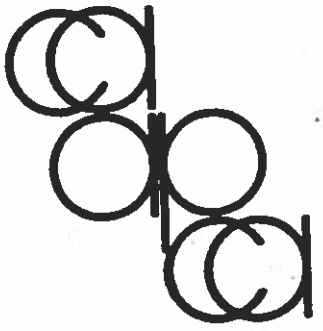

Canadian Association for Physical Anthropology
L'Association pour l'Anthropologie Physique au Canada

15e CONGRÈS ANNUEL

15th ANNUAL MEETING

Kempenfelt / Toronto

Nov 5 - 8, 1987

DEAR COLLEAGUES:

GREETINGS AND WELCOME to the 15th Annual Convention of the Canadian Association of Physical Anthropologists. The attendance should provide for lively discussions in the areas of Primatology, Osteology, Biomedical Studies and Disease and Culture.

REMEMBER the Videotape Session and especially the Computer Workshop.

The Square Dance Caller, Jim Lamby, has assured us an authentic and active evening. The **GUEST SPEAKER** after the Banquet, is **RICHARD B. LEE, on "HEALTH & NUTRITION IN HUNTER-GATHERERS: MEDICAL RESEARCH AMONG THE !KUNG SAN, 1967-1987".**

There will be extra copies detailing Sunday's activities and their locations at the **REGISTRATION DESK.**

The Kempenfelt Centre is part of Georgian College. As guests here, we are asked to observe courtesies on noise level in the evenings. Drinks may not be transported to the main building so that the Centre's license is not jeopardized.

Sports equipment is readily available from the **MAIN DESK.**

Please be prompt for meals which are served between:

8:00-8:30 a.m. 12:00 - 12:30 p.m. 6:00 - 6:30 p.m.

Your must wear BADGES to meals.

Frances Burton

(Convenor)

A special thanks to Joan Barnes, Barbara Holst and Audrey Glasbergen for their assistance in typing and preparing the Programme Agenda.

CAPA CONVENTION PROGRAMME

(a)

	NOVEMBER 5 **THURSDAY**	NOVEMBER 6 **FRIDAY**
9-12	**REGISTRATION**	**COMPUTER WORKSHOP** HYPERCARD - MAC PARADOX - IBM
12-13		**L U N C H**
14-16	**PRIMATE SESSION** Zeller, Chair Burton Mehlman Zeller Hornshaw Chan	**OSTEOLOGY SESSION** Katzenberg, Chair Katzenberg Cook Melbye & Jiminez White Ossenberg & Wright DeVito
16-17	FREE: SPORTS	SPORTS
17-18	U. OF T. COCKTAIL HOUR	PRIMATE MEETING
18-20	DINNER	DINNER
20-22	FILMS	SQUARE DANCE

NOVEMBER 7
SATURDAY

BIOMEDICAL & OSTEOLOGY

Meikeljohn & Schentag
Fairgrieve
Muller
Burton & Chan
Paterson

L U N C H

CULTURE AND DISEASE SESSION

Herring, Chair

So
Saunders & Melbye
Gustafson
Mayhall & Alvesalo
Alvesalo & Mayhall
Molto
Herring

BUSINESS MEETING

ANTHROPOLOGY CLUB RECEPTION

BANQUET & SPEAKER: R. LEE

NOVEMBER 8
SUNDAY

METRO ZOO

SCARBOROUGH CAMPUS PRINCIPAL'S RESIDENCE

ROM - Trudy Nicks

Thursday 14:00 - 16:00 - PRIMATE SESSION

I.

TITLE: **The Social Group**

AUTHOR: **F.D.Burton**

Since the book is intended for undergraduates, this chapter will incorporate relevant literature from earlier periods. A complementary view emphasizing the cultural reality of society is re-proposed and developed from field descriptions. Fundamentals of social structure are reviewed and the argument for a cognitive basis for social process amongst non-humans based on the anatomy and function of the primate brain, is forwarded.

II. **P. MEHLMAN**

III.

TITLE: **Communication in the Social Unit**

AUTHOR: **Anne Zeller**

Communication is that aspect of social interaction which transforms an unstructured horde or aggregation of animals (or humans) into a functioning social unit. Thus all members of the group must send and receive messages with facility in order for the group to survive. Most previous studies of primate communication have reported what the animals do, utilizing sonograms of calls, descriptions of facial expressions and accounts of scent marking patterns, rather than being concerned with what the signals actually mean to those receiving them. Some recent research has examined the functions of calls by ascertaining what types of responses occur when recordings of these calls are played back. In this paper I am attempting to provide a more synthetic examination of the place filled by communicative behaviour in primate social groups.

Thursday 14:00 - 16:00 - PRIMATE SESSION

III. Zeller, Continued..

In particular I will deal with levels of inclusiveness of social communication: from group wide messages to the establishment of long term social bonds to the immediate day-to-day messages which permit social existence. The importance to each individual of learning how to effectively code and decode these various levels of message and how to utilize and modify the information transfer system is a major underlying theme of this approach.

IV.

TITLE:

AUTHOR: S.G. Hornshaw

It has become clear that differences between free-ranging social behaviour and captive social behaviour of the same species are more culturally constructed than they are reliable expressions of the animals themselves. Examining groups of the same species maintained at the same facility and, therefore, presumably, under the same management conditions, one finds that the groups exhibit both qualitatively and quantitatively different patterns of sociality. Heretofore, captivity has been treated as a single homogeneous variable. This is a western cultural notion that has influenced scientific hypothesis construction. Examining the same groups through time-successive studies reveals that the principles that appear to account for the data on sociality change through time. At one point in time, genealogical principles may appear to account for the data, but do not later in the group's social history. The search for nomothetics commits us to a view of explanation that is static. Our scientific explanations may be parsimonious and elegant, but natural social processes may be neither parsimonious nor elegant.

Thursday 14:00 - 16:00 - PRIMATE SESSION

V.

TITLE: **Some Issues in the Socioecological Explanation of Social Dynamics**

AUTHOR: **Leslie Chan**

Friday 8:00 - 12:00 - COMPUTER WORKSHOP

VI.

TITLE: **MacIntosh New HyperCard - a valuable tool in Research and Teaching**

AUTHOR: **William Barek**

The announcement of HyperCard by Apple this summer was heralded by press as the major development in personal computing. Discussion of what HyperCard is and what it is not, with demonstration on its potentials in research and teaching will be given. Specific research application on primate studies will be demonstrated.

Friday 9:00 - 12:00 - COMPUTER WORKSHOP

VII.

TITLE: **Paradoxical Anthropology**

AUTHORS: **L.A. Sawchuk and M.A. Broderick**

Paradox 2.01 is a powerful relational database management package that holds great potential as a research tool in data entry, file creation and exploratory data analysis. Using a Lotus-like menu, the researcher can quickly create data files, modify files and export/import files between DBase, Lotus and the mainframe. Simple statistical calculations are built in and more complex calculations/modifications can be generated via the script procedure. Our presentation will focus on (1) creating a simple "bone" file and (2) querying a household data file. Practical illustrations of Paradox procedures will be demonstrated on these two files.

Friday 14:00 - 16:00 - OSTEOLOGY SESSION

VIII.

TITLE: **13C in Human Collagen: Contributions from Plants and Animals**

AUTHOR: **M. Anne Katzenberg, Department of Archaeology**
University of Calgary, Calgary, Alberta

Stable carbon isotopes have been used successfully to establish the presence of maize in prehistoric human diets. Carbon isotopes also indicate marine versus terrestrial foods in the diet. With increasing data on carbon isotope values in humans it is apparent that further refinements are possible. In addition to consuming C_4 plants enriched in the heavier isotope of carbon, humans also consume animal flesh which is enriched in

Friday 14:00 - 16:00 - OSTEOLOGY SESSION

VIII. Katzenberg continued...

^{13}C through the animals' consumption of C_4 plants. Since there are not trophic level differences in ^{13}C as there are for ^{15}N, the ^{13}C of animal flesh is passed on to human consumers.

Bones of mammals, fish and birds from an early historic Petun site in southern Ontario were analysed for stable isotopes of carbon and nitrogen. Of those animals consumed by humans, dogs showed a high intake of C_4 plants enriched in ^{13}C. Fish from the Great Lakes may have contributed to the high nitrogen values observed among the prehistoric and early historic Huron people. The implications of this work are that elevated ^{13}C values in humans with terrestrial based diets are not solely due to consumption of C_4 plants, therefore estimates of the percentage of C_4 plants in human diets are misleading.

IX.

TITLE: Histological Aging: PANDORA'S BOX

AUTHOR: Megan Cook
Department of Pathology, The University of Western Ontario, London, Ontario

The histological methods that are employed for estimating age in skeletal remains use histomorphometric parameters of one sort or another. The values of these selected parameters usually decrease with age and are based on the bone modeling and remodeling cycle that operates throughout life.

Various diseases, biomechanics, and methodology all affect the histomorphometric values that are an integral part of the histological age estimation process in unknown skeletons. Diseases such as osteoporosis, osteomalacia, Paget's, osteomyletis, the metabolic bone diseases and trauma effect the bone modelling process. Bone loss or

Friday 14:00 - 16:00 - OSTEOLOGY SESSION

IX. COOK continued...

gain is reflected in the histomorphometric values. Biomechanical stress and strain an individual is subjected to also has a great influence on bone remodeling.

Bone Histomorphometry; its use and interpretations has progressed since the aging methods were devised in the 1960's and 70's. Testing the relative accuracy of each method has been done (Stout and Gehlert 1980, Bovier and Ubelaker 1977). The results were not reported in a satisfactory manner hence Pandora's Box!

Mid-shaft cross sections of tibiae were obtained from autopsies with well documented age, sex and cause of death. The cortical bone histological aging techniques of Kerley and Ubelaker (1978), Ahlqvist and Damsten (1969) and Thompson (1978) were tested with these coded samples. The comparisons between the real and estimated ages of the 3 techniques were made after the age estimation calculations were completed.

In conclusion, several observations are made: (1) the amplitude of change with age in the values may be too small to be able to use it to estimate age, (2) if it is indeed possible to age histologically then the methodology needs to be updated and standardized so that the newest technology may be used to its best advantage, (3) there is a need for wider age ranges in a known aged population, (4) mean bone age is being measured and not chronological age.

Friday 14:00 - 16:00 - OSTEOLOGY SESSION

X.

TITLE: **Ossossane Revisited: Palaeodemography**

AUTHORS: **Jerry Melbye and Sue Jimenez**
Erindale College, University of Toronto

Katzenberg and White presented a preliminary statment on some palaeo-demographic aspects of the Ossossane Ossuary (1979). Their data are based exclusively on hip bones. We attempt to improve the precision of the adult age determination by incorporating the new method of Suchey (1986). Further, we provide a revision of minimum number of individuals by integrating new data from the mandibles. A revised life table and aspects of mortality and fertility are discussed.

XI.

TITLE: **The Ancient Maya from Lamanai, Belize: Diet and Health over 2,000 years**

AUTHOR: **Christine White,**
Department of Anthropology, University of Toronto

The enigmatic collapse of ancient Maya civilization has obsessed archaeologists for the last 50 years. Because it is now known that high population densities existed in fragile tropical ecosystems, researchers now recognize that the cultural and economic dynamics of the Maya will be best revealed by an understanding of subsistence. Ecological deterioration and nutritional deficiency caused by maize agriculture and dependency have both been proposed as hypotheses for cultural decline. On the other hand, dietary models involving root crops, ramon nuts, mixed plants and marine resources have been suggested as alternatives to high maize consumption.

Friday 14:00 - 16:00 - OSTEOLOGY SESSION

XI. White continued...

The Lamanai research was designed to diachronically test the validity of these hypotheses and models in relation to cultural dynamics, and to determine the nutritional consequences of chosen dietary regimes. To reconstruct diet in the ecologically heterogeneous lowland environment of Lamanai, both organic (stable and nitrogen isotopes of bone collagen) and inorganic (elements zinc, strontium, and magnesium) measurements were needed to sort out potential confounds. The correlation between the two chemical methods in determining the relative contribution of maize in the diet is statistically significant. Although maize was found to have been the major dietary component from Preclassic (2500 B.C.-A.D. 250) to Historic (A.D. 1520-A.D. 1670) times, a substantial decline in consumption occurred during the Terminal Classic (A.D. 900-A.D. 1000) - a period that is equated with collapse at most Maya sites. The Terminal Classic at Lamanai, however, is curiously associated with cultural florescence. It is hypothesized that the reduced consumption of maize is related to possible political re-allocation of the agricultural labour force to activities which would improve the cultural status of the site.

The following Postclassic (A.D. 1000-A.D. 1520) and Historic (A.D. 1520-A.D. 1670) periods are marked by a sharp rise (65-70%) in dietary maize - the same level found in modern Maya populations. Although status and sex differentials indicating greater maize consumption by individuals of lower status and females, are found in these time periods, statistical significance is not attained.

Friday 14:00 - 16:00 - OSTEOLOGY SESSION

XII.

TITLE: **The Association Between Mandibular Torus and the Transverse Component of Maticatory Force: A Biomechanical Analysis Based on Eskimo Skulls**

AUTHOR: **N.S. Ossenberg and T.L. Wright**

This study examined the hypothesis that mandibular torus develops as a response to the transverse component of masticatory force. An Eskimo sample (N158) partitioned by age, sex, and geographic/linguistic population, and degree of torus development provided the material for the study.

A three-dimensional model for analyzing static equilibrium of the mandible under transverse load was devised, based on bizygomatic diameter and eight mandibular measurements.

Analysis of variance showed that mean L_t values for individuals with strong torus expression were significantly higher than those for individuals with weak torus expression. Logistic regression analysis revealed transverse load L_t to be a significant variable determining the probability of having a high torus. In addition to findings directly related to the hypothesis under study, significant differences in mean L_t were found between males and females and between the two geographic groups. Age trends in L_t also showed a sex difference. Beyond its usefulness for investigating the etiology of mandibular torus, the biomechanical method developed for this research may have wider implications for craniofacial studies in living as well as skeletal populations, and in the study of fossil remains.

Friday 14:00 - 16:00 - OSTEOLOGY SESSION

XIII.

TITLE: **Discriminant Analysis of Deciduous Crown Dimensions to Determine Sex**

AUTHORS: **Carol L.H. De Vito**
Department of Anthropology, McMaster University
Hamilton, Ontario

Studies using deciduous dentition measurements have maintained that statistically significant differences between male and female deciduous dentitions have not produced results which are as effective for discriminating between the sexes as are the results from permanent measurements. The present study measured maxillary and mandibular mesiodistal and faciolingual deciduous crown dimensions of 162 dental casts of children aged 3-4 years included in the Burlington Growth Study, Faculty of Dentistry, University of Toronto. The data yielded significant differences at $p<0.05$ for all 40 dimensions (at $p<0.01>0.001$ for 13 of the 40 dimensions and at $p<0.001$ for 24). Discriminant analysis resulted in the correct sexing of 77% of the original subadult sample, using 5 deciduous teeth (5 measurements) and in the correct sexing of 90% of a holdout sample of 21 cases, using the same 5 deciduous teeth. The inclusion of the permanent first molar measurements in the discriminant analysis resulted in an accuracy of 77%, using 3 teeth, 2 deciduous and 1 permanent (3 measurements).

Saturday 9:00 - 12:00 - BIOMEDICAL & OSTEOLOGY

XIV.

TITLE: **"Patterns of Dental Caries in the European Mesolithic"**

AUTHORS: **C. Meiklejohn & C.T. Schentag**
University of Winnipeg
Winnipeg, Manitoba

We have found major differences in caries frequencies of a geographical nature and believe that a nutritional basis is present. In addition, we have found that caries susceptibility is probably restricted to the post-adolescent population. Data are used are primarily from recent research in Portugal (1984-86) and Denmark (1986-87).

XV.

TITLE: **The Pasamayo Crania of the Hutchinson Collection: A Pathological and Nutritional Assessment**

AUTHOR: **Scott I. Fairgrieve**
Department of Physical Anthropology
University of Cambridge, Cambridge, England

The Pasamayo crania were recovered by T.J. Hutchinson, H.M. Consul at Callao in 1873 from the Pasamayo site on the central coast of Peru. At that time they were sent to England and no extensive analysis was undertaken at that time. Presently the collection is stored in the Department of Physical Anthropology, the University of Cambridge. The crania date to between A.D. 1200 and 1450. The crania exhibit a vast array of pathology, including cranial deformation, along with an extremely high incidence of porotic hyperostosis and cribra orbitalia. Each cranium was examined radiographically for all occurrences in pathology. An attempt was made to relate the nutritional pathology to the probable sources of deficiency within the diet.

Saturday 9:00 - 12:00 - BIOMEDICAL & OSTEOLOGY

XVI.

TITLE: On Geomagnetic Polarity Reversals and Faunal Extinctions

AUTHOR: Joseph P. Muller
Department of Anthropology
University of Waterloo, Waterloo, Ontario

This paper examines the proposal that there may be some correlation between geomagnetic polarity reversals and faunal extinctions. Theories about magnetic reversals are outlined, a 'calendar' of known reversals mapped, and a table of data on Plio-Pleistocene faunal (Bovidae) assemblages at East African Hominid sites presented. Changes in local assemblages and polar reversals are compared for any correlations. If the larger populations of bovids are affected by such reversals, hominids may be as well, with potential hominid-line evolutionary repercussions.

XVII.

TITLE: Cheiridial Malformations in the Free-ranging Macaques of Kowloon, H.K.

AUTHORS: F.D. Burton and L. Chan

This paper describes the instances of visible malformations especially ectrodactyly amongst the hybrid macaques of Kowloon and New Territories and links the observations with what is known about possible agents of teratogenesis. The low incidence of cheiridial malformation of this free-ranging, semi-provisioned population, may be related to the eating of soil whose nutrients mitigate the effect of teratogenic substances.

Saturday 9:00 - 12:00 - BIOMEDICAL & OSTEOLOGY

XVIII.

TITLE: **Postural Thermoregulation in Arashiyama West Macaques**

AUTHOR: J. Patterson

A test of the hypothesis that the postures and orientations to wind and sunlight which primates utilize are at least partially determined by thermoregulatory needs (Paterson, 1980, 1982, 1986, Stelzner and Hausfater, 1986), has been performed on data collected on a set of male **Macaca fuscata** at Arashiyama West. By appropriate partitioning of the data set, crosstabulations and multiple regressions indicate that for some postures and orientations, the thermoregulatory influences are extremely high, however, in other partitions, these influences are of very little significance. A series of illustrations of the partitions and results will be presented.

Saturday 14:00 - 16:00 - CULTURE AND DISEASE SESSION

XIX.

TITLE: **The Phenomenon of "Qi" in traditional Chinese medicine: a biocultural perspective.**

AUTHOR: Joseph K. So

Saturday 14:00 - 16:00 - CULTURE AND DISEASE SESSION

XX.

TITLE: Subadult Mortality and Bone Quality in the Kleinburg Ossuary

AUTHOR: Shelley R. Saunders and Jerry Melbye

Only a few previous workers have searched for evidence of stress in skeletal samples by examining cortical bone quality in infant and children's long bones. Because it is an ossuary, it was necessary to treat the Kleinburg Material as samples of bones rather than a single sample of individuals. These separate samples were subsequently compared with each other. We first examined a detailed mortality pattern using x-rays of subadult mandibles to assess dental calcification. The sample was cast into one-year age categories based on the calculated mean age of two deciduous and/or three permanent teeth. Macroscopic cortical bone parameters were examined in femur and radius diaphyses. These parameters included diaphyseal length and total area, medullary area, cortical area and percent cortical area from cut cross sections at midshaft.

The dental and the long bone data confirm a high number of deaths in the 1-4 year categories, particularly 2-3 year olds. The cortical bone data show a significant difference in percent cortical area of this toddler group. We discuss some of the implications of these findings to interpretations of "weanling stress" and population control in horticulturalists.

Saturday 14:00 - 16:00 - CULTURE AND DISEASE SESSION

XXI.

TITLE: **Alcoholism and the Natives of North America: Evidence of Genetic Differences?**

AUTHOR: **D. Gustafson**

Apparently higher rates of alcohol abuse, morbidity and mortality amongst native North American groups have fostered various attempts to explain the phenomenon. The most remarkable of these attempts suggest and provide empirical support for ethnic/racial differences in alcohol vis a vis genetic influences in the metabolism of alcohol. A critical examination of twin and adoption studies, alcohol metabolism investigations, and hepatic enzyme polymorphisms suggests that significant ethnic/racial differences do exist. The nature of these differences, however, do not suggest a genetic predisposition to alcoholism per se but perhaps a genetic component to the physiological consequences of alcoholism.

XXII.

TITLE: **The Dental Morphology of 45,X Females (Turner Syndrome)**

AUTHORS: **John T. Mayhall[1] and Lassi Alvesalo[2],**
Faculty of Dentistry, University of Toronto[12] and
Institute of Dentistry, University of Oulu, Finland[2]

Kirveskari and Alvesalo indicated that the morphology of the teeth of 45,X females was simplified. The present study using increased sample sizes and a different trait suggests that the conclusions of the initial study were correct. Carabelli's trait, hypocone size, and four mandibular traits were scored using the standards developed by Turner. In each instance there was a reduction in the expression of the traits when compared with the expressions observed in their male and female first-degree relatives. These results accord also with the previous ones that indicate that the teeth in 45,X females are reduced in size. It appears that these reductions are the direct result of the loss of one of the sex chromosomes.

Saturday 14:00 - 16:00 - CULTURE AND DISEASE SESSION

XXIII.

TITLE: **Torus Mandibularis in 45,X Females (Turner Syndrome)**

AUTHORS: **Lassi Alvesalo[1] and John T. Mayhall[2], Institute of Dentistry University of Oulu, Finland[1]**
Faculty of Dentistry, University of Toronto[12]

The exact mechanism that controls the expression of torus mandibularis is unknown. Some have suggested that this trait may be the result of local forces due to mastication while others have indicated that a strong genetic influence is the primary factor. Ninety-three 45,X females, 37 first-degree male relatives and 78 first-degree female relatives of all ages were examine by a single investigator to determine the presence and expression of the tori. The results for all age categories reveal that the 45,X females display a smaller occurrence of tori than either the male or female relatives. It also appears that the tori do not reach the same levels of expression as their relatives although there is an earlier expression of the trait. These results parallel the findings that 45,X females show earlier development of the dental structures. Our findings suggest that there is a strong involvement of the sex chromosomes in the development of torus mandibularis.

XXIV.

TITLE: **'Spina Bifida Occulta' in Roman Period Samples from the Dakhleh Oasis, Egypt - Implications for Medical Research**

AUTHOR: **Al Molto**

This paper examines the potential, albeit elusive, role, of palaeoepidemiological research to contemporary medicine. Specifically, it summarizes the prevalence and distribution of spina bifida occulta in skeletons from two, roughly contemporaneous, Roman Period Tombs (0-400 A.D.), in the Dakhleh Oasis, Egypt. The implications of these data for the epidemiology of spina bifida in contemporary medical research and to research on congenital disorders in general, forms the main theoretical orientation of the paper.

Saturday 14:00 -16:00 - CULTURE AND DISEASE SESSION

XXV.

TITLE: **Historic Disease Patterns in Native Populations of Canada: Alternative Methods for Exploring an Old Problem**

AUTHOR: **Ann Herring**
Department of Anthropology, University of Toronto

There are few quantitative studies of the effects of disease on historic North American Indian populations, largely owing to a lack of reliable records. Parish records of vital events, however, remain a relatively untapped source of information. Work in progress on Anglican Church of Canada records for three Manitoba parishes is described and the potential usefulness of church records for understanding historic mortality patterns among native populations is assessed.