nasion-pogonion showed a clear sex age interaction and for the remaining variables sex differences, and a cubic trend for age was revealed. These cubic trends suggest 2 peaks of growth velocity during the period covering 6 years around age of PHV.

This study was supported by grant no. 605-1052-41 National Health and Welfare - Canada.

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11:40 R. Tanguay and A. Demirjian

Physical Growth and Emergence of Deciduous Teeth. R. Tanguay and A. Demirjian. University of Montreal

Contradictory results have been reported in the literature concerning sexual differences in the timing of the emergence of deciduous dentition. The opinions are not unanimous neither as far as the correlation between somatic growth and dental emergence is concerned.

The relationship of physical growth (height, weight, biacromial diameter), and emergence of deciduous teeth has been investigated on 200 boys and 164 girls of French-Canadian origin. A clear sexual difference has been found in the timing of the emergence of i_1, i_2, c in both jaws of the mandibular m_2, where boys were ahead of girls, while no difference has been detected for maxillary and mandibular m_1 and maxillary m_2. In a multivariate analysis, it seems that the maxillary central incisor is the tooth responsible for this difference.

The effect of somatic growth parameters and emergence of deciduous teeth has also been investigated for each tooth at the median age of emergence. A clear difference in height, weight and biacromial diameter has been found between girls who had their teeth emerged and those who had not. This difference in boys was apparent only for the mandibular lateral incisor. In a multivariate analysis, the effect of height on dental emergence seems to be in general more important than weight and biacromial diameter.

This study was supported by grant no. 6605-1052-41 National Health and Welfare - Canada.

Primatology

Chair: Dr. James D. Paterson

13:00 Orville Elliot

Biochemical Anthropology and the Primate Brain. Orville Elliot. University of Victoria

Foetalization of the brain is characteristic of many primates, including man and is positively correlated with the concentration

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of cystathionine, an amino acid, in brain sections. The amount of hominid brain cystathionine is 15 times the level found in the brains of lower mammals.

Medical and comparative researchers have demonstrated relationships between cerebral cystathionine and intellectual development, genetic disorders, body size, ratio of brain to body weight, Vitamin B_6 pyridoxine, dystrophy and trauma.

Cystathionine levels in regional samples of white and grey matter from human tissue were compared with amounts in brain tissue of other primates by use of the automatic amino acid analyzer and densitometric analysis of two-dimensional electrophoresis-chromatography.

The lowest concentrations of cystathionine were found in the brains of insectivores rodents and prosimians as compared to the intermediate and high levels shown respectively by monkeys and man, with the caveat that the range within Homo sapiens varies considerably.

This presentation will concentrate on species differences in brain levels of this amino acid and, while concluding that its variation pattern within the primate order does indeed mimic the orthodox view of lower primate-human relationships, the results support a tentative rather than an absolute role for cerebral cystathionine as a phylogenetic label.

13:20 Daniel L. Farslow

Skeletal Pathology in the Long-tailed Macaque (M. fascicularis) Population of Angaur Island, Palau, Micronesia.
Daniel L. Farslow. The Ohio State University

A preliminary analysis of the skeletal remains of 55 long-tailed macaques from the Micronesian island of Angaur, Palau indicates an unusual frequency and distribution of pathologies. Age scaling by tooth eruption sequences and dental wear scoring techniques suggest that fractures and traumatic injuries are much more evident in males than females and are not significantly related to age of the animals. A high incidence of arthritic-like changes (degenerative joint disease) occur. Unlike most other primate skeletal populations, all of the affected Angaur skeletons exhibit changes in pelvis and limb joints rather than the vertebral column. Developmental dental pathologies are more frequent than those resulting from wear or injury. The distribution of DJD and the high incidence of developmental pathologies may be related to continuous inbreeding in this insular population.

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13:40 Ann Zeller

Component Patterns in Gesture Formation in Macaca Sylvanus of Gibraltar. Ann Zeller. University of Toronto

Past research in Primate Communication has frequently concentrated on species or genus wide manifestations of vocal and gestural behavior. My work with *Macaca Sylvanus* of Gibraltar indicates that although species specific gestural patterns do occur there are other patterns at the level of populations which allow differentiation of various classes such as Age, Sex and Kin Group. The recognition of these patterns may provide both evidence about the communication system, and also empirical evidence about the social structure of the group as perceived by its members.

14:00 L.R. Williams and M. Spowart

An attempt to verify Schwartz's model of Catarrhine dental homologies. L.R. Williams and M. Spowart. Lakehead University

In a series of articles commencing in the mid 1970's, Schwartz has proposed a total re-evaluation of our conception of dental phylogeny. Schwartz's hypothesis rests primarily on non-verifiable assumptions. A proposal is advanced here which, while probably not capable of conclusively proving or disproving the efficacy of Schwartz's ideas, should at least, lend, or fail to lend, support to the hypothesis.

14:20 E. Tocheri and L.R. Williams

Human bipedality as a concomitant of denudation. E. Tocheri and L.R. Williams. Lakehead University

One of the most fundamental attributes of the highly K-selected catarrhines is prolonged infant dependency. A great deal of maternal parental investment must be channeled into the extensive care and protection of highly dependent infants. Once the maternal pelage could no longer provide adequate purchase for the infant the mother's forelimbs would be required for constant support of her precious infant cargo.

It is the intent of this paper to show that bipedality was an inevitable consequence of hair loss and furthermore, that the loss of hair explains both why the postural transformation was a rapid one and why bipedalism had become a biological imperative.

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14:40 COFFEE BREAK

Theory and Methodology

Chair: Dr. Braxton Alfred

DR. W.D. WADE, MANITOBA "Disease as Predation"

15:00 Dr. Roland Corluy

Mathematical Modelling in SocioBiology. Dr. Roland Corluy. Vrije Universiteit Brussel

Strong suspicion exists whether mathematical models and/or statistical tools are to be introduced in sociobiology applicated to our species. However, in the paper the argumentation is in favour of the co-evolutionary process of genes and culture, expressed in a rigid mathematical framework.

15:30 A.J. Petto and M.J. Mulholland

Patterns in Anthropological Research: Analysis and Interpretation. A.J. Petto and M.J. Mulholland. University of Massachusetts

For anthropological data with a range of spatial and temporal associations the precise nature of the distribution may be critical for testing hypotheses about significant aspects of variation. Many techniques are available to study patterns in time and space. Each analytical approach has a unique set of biases, assumptions, and limitations which affect the conclusions which may be drawn. Frequently results from fundamentally different approaches are not compared. Even for a single type of analysis significant differences in bias and distortion may occur among different computer programs. Such a comparison is performed here upon a single data set. Raw and transformed data from 96 Archaeolemur mandibles are studied by three basic types of analytical approaches - grouping, seriation, and regression. Grouping techniques place data into groups based upon degree of similarity. Seriation techniques provide a prediction of the relationships among variables. Despite the ease of complex analysis with packaged programming and the security of statistical significance, the examination of patterns of variability in anthropological data calls for careful consideration of the appropriateness of analytical models.

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15:50 Brian Chisholm

More Information From Archaeological Human Bone: The Use of Stable Isotope Analysis. Brian Chisholm. Simon Fraser University

Until recently estimates of dietary intake of aboriginal people have been made primarily on the basis of associated faunal and archaeological remains. Use of stable isotope analysis has enabled archaeologists, physical anthropologists and others interested in paleonutrition to make use of data recovered from archaeological human bone.

This paper will outline the application of such analysis, particularly with regard to marine versus terrestrial comparisons on the British Columbia coast.

16:10 Richard A. Lazenby

The Significance of Intra-Diaphyseal Heterogeneity of Microstructural Variation for Methods of Age Estimation. Richard A. Lazenby. Simon Fraser University

Methods of age estimation based on cortical bone microstructure assume homogeneity within the middle third of long bone diaphyses for variables used. The validity of this assumption was tested using twenty-nine undecalcified transverse sections prepared from the mid-diaphysis of a single human femur. From two fields bordering on the anterior and lateral periosteal margins, observations were made on two variables used previously in histological aging techniques, as well as on three variables previously 'untested' in this regard.

ANOVA results suggest that (1) the assumption as stated is unwarranted and probably invalid, and, as a consequence, the utility of available histological aging methods is questionable; and (2) the previously 'untested' phenomena exhibit considerably less variability within the mid-shaft, and given their quantification in a known-age series of skeletons, a reliable and accurate histological aging method might be derived.

16:30 Dr. Michael Wilson

The Twin Bridges Skeleton: Forensic Geology and Anthropology. Dr. Michael Wilson. University of Calgary

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SATURDAY

Skeletal Biology and Forensics

Chair: Dr. Mark Skinner

9:00 Gary Heathcote

Age Regression of Craniometric Variates: A Cross-Sectional Approach to the Continuing Growth of the Craniofacial Skeleton. Gary Heathcote. University of Toronto

A cross-sectional study of age-dependent dimensional variation among 187 adult male crania from Alaska, the Mackenzie Delta, and southern Ontario found that 13 variates, out of 80, displayed significant age-regression. All but three of these are measurements of or to the facial skeleton. The fact that significant age-related decreases, as well as increases were found challenges the conventional wisdom that continued growth of the craniofacial skeleton is simply the outcome of ectocranial apposition and endocranial resorption. My findings suggest that continued growth in the facial region may be the outcome of more complex remodeling processes involving regionally differential deposition and resorption on the cortical surfaces. While this suggestion may be pushing interpretations too far, the fact that so many statistically significant age changes were found makes a strong case for human osteologists testing for age "noise" in comparative craniometric studies.

Research for this study was supported by a contract from the National Museums of Canada, Ottawa.

9:20 Mary K. Jackes

Nonmetric Trait Incidences After Maturity. Mary K. Jackes. 11419 - 75 Ave., Edmonton, Alta. T6G OH8

It is sometimes implied in the literature that the incidences of nonmetric traits do not stablize upon maturity. The claims of several authors are examined and new information is given which shows that there is as yet no solid evidence for changes after adult status is reached.

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9:40 Timothy G. Bromage

The Utility of the Scanning Electron Microscope in Studies of Modern and Fossil Hominid Craniofacial Remodeling.
Timothy G. Bromage. University of Toronto

The methodological difficulty in comparative research is collecting data which can be directly compared. Finding a solution to this problem in comparative hominoid craniofacial morphogenesis research has been my main concern for some time.

Growth and development studies utilizing skeletal material are best done by documenting evidence of the bone growth mechanisms responsible for morphogenesis. One primary mechanism is "remodeling" which involves co-ordinated bone resorption and deposition in localized areas. Some histological studies have been performed on human facial remodeling, but these studies have been limited in extent because of the destructive nature of the technique. For obvious reasons large skeletal collections and early hominid material cannot be utilized in histological work.

A new method involving scanning electron microscopy of high resolution replicas of facial bone has been developed which does not damage specimens and which can provide directly comparable results. With this method it will be possible to document the facial remodeling characteristics and variability in large modern Homo and pongid skeletal collections. Studies of remodeling in early hominid taxa are now possible and will contribute to our understanding of their facial growth. As a result of this research, the role that remodeling has in facial growth and its taxonomic valency will be better understood.

10:00 Shelley R. Saunders and John T. Mayhall

Fluctuating Asymmetry of Dental Morphological Traits: Multiple Interpretations of the Data. Shelley R. Saunders, McMaster University. John T. Mayhall, University of Toronto

It is generally believed that fluctuating dental asymmetry is caused by non-specific inherent and extrinsic stress factors. Therefore the quantification of asymmetry is said to measure the degree of developmental stability of a population. Demonstrations of greater magnitudes of dental metric asymmetry in prehistoric and nontechnological populations samples have prompted researchers to accept environmental stress as the causal model. Recently the same has been said for discrete dental trait asymmetry.

We assessed asymmetry for two traits, Carabelli cusp and protostylid in a contemporary Canadian sample and compared our figures to published literature. Several points are apparent

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from these comparisons.

1) Until recently, discrete dental asymmetry has been dismissed by many workers as unimportant and not worthy of observation.

2) Published assessments of asymmetry are inconsistent between workers and hinder estimates of the magnitude of within-population asymmetry.

3) Investigators who have compared discrete dental asymmetry between populations have neglected to report total asymmetry as dependent upon the total population frequency of a trait.

4) Until now, no one has considered that, in the case of quasi-continuous traits, the symmetrical absence category subsumes individuals who are asymmetrical below the physiological threshold and therefore unobservable.

These inconsistencies in data observation suggest to us that at present, studies of discrete dental trait asymmetry may interpret the data in any way and still get positive results. From a causal point of view it is our contention that generalized population assessments of fluctuating dental asymmetry are unproductive because of the non-specificity of the phenomenon.

10:20 COFFEE BREAK

10:40 Owen Beattie

The Location and Analysis of Human Skeletal Remains from the Last Sir John Franklin Expedition in Search of the Northwest Passage (1845-1848). Owen Beattie. University of Alberta

Credit for the completion of the Northwest Passage is usually given to Sir John Franklin and his crew. These British explorers at some time during the spring or summer of 1848, or possibly the spring of 1847, reached the historic spot at Cape John Herschel on south-western King William Island, effectively closing the last stretch of uncharted territory of this elusive Passage. However, interest in this expedition is usually focused on the mysterious and as yet unsatisfactorily explained loss of all expedition members and records. This loss of 129 people is unprecedented in the field of Arctic exploration, especially considering that when the ships left England in 1845 they were the best provisioned, manned, and prepared expedition that had been dispatched to the northern latitudes. The research reported in this paper outlines the results of the first year of an investigation into the location and analysis of the skeletal remains of Franklin's crew. It is hoped that the examination of these remains

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will help clarify the cause(s) of death and perhaps provide insight into the motives of the officers and crew (starvation?; avitaminosis?; discontent?; poor leadership?; poor judgement?) in their abandonment of their ice-imprisoned ships in April, 1848, and their decision to strike out overland in an unquestionably suicidal attempt to reach a Hudson Bay post 1500 km to the south west.

11:00 Dr. M. Skinner and Ms. J. McKendry

<u>Pre-Mortem Trauma and Individualization in Forensic Anthropology</u>. Dr. M. Skinner and Ms. J. McKendry. Simon Fraser University

Two case histories are reported which emphasize the importance and variety of pre-mortem records in individual identification.

11:20 R.D. Whiteford

<u>A Graduate Course in Forensic Anthropology/Archeology as Presented at Florida State University</u>. R.D. Whiteford. University of Guelph

The application of anthropological/archeological techniques in support of law enforcement agencies in the solution of crimes of violence and researches being undertaken to enhance these procedures will be discussed and illustrated with appropriate slides.

11:40 Dr. Hegler

Facial Reconstruction
masking tape belt in back
[illegible]
[illegible]

Palaeoanthroplogy and Fossil Primates

Chair: Dr. Larry Williams

13:30 G.H. Sperber

Ontogenetic Factors in Hominid Phylogenetic Evolution.
G.H. Sperber. University of Alberta

Bone is a sensitive developmental kymograph, its living plasticity frozen at death. Fossilization immortalizes the frozen bone into stone. The morphology of fossilized bone that constitutes much of the literature of palaeoanthropology can be interpreted not only as a key to phylogenetic evolution but must also be evaluated in terms of the underlying developmental influences that originally formed the bone.

The "functional matrices" of soft tissues acting upon bones during life account for much of their morphology as expressed by Wolff's Law of bone architecture. The "skeletal units" of bone respond expansively to the capsular functional matrices of brain, eye, synchondrosal and septal cartilage growth, and tooth development and eruption. Muscular matricial forces exert strong morphogenetic influences upon bone, greatly determining pelvic and skull form.

These ontogenetic factors are altered by selective functional pressures during evolution, accounting for generic and species differences in skeletal morphology.

Skull expansion to accommodate brain enlargement is an obvious functional matricial influence. More subtle morphogenetic influences on skull form are exerted by alteration in dentitions. Not only do variation in size, shape and eruption rates of teeth per se influence skull morphology, but various masticatory musculatures of different dentition types evince heteromorphic osseous responses. Large teeth dictate large jaws requiring heavy musculature necessitating expanded attachment areas; bone buttressing is required for masticatory stress resistance.

Bipedal locomotion has profound influence on pelvic morphology. In these and other ways, functional matrices as evolutionary factors are the bases for many skeletal phylogenetic changes.

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13:50 John C. Kolar

Re-evaluation of the Genus Homo among the Plio-Pleistocene Hominids. John C. Kolar. University of Toronto

14:10 Dr. Susan Pfeiffer

Preliminary Report of Paleopathology from the Uxbridge Ossuary. Dr. Susan Pfeiffer. University of Guelph

Uxbridge is a Southern Ontario ossuary, dating from 1490 ± 80 A.D. It was excavated by P. Cook and the OAS from 1975 to 1977. Preliminary cleaning and sorting of the material has just been completed. The minimum sample size thusfar is 457 based on anterior mandibular material. A most interesting feature of the sample is the high incidence of a particular form of pathological condition. It is argued that the changes seen are most characteristic of skeletal tuberculosis (Pott's disease). A substantial proportion of the population is likely to have had tuberculosis during their lifetime. The potential effect of this disease pressure on mortality will be discussed. A number of wounds, likely associated with warfare, will also be discussed.

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14:30 L.R. Williams

A brief re-assessment of the Olduvai Hominid 5 reconstruction.
L.R. Williams Lakehead University

A careful appraisal of the original OH-5 facial reconstruction reveals that an excessive amount of reconstructive material appears to have been employed resulting in an overly orthognathic profile. It can be demonstrated that by carefully re-aligning a few fragments, the lower facial portion fits, jig-saw fashion, much more closely to the upper facial portion. The revised re-alignment results in a much more harmonious facial angle, a reduced facial height, and a greatly altered overall physiognomy, featuring considerably less robustisity.

Poster Papers

Nonmetric Traits: Bilateral Incidences and Population Incidences.
Mary K. Jackes, 11419 - 75 Ave., Edmonton, Alta., T6G 0H8.

There is some evidence that the incidence of bilaterality in nonmetric traits increases as the overall trait incidence (by side or skull) increases. The pattern does not seem to hold for all traits, however, and a request is made for more data.

Perthes Disease: Common in Southern Ontario Indians.
Mary K. Jackes, 11419 - 75 Ave., Edmonton, Alta., T6G 0H8.

Abnormal femora from 6 individuals in a Neutral cemetery are described and the suggested diagnosis is Legge-Calvé-Perthes disease. The familial nature of the disease seems confirmed and it is suggested that it is a disease common among southern Ontario Indians.

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SUNDAY

Symposium in Honor of James E. Anderson

Co-organizers and Chairmen:
F. Jerome Melbye and Jerome S. Cybulski

8:30 Opening Remarks. F. Jerome Melbye. University of Toronto

8:40 F. Jerome Melbye

The Fairty Site Revisited. F. Jerome Melbye. University of Toronto

Seventeen years have elapsed since J.E. Anderson published his research on "The People of Fairty: An Osteological Analysis of an Iroquois Ossuary" (*National Museum of Canada Bulletin No.* 193, pp. 28-129, Ottawa, 1964). Many new methods of population analysis have been introduced since that time. It is a tribute to the quality of that report that it serves as the sole basis for this re-analysis. Demographic parameters are calculated, adjustment factors are proposed, and a new interpretation of the living population is suggested.

9:00 Jerome S. Cybulski

Human Skeletal Remains from Plum Point: A Question of Bio-Temporal Identification in Ontario Prehistory.
Jerome S. Cybulski. National Museum of Man.

Two individuals, one represented by a skull, a mandible, and some postcranial parts, the other by fragmentary jaws and teeth, were collected around the turn of the century from a site (BfGa 2) on the Lower Rideau Lake and stored in the Perth Museum, Ontario. Artifacts in the museum suggested an Initial Woodland Period, late Point Peninsula temporal affiliation but the original

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documentation did not indicate that the artifacts were, in fact, collected with the bones. Osteological tests, based on comparative cranial morphology and dental pathology, tend to substantiate the temporal affiliation suggested by the artifacts. The tests are founded on earlier perceived morphological dichotomies between Initial Woodland and later populations of Ontario and on a suggestive seriation pattern in the incidence of dental caries related to the change in these populations from a hunting and gathering to an agriculturally based subsistance.

9:20 Charles F. Merbs

Developmental Defects of Vertebral Bodies in a Canadian Inuit Isolate. Charles F. Merbs. Arizona State University

Skeletons of the Sadlermiut, an Inuit group that lived on Southampton Island, Northwest Territories, until it succumbed to an epidemic in 1902-1903, exhibit an unusual developmental problem involving thoracic and lumbar vertebrae. The condition ranges from a small cleft in the vertebral body to a failure of a significant portion of the body to develop. In its most severe form, the defect divides the body into two parts resulting in anterior exposure of the neural canal. This paper discusses the nature of the condition including its frequency among the Sadlermiut and neighboring Inuit groups, its possible relationship with other developmental problems such as spina bifida, and its etiology. The predisposition of individuals with the condition to degenerative and traumatic changes in the vertebral column is also considered.

9:40 J.E. Sirianni

Rates of Bone Deposition in the Craniofacial Region of Fetal, Neonatal, and Juvenile Macaque Monkeys. J.E. Sirianni. State University of New York

The sequence of craniofacial ossification in the macaque has been described. Between 45 and 50 gestational days the maxilla and mandible begin to ossify, by 70 days the petrous portion of the temporal has begun, and 170 days (birth) all the major bones of the cranium and face are present and have begun to remodel. The purpose of this investigation is to describe the pattern of bone remodelling and calculate the rates of bone deposition at various sites in the prenatal and postnatal craniofacial region of *Macaca nemestrina*.

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Three flourescent bone labels (DCAF, xylenol orange, and minocycline) were administered intravenously to 10 pregnant monkeys during the last 25 to 35 days of gestation, to three neonates, and to four juvenile monkeys. The labels were given successively at weekly intervals at dosages ranging from 20 to 75 mg/Kg of maternal weight and 15 to 30 mg/Kg of the animal's postnatal weight. Serial sections of the cranial base, mandible, and maxilla were examined with a microscope equipped with an ultraviolet light source, and the distance between the flouresceing lines measured with a calibrated ocular micrometer. The average rates of eposition on the ventral surface of the basioccipital were 3.9 μ/day during the late fetal period, 5.9 μ/day in neonates, and 2.3 μ/day in juveniles. On the lingual surface of the mandibular body, bone is deposited at rates 4.6, 2.5, and 1.8 microns per day for the respective age groups.

This study was supported by NIH grants DE02918 and RR00166.

10:10 Anthony D'Agostino

Functional Asymmetry of the Tongue and Positing a Speech-Related Neural Switching Mechanism. Anthony D'Agostino. St. John Fisher College

In an attempt at systematic analysis of the relationships among handedness, cerebral speech dominance, and asymmetrical lingual pressures, the following hypotheses were tested: 1) there is a significant difference in the amount of pressure (left vs. right) applied by the tip of the tongue when pressed against the alveolar process (referred to as lingual asymmetry); 2) there are positive relationships between lingual asymmetry and handedness; 3) there are positive relationships between lingual asymmetry and cerebral speech dominance. Sixty normal young adult male volunteers were each tested for asymmetrical functions in the following areas: 1) multivariate hand performance (manual strength, tapping, and dexterity); 2) dichotic listening (cerebral speech dominance); 3) multivariate lingual pressure (lingual strength, tapping, and speech). Results revealed that hypotheses (1) and (2) were unsupported. For hypothesis (3) no significant results emerged when Chi-square analysis was used to compare the composite scores derived from the three lingual pressure tests with the results of the dichotic listening test. When the three lingual pressure tests were separately compared with dichotic listening, unpredicted results emerged. Positive relationships emerged when lingual tapping ($X^2 = 6.27$, $p < 0.01$) and lingual speech ($X^2 = 10.01$, $p < 0.01$) were compared with dichotic listening; there was no statistically significant relationship between lingual strength and dichotic listening. Both the lingual tapping and

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lingual speech tests used speech sounds while the lingual strength scores were not speech-related. Thus, positive results were found when cerebral speech dominance as measured by the dichotic listening test was compared with superior contralateral tongue pressures, but only during the production of speech sounds. These findings suggest the existence of a previously unreported neural mechanism. It appears that when speech is perceived or produced, some kind of biological switching mechanism is activated within the human brain. The functional unit which is "turned on" is located in the speech-dominant hemisphere which receives speech sounds primarily from the opposite ear and sends commands to the contralateral tongue tip which exhibits superior tongue pressure only while speech is being produced. Evidence from other investigators is presented to support the concept of a speech-related neural switching mechanism.

10:30 Dr. G. Gaherty

Bodies and Behavior. Dr. G. Gaherty. The Bioenergetic Psychotherapy Institute, Toronto

10:30 COFFEE BREAK

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11:10 Christopher Meiklejohn

The Significance of the St. Césaire Hominid.
Christopher Meiklejohn. University of Winnipeg

The recent announcement of the discovery of a Classic Neanderthal from Chatelperronian or Lower Perigordian levels in France has engendered considerable discussion. It represents the first European discovery of a Neanderthal in a non-Mousterian context and, therefore, questions the traditional Middle Palaeolithic/ Neanderthal, Upper Palaeolithic/"Cro-Magnon" dichotomy. In light of the above this paper discusses the find in relation to the nature of the Middle/Upper Palaeolithic transition, recent absolute datings of early "Cro-Magnon" finds in western Europe, and recent evidence for intermediate specimens in southeastern Europe.

** Presented in Palaeoanthroplogy session Saturday afternoon.

11:30 James D. Paterson

Baboons and Hominids: Co-evolution, Competition, or Analogs.
James D. Paterson. University of Calgary

Baboon analog models have been employed for the past two decades to provide some insight into the evolution of early hominids and to predict their behavior. Many of these models were formulated in ignorance of ecological theory and of palaeontological data, and hence are due for revision. This paper surveys and critiques these models and presents a baboon-hominid co-evolutionary analog model which is consistent with the ecological theory and the fossil evidence as it currently stands. This model incorporates the co-evolution macroevolutionary model of W.J. Bock, and insights into baboon ecology derived from field research in 1970-71. Baboons and hominids are seen as long term surviving competitors in the forest-edge ecotone, and their convergent social structure interpreted as the result of co-evolutionary development.

11:50 J.E. Molto

Forensic Osteology in Thunder Bay: A Case Study.
J.E. Molto. Scarborough College, University of Toronto

This paper describes the multifaceted investigation of a Nineteenth Century burial exhumed in the city of Thunder Bay in 1979. It outlines the somewhat unique circumstances involving the mortuary treatment of this individual, as well as the skeleton's vital statistics (age at death, sex, stature) and pathology. The main emphasis, however, concerns the numerous research avenues explored in attempting to establish the personal identity of this high status individual.

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12:15 M. Anne Katzenberg

Incidence and Severity of Infection in Prehistoric Southern Ontario Agriculturalists. M. Anne Katzenberg. Erindale College, University of Toronto

Tibiae were examined from three southern Ontario ossuaries dating from A.D. 1400 to 1636. Based on a scoring system developed elsewhere, all tibiae from both sides were evaluated for the presence and severity of infection. All three populations practiced maize agriculture and were culturally and biologically similar. A high percentage of tibiae show evidence for early or minor changes associated with periosteal infection. These have not previously been reported in the literature, as have the more advanced cases. Possible causes and implications of such a common phenomenon are discussed.

12:30 Norman Sullivan

The Depopulation of Huronia: A Consideration of some of the Skeletal Evidence. Norman Sullivan. Erindale College, University of Toronto

While contact with Europeans is generally known to have precipitated population decline and disruption of traditional lifeways among the Iroquoians of Ontario, relatively little is known about the specific timing and causes of decline. Mortality data from the Huron ossuaries at Kleinburg and Ossossane and the Neutral ossuary at Grimsby were examined with the aid of mortality indices described by Henneberg and co-workers: net reproductive and potential reproductive rates as well as the biological state index. These indices identify the relative level of mortality experienced by different age groups and the rate at which the population is or is not reproducing itself. Results indicate that mortality among the Huron began to increase by the mid-1620s or slightly earlier. Until 1636, subadults and old people were subjected to death rates higher than those of young and middle-aged adults. The pattern was reversed after about 1640 at which time individuals between 15 and 45 years experienced a marked rise in mortality. From documents in the *Jesuit Relations*, this pattern-shift is ascribed to a change in the sources of mortality: prior to 1640, newly introduced diseases accounted for much of the mortality; afterwards, warfare was very likely responsible.

12:50 Closing Remarks. Jerome S. Cybulski. National Museum of Man