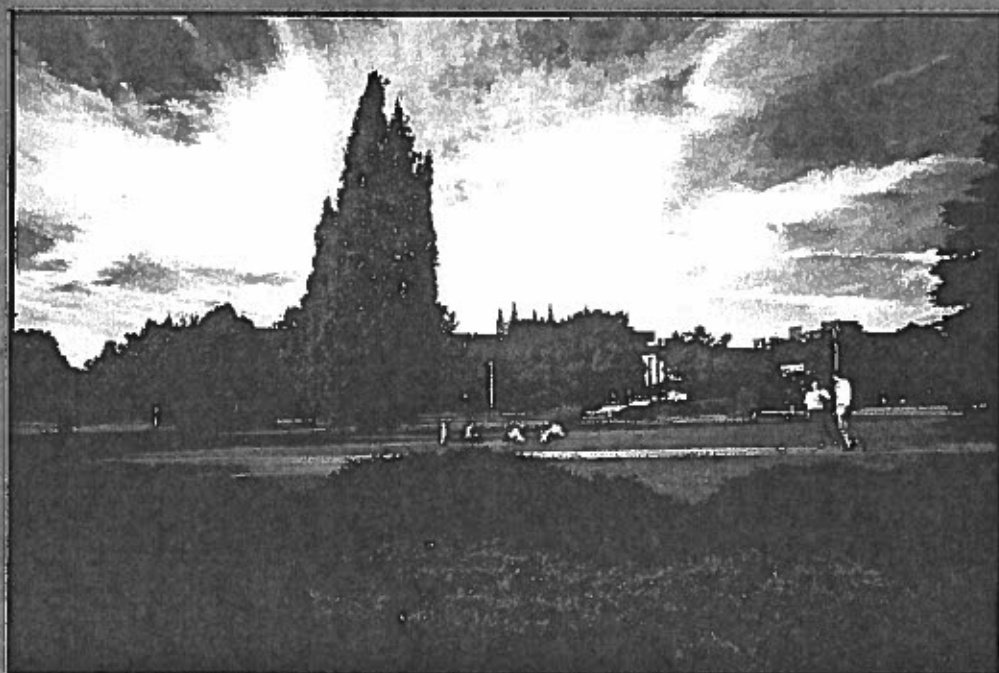


CANADIAN ASSOCIATION FOR PHYSICAL ANTHROPOLOGY
L'ASSOCIATION POUR L'ANTHROPOLOGIE PHYSIQUE AU CANADA

28th ANNUAL MEETING

BURLINGTON 2000



DEPARTMENT OF ANTHROPOLOGY
McMASTER UNIVERSITY
HAMILTON, ONTARIO



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**CANADIAN ASSOCIATION FOR PHYSICAL ANTHROPOLOGY
L'ASSOCIATION POUR L'ANTHROPOLOGIE PHYSIQUE AU CANADA
BURLINGTON, 2000**

CONFERENCE SCHEDULE

Wednesday, October 25th

- 7:30 pm **Registration**
8:00 pm **Opening Reception**

Thursday, October 26th

- 8:00 am **Registration**
8:15 am **Welcoming Remarks:**
 Ann Herring, Chair, Dept. of Anthropology, McMaster University
 Alan Harrison, Dean of Social Sciences, McMaster University
8:30 am **Skeletal Biology/ Palaeopathology**
12:10 pm **Lunch Break**
1:15 pm **Symposium 1 – Anthropology Beyond the Gates of Academia**
3:30 pm **Keynote Speaker:**
 Sandra Witelson (Department of Psychiatry & Behavioural
 Neurosciences, McMaster University)
 “Phylogenetic aspects of the human brain”
5:30 pm **CAPA Business Meeting**
7:30 pm **Local Pub Crawl**

Friday, October 27th

- 8:00 am **Registration**
8:30 am **Medical Anthropology – Human Biology**
10:30 am **Primatology**
11:50 am **Lunch Break**
1:15 pm **Dental Anthropology**
2:15 pm **Symposium 2 - The Technological Future of Physical Anthropology**
7:00 pm **Banquet: Emma's Back Porch**

Saturday, October 28th

- 8:00 am **Registration**
8:30 am **Palaeoanthropology**
10:10 am **Methods in Skeletal Anthropology**

CAPA BUSINESS MEETING AGENDA

- 1. Approval of Agenda**
- 2. Approval of Minutes from November 5th, 1999**
- 3. Business Arising from Minutes**
- 4. Standing Reports**
 - 4.1. President's Report (Lazenby)
 - 4.2. Secretary-Treasurer's Report (FitzGerald)
 - 4.3. Newsletter Editor's Report (Lovell)
- 5. New Business**
 - 5.1. CAPA constitution (Lazenby/Parish/Cybulski)
 - 5.1.1. Motion 2000-01: That the revised CAPA constitution be accepted.
 - 5.2. Secretary-Treasurer in absentia
 - 5.2.1. Motion 2000-02: That for the term of the current Secretary-Treasurer, a stipend in the amount of \$200.00 be approved toward assisting with account management during his absence.
 - 5.3. Ad Hoc Committee on NSERC/SSHRC Liaison (White/Wood)
 - 5.4. CAPA Mailing list and Web page (FitzGerald)
 - 5.4.1. Motion 2000-03: That an annual stipend to the webmaster in support of the CAPA webpage in the amount of \$200.00 be approved.
 - 5.5. Student Prizes
 - 5.5.1. Criteria and Judging (Lazenby)
 - 5.5.1.1. Motion 2000-04: That the recommendations for judging student papers from the ad hoc committee be accepted.
 - 5.5.2. Student Prizes and Joint Authorship (Lazenby)
 - 5.5.2.1. Motion 2000-05: that student presentations jointly authored with supervisors or other PhD holders be considered eligible for a student prize providing that the student is (1) a member of CAPA in good standing; and (2) the student author is the major contributor to the work
 - 5.5.2.2. Motion 2000-06: that motion 2000-05 be effective for the current competition.
 - 5.6. Newsletter Frequency (Lovell)
 - 5.6.1.1. Motion 2000-07: That the CAPA newsletter move to an annual from biannual production schedule
 - 5.7. Future Meetings
 - 5.8. Other Business

SESSION SCHEDULE

WEDNESDAY, OCTOBER 25TH

Evening Session

Location: Nelson Room 1

7:30 pm **Registration**

8:00 pm : **Opening Reception (Cash Bar)**

THURSDAY, OCTOBER 26TH

Morning Session

Location: Nelson Room 1

8:00 am **Registration**

8:15 am **Welcoming Remarks:**
Ann Herring, Chair, Department of Anthropology, McMaster University
Alan Harrison, Dean of Social Sciences, McMaster University

TOPIC: SKELETAL BIOLOGY/PALAEOPATHOLOGY (Chair: Anne Katzenberg)

8:30 am **Analysis of prehistoric trauma data** *long bones only 0.4/person, about 45/183 show one or more*
B Glencross and L Sawchuk, Department of Anthropology, University of Toronto *higher probs. than San Pedro de Atacama*

8:50 am **Multiple deaths as a result of a single event: forensics at the origins of agriculture** *PPNB*
Deborah C. Merrett and Christopher Meiklejohn, Department of Anthropology, University of Manitoba

9:10 am *"we"* **A brief overview of the palaeopathology of northwest European peat bog bodies** *5000-600 BP 17% injury/trauma*
1500 bodies or parts / N=369, 22% juv., 85% skeletal, esp skulls.
Heather Gill-Robinson, Forensic Department, Belleville Police Service *not much evidence or ritual*

9:30 am **Stirrup court 21: the bones of an individual affected with a neuromuscular disorder of unknown aetiology**
Joseph M. Parish, Department of Anthropology, University of Missouri-Columbia

**** Eligible for the student prize**

9:50 am

Bones from the past: an osteological analysis of the palaeodemography and life History of the 19th century northern frontier in South Africa

Tanya Peckmann, Department of Structure and Function, University of Cape Town Medical School

10:10 am

Coffee Break

~~10:30 am~~

Early Peterboroughians: osteological and pathological observations
Dr. Hermann Helmuth, Department of Anthropology, Trent University

Daryl talking about Smartkrono

taphonomy interests

Member 5 = 11,000

10:50 am

The battle of Stoney Creek collection: using experimental techniques to determine trauma causality

Henry Cary, Department of Anthropology, Memorial University; and Maria A. Liston, Department of Anthropology and Classical Studies, University of Waterloo

11:10 am

Pathology of the Krapina Neandertals 125k, 1999 x ray atlas
Janet C. Gardner, Department of Anthropology, Northern Illinois University

~~11:30 am~~

Patterns of vertebral pathology and anomaly in the Quackenbush skeletons

Lilia Jimenez and Maria A. Liston, Department of Anthropology and Classical Studies, University of Waterloo

11:50 am

The Smith's Knoll Cemetery from the battle of Stoney Creek, Ontario: fragments and possibilities

Maria A. Liston, Department of Anthropology and Classical Studies, University of Waterloo

12:10 pm –
1:15 pm

Lunch Break

TOPIC:

SYMPOSIUM 1 – ANTHROPOLOGY BEYOND THE GATES OF ACADEMIA (Organizer: Jennifer Johnson, Department of Anthropology, University of Toronto)

1:15 pm

ICTY internship pgm. Kosovo finished
Anthropology as applied to human rights abuse investigations
Kathy Gruspier, Office of the Chief Coroner, Province of Ontario

1:35 pm

Mind and body: applied biomedical anthropologist in a mental health setting

Joseph So, Department of Anthropology, Trent University

MapInfo
software

1:55 pm **A century before Walkerton: using GIS for public health analysis**
Janet Padiak and L. A. Sawchuk, Department of Anthropology, University of Toronto

2:15 pm **What would a degree in physical anthropology prepare you for?**
Leslie Chan, Department of Anthropology, University of Toronto

? 2:35 pm **The world of anthropology before the world of university: teaching four-field anthropology to grade school students.**
Lise Matzke, Department of Anthropology, University of Toronto

.. 2:55 pm **Reading, writing and anthropology**
Jennifer A Johnson, Department of Anthropology, University of Toronto

3:15pm **Coffee Break**

3:30 pm - **Keynote Speaker: SANDRA WITELSON** (Department of Psychiatry
5:00 pm & Behavioural Neurosciences, McMaster University)
"Phylogenetic aspects of the human brain" A distinguishing feature of the human brain is the marked difference between the right and left hemispheres in mediating higher mental functions and in their anatomy. Language functions are closely related to these brain features. The phylogenetic course of this lateralization may be traced because it appears to be present to some degree in other species.

5:30 pm **Annual CAPA Business Meeting**

Evening Session

Location: Meet in the hotel lobby at 7:30 pm

Event: Local Pub Crawl

FRIDAY, OCTOBER 27TH

Morning Session

Location: Nelson Room 1

8:00 am **Registration**

TOPIC: MEDICAL ANTHROPOLOGY – HUMAN BIOLOGY (Chair: Joe So, Department of Anthropology, Trent University)

8:30 am **Relaxed selection and health: implications of demographic change and genetic well-being**
Robert D Hoppa, Department of Anthropology, University of Manitoba;
and Scott Pletcher, Department of Biology, University College, London

** Eligible for Student Prize

- 8:50 am **Assessing development in four-year Gibraltar children**
L.A. Sawchuk, Department of Anthropology, University of Toronto;
S.D.A. Burke, Department of Anthropology, McMaster University;
Trinidad, A., Educational Psychologist, Department of Education,
Gibraltar; Benady, S., M.D., St. Bernard's Hospital, Gibraltar; and Cox, R.,
Health Visitor, Gibraltar Health Services.
- 9:10 am **TB, the sanatorium, and the war years: The Muskoka Free Hospital
for Consumptives and World War I**
Stacie D.A. Burke, Department of Anthropology, McMaster University
- 9:30 am **The impact of quarantine on the spread of the 1918-19 flu in central
Canada**
Lisa Sattenspiel, Department of Anthropology, University of Missouri-
Columbia; and D. Ann Herring, Department of Anthropology, McMaster
University
- 9:50 am **Secular trend pattern of cephalometric parameters in Javanese**
Rio Sofwanhadi, Department of Anatomy, Biomechanics and Physical
Anthropology, University of Indonesia, Jakarta
- 10:10 am **Coffee Break**
- TOPIC: PRIMATOLOGY (Chair: Anne Zeller, Department of Anthropology,
University of Waterloo)**
- 10:30 am **Spectrographic analysis of black lemur "loud calls": evidence for
ordinal-level communication in a prosimian primate**
Ian C. Colquhoun, Department of Anthropology, University of Western
Ontario
- 10:50 am **Is there adaptive value to reproductive termination in Japanese
macaques? A test of the grandmother hypothesis**
Mary S. McDonald Pavelka, Department of Anthropology, University of
Calgary; and Linda Marie Fedigan, Department of Anthropology,
University of Alberta
- ② 11:10 am **Affiliative relationships between male white-faced capuchins:
evidence of male-bonding in a female-bonded species**
Katharine Jacks, Department of Anthropology, University of Alberta
- ② 11:30 am **The role of adult males in the rank relations of juvenile male black-
handed spider monkeys (*Ateles geoffroyi*): a case study**
Andrew MacIntosh, Department of Anthropology, University of Calgary

** Eligible for the student prize

May 16 - June 2 \$2500
internship in ancient DNA
Lakehead

11:50 am - Lunch Break
1:15 pm

Afternoon Session
Location: Nelson Room 1

TOPIC: DENTAL ANTHROPOLOGY (Chair: John Mayhall, Department of Anthropology, University of Toronto)

1:15 pm **Dental modification and social status: an analysis of burials at Altar de Sacrificios**
Jaime Ginter, Department of Anthropology, University of Western Ontario

1:35 pm **A longitudinal study of dental arch size in untreated individuals from 4 to 20 years of age**
Sherry Fukuzawa, Department of Anthropology, University of Toronto

1:55 pm **Age related patterns of disruption in dental enamel formation of a postclassic Maya sample**
Alexis E. Dolphin, Department of Anthropology, University of Massachusetts

TOPIC: SYMPOSIUM 2 - THE TECHNOLOGICAL FUTURE OF PHYSICAL ANTHROPOLOGY (Organizers: Tanya von Hunnius and Kristina Blyschak, Department of Anthropology, McMaster University)

2:15 pm **A direction of aDNA in the new millennium**
Tanya von Hunnius, Department of Anthropology, McMaster University

2:35 pm **Using ancient DNA to infer kinship structure from past peoples**
J. Christopher Dudar, Department of Anthropology, University of Florida;
John Wayne, (Department of Pathology), and Shelley R. Saunders
(Department of Anthropology), McMaster University

2:55 pm **The use of computer software programs for histological age estimation of the clavicle from a nineteenth century cemetery sample**
Kristina Blyschak, Department of Anthropology, McMaster University

3:15 pm **Coffee Break**

3:45 pm **Advancing methods and hypotheses in palaeohistology**
Susan Pfeiffer, Department of Anthropology, University of Toronto

** Eligible for the student prize



4:15 pm **Thin-plate spline: a graphical computer-based shape analysis program and its use in physical anthropology**
Marc J. Lichtenfeld, Department of Anthropology, University of Western Ontario

4:35 pm **Positive Identification of an Early Pioneer in Alberta**
M. Anne Katzenberg, Gerald A. Oetelaar (Department of Archaeology) and Joy Oetelaar (Department of History) University of Calgary; C.M. FitzGerald, Institute of Archaeology, University College, London; Shelley Saunders, Department of Anthropology, McMaster University; and Dongya Yang, Department of Anthropology, Simon Fraser University

- A. Introduction
- B. Age estimation using enamel microstructures
- C. Sex determination and comparison with living relatives, using DNA

5:15 pm **Discussion period led by N. Lovell and S. Pfeiffer**

Evening Session

Location: Emma's Back Porch at 7:00 pm

Event: Banquet

SATURDAY, OCTOBER 28TH

Morning Session

Location: Nelson Room 1

8:00 am **Registration**

TOPIC: **PALAEOANTHROPOLOGY (Chair: Charles FitzGerald, Institute of Archaeology, University College, London)**

8:30 am **Preliminary analysis of the first ever recovered cranial base of *Paranthropus robustus***
Darryl J. de Ruiter and Lee R. Berger, Palaeoanthropology Unit for Research and Exploration, Bernard Price Institute for Palaeontology, University of the Witwatersrand, South Africa

8:50 am **Comparative primate craniogenesis**
G. H. Sperber, Department of Anthropology, University of Alberta

** Eligible for the student prize

- 9:10 am **Omomyid (tarsiiformes) primates from an eocene basin margin assemblage, South Pass, Wyoming**
K.M. Muldoon, Department of Anthropology, Washington University; G.F. Gunnell, Museum of Palaeontology, University of Michigan, Ann Arbor; and M. Gagnon, Department of Anthropology, University of Toronto
- 9:30 am **Scientific revolution and the genesis of scientific legendry**
Gary S. Tait, Department of Anthropology, University of Toronto
- 9:50 am **Coffee Break**
- TOPIC: METHODS IN SKELETAL ANTHROPOLOGY (Chair: Rob Hoppa, Department of Anthropology, University of Manitoba)**
- 10:10 am **Potential methodological problems when combining skeletal data from different sources for the study of secular change**
John Albanese, Department of Anthropology, McMaster University, Hamilton, Ontario
- 10:30 am **Doing it right: the use of invariant weight functions in palaeodemography**
Brad Love, Max Planck Institute for Demographic Research, Rostock, Germany; Hans-Georg Müller, Department of Statistics, University of California; and Robert D Hoppa, Department of Anthropology, University of Manitoba
- 10:50 am **The victims of the victims: isotopic analysis of the dental "necklaces" from the feathered serpent warriors**
Christine White, Michael Spence, (Department of Anthropology), and Fred Longstaffe, (Department of Earth Sciences), University of Western Ontario
- 11:10 am **Ancient DNA from the Peruvian north coast**
A.L. Nelson, Department of Anthropology, University of Western Ontario; J. Wang and R.A. Hegele, Robarts Research Institute, London
- 11:30 am **Sex and the single metacarpal**
Richard Lazenby, Anthropology Program, University of Northern British Columbia
- 11:50 am **An intriguing skeleton from the Natufian/Kebaran period, Petra, Jordan**
S. Pfeiffer, J. Stock, M. Chazan, C. Katzmarzyk, Department of Anthropology, University of Toronto; and J. Janetski, Department of Anthropology, Brigham Young University

** Eligible for the student prize

ABSTRACTS

Albanese, John "Potential methodological problems when combining skeletal data from different sources for the study of secular change". (Department of Anthropology, McMaster University) (Student Paper)

4 Previous research by Meadows-Jantz and Jantz (1999), [American Journal of Physical Anthropology 110:57-67] has shown that skeletal measurements can be useful for the study of secular change in size and proportion. Combining several different sources of data, the Huntington Collection, the Terry Collection, World War II Casualties, and the Forensic Anthropology Data Bank, Meadows Jantz and Jantz found that secular change was greater in males than females, greater in the lower limb bones than the upper limb bones, and greater in "Whites" than "Blacks" but not at a statistically significant level. The purpose of this research is to determine whether it is methodologically sound to combine data from different sources into racial categories for an analysis of secular change. Change in the femur length in the Terry Collection and the Coimbra Collection were examined. It was found that the results from an analysis of secular change can be very misleading when the samples from different collections are combined. No significant secular change was found in males or females in either the Terry Collection or the Coimbra Collection regardless of race when each collection was analyzed separately. When both collections were analyzed together, secular change was visible in males and statistically significant in females. The secular change in males and females in the combined-collections analysis is a result of the source of the data and the combination of the data from different collections. It is concluded that the source of the data (the collection) is more important than dividing a sample into biologically meaningless racial categories.

Bathurst, Rhonda "Temperate parasite preservation: archaeological evidence from the pacific northwest coast". (Department of Anthropology, McMaster University) (Student Poster)

2 Possible evidence of endoparasites have been recovered from shell midden deposits from several auger-tested sites in the Namu region of coastal Northwest British Columbia. Sediment-encrusted fish vertebrae from these cultural contexts have yielded potential examples of preserved helminth eggs. Archaeoparasitology is a growing field of archaeological study which has supplied evidence of health status, meal preparation, hygienic practices, population size, migration and settlement patterns in related studies throughout the Americas. This is the first evidence of its kind documented from this temperate region of Canada.

Blyschak, Kristina "The use of computer software programs for histological age estimation of the clavicle from a nineteenth century cemetery sample". (Department of Anthropology, McMaster University) (Student Paper)

The following paper reports on the accuracy of published methods using bone histomorphometry for predicting age at death of individuals from a nineteenth century

cemetery sample. The histological methods of Stout and Paine (1992) and Stout et. al. (1996) were tested on a small sub-sample of clavicles, all males, from the St Thomas' cemetery. These methods are based upon an expected age associated increase in osteon population density (OPD). Examination of each thin section was carried out with an Olympus BX 40 TLM microscope at 100x magnification using polarized light. To facilitate data collection, all histomorphometric variables were counted and measured directly from photomontages created using a Polaroid™ digital camera to first capture the images and then employing a computer software program, PhotoShop 5.5™, to construct the montages. All histomorphometric measurements were attained using an image measurement software program, Sigma Scan 5.0™. Using this methodology, it was found that both the equations of Stout and Paine (1992) and Stout et. al. (1996) consistently underestimated age in all individuals examined. Simple linear regression analysis between age and OPD demonstrated no significant relationship between these two variables in this small sub-sample. Investigation of other histomorphometric variables included osteon area, Haversian area, osteon cross-sectional area and the number of drifting osteons for each burial. Linear regression analysis demonstrated that the only significant relationship at the 0.05 level occurred between osteon dimensions and age. This relationship was also supported by a one-way ANOVA analysis. The absence of the expected relationship between age and OPD in this sub-sample and the consistent underestimation of age is interpreted in light of numerous intrinsic and extrinsic factors currently known to affect bone remodelling. Some of these factors include the clavicle's possible response(s) to mechanical strain, diet, alcohol consumption, preservation and current histomorphometric techniques. Furthermore, the possibility that the clavicle is not a reliable bone from which accurate age estimates can be derived is explored.

2
too long

Burke, Stacie D.A. "TB, the sanatorium, and the war years: the Muskoka Free Hospital for Consumptives and World War I". (Department of Anthropology, McMaster University)

Historically, a number of Canadians suffering from tuberculosis were able to secure admission into a handful of TB sanatoria. While true cures were elusive, many simply sought some reprieve to their long-standing illnesses. Over the course of treatment, the TB sanatoria served to remove those suffering from tuberculosis from the strains of their daily lives while focusing on rest and tranquillity. Located in remote Gravenhurst, for example, the Muskoka Free Hospital for Consumptives often left TB patients physically and socially isolated from their family and friends and from community events at large. With the outbreak of World War I, however, subtle shifts were noted in the role and place of this TB sanatorium. As men with mild cases of TB left the institution to join Canadian forces overseas, the MFHC also became the receiving ground for those soldiers who became ill during their service. This research traces the social and demographic evolution of the Muskoka Free Hospital over this dynamic and disruptive period.

Cary, Henry and Liston, Maria A. "The battle of Stoney Creek collection: using experimental techniques to determine trauma causality". (Department of Anthropology, Memorial University; Department of Anthropology and Classical Studies, University of Waterloo)

In the early morning hours of June 6th, 1813, twenty-one American troops were killed in the short but fierce engagement with British forces which was to become known as the Battle of Stoney Creek. Their recently excavated remains from Smith's Knoll military cemetery in Stoney Creek, Hamilton-Wentworth County, were analysed at the University of Waterloo and evidence believed to be combat related trauma was found. Due to the lack of forensic data on trauma caused by early nineteenth century weaponry, experiments were conducted on pig carcasses in the hope that the results would give an indication of the type of trauma evident on the Stoney Creek remains. In partnership with staff from Fort George Niagara National Historic Site, Niagara-on-the-Lake and Historic Fort Erie, Fort Erie, experiments using reproduction bayonets and muskets similar to those used by British troops at the Battle of Stoney Creek were conducted on pig ribs and crania. The results of the bayonet experiment yielded indicators nearly identical to those marks found on the Stoney Creek rib fragments. However, the ballistics tests using .68 calibre musket balls from a series of ranges gave inconclusive results. This paper will discuss the trauma apparent on the Stoney Creek remains and experimental techniques used to determine causality.

Chan, Leslie "What would a degree in physical anthropology prepare you for?". (Department of Anthropology, University of Toronto)

Graduate students who spend long years as "academics-in-training" face a number of hurdles when they search for jobs outside of the academy. Chief among these is the perception that the specialized skills and narrow expertise graduate students possess are of little use in the "real world". Contrary to this misconception, many of the analytical, communication, and technical skills acquired by graduate students are highly transferable and are in great demand in an increasingly knowledge driven society. This talk highlights recent job trends and points to some career strategies which students should be aware of when they are preparing to venture beyond the ivory tower.

Colquhoun, Ian C. "Spectrographic analysis of black lemur "loud calls": evidence for ordinal-level communication in a prosimian primate". (Department of Anthropology, University of Western Ontario)

While the analysis of primate vocalizations has been used to address questions of systematics and taxonomy, greater impact has come from those analyses which have demonstrated the symbolic content of primate vocalizations. As in other areas of primate research, most vocal analyses of this latter type have focussed on anthropoid primates. Species of group-living lemuroids, however, provide an additional source of comparative information in the study of the meanings of primate vocalizations.

During a study of black lemur socioecology at Ambato Massif, I recorded numerous black lemur vocalizations. Three distinct "loud calls" were noted. A short, sharp "hack" vocalization was heard fairly often in various situations where animals had been surprised or startled (e.g., by a falling tree branch, non-predatory birds suddenly taking flight, or

the sighting of humans). Most commonly heard was a generalized "loud call", or "bark", that was given in many different situations, such as inter-group encounters, the sighting of small to mid-size raptors, and the "mobbing" of large boa constrictors. The most distinctive "loud call", the "scream-whistle", was noted in only two particular types of situations. During the day, it was invariably given upon sighting the Madagascar harrier hawk, the largest raptor species commonly seen at Ambato. On one occasion -- a brightly moonlit night -- black lemurs were recorded giving "scream-whistles" in response to swooping fruit bats (i.e., another species of similar wingspan to the Madagascar harrier hawk). "Scream-whistles" directed at fruit bats could be explained as due to young animals who had not yet learned to reliably identify harrier hawks. This explanation is problematic, however, as no generalized use of "scream-whistles" toward all large raptor species was ever heard. Rather than being a vocal signal solely symbolizing the harrier hawk, a more parsimonious explanation of the "scream-whistle" is that it carries ordinal information, signalling not just that something large has been sighted overhead but that something extremely large (and potentially dangerous) is overhead.

de Ruiter, Darryl J., and Berger, Lee "Preliminary analysis of the first ever recovered cranial base of *Paranthropus robustus*". (Palaeoanthropology Unit for Research and Exploration, Bernard Price Institute for Palaeontology, University of the Witwatersrand, Johannesburg, South Africa)

A well preserved c. 1.5 million year old hominid cranial base (SKW 18) was recovered from the Hanging Remnant at Swartkrans in 1968 but remained in breccia and un-described. It was recently prepared in order to remove its surrounding matrix and assess the completeness of the specimen. SKW 18 is most probably a part of SK 52, a previously recovered hominid maxilla with dentition that has been assigned to *Paranthropus robustus*. Based on its morphology and its probable association with SK 52, the SKW 18 cranial base is assigned to a male *Paranthropus robustus*, and as such, represents the first recovered well-preserved cranial base for this species.

The specimen shows some remarkable anatomical detail preserved in the basicranium, middle and posterior cranial fossae. Due to its completeness and lack of distortion in certain areas, SKW 18 allows observations on aspects of morphology never before observed in *Paranthropus robustus*. These include direct observation of the internal sphenoid, both auditory meati and a well preserved foramen magnum. We here present the first description of SKW 18 and discuss its morphology and significance.

Dolphin, Alexis E. "Age related patterns of disruption in dental enamel formation of a postclassic Maya sample". (Department of Anthropology, University of Massachusetts) (Student Paper)

One of the most appealing aspects of studies of linear enamel hypoplastic defects is the potential for identifying patterns of stress experienced during early childhood by members of past populations. While there are numerous aetiological factors influencing the disruption of enamel development, peak periods of childhood stress are often seen as primarily representing the physiological affects of weaning behaviours. Using Postclassic Maya samples from Marco Gonzalez and San Pedro, Belize, age related fluctuations in childhood stress will be examined. The peak age-at-formation of linear enamel hypoplastic defects for both sites was 3.5 to 4.0 years of age, followed by another rise in

3 enamel disruption from 5.0 to 5.5 years of age. These data correspond with those observed for other Maya samples, and will be interpreted in light of ethnohistoric and archaeological evidence. While "peak" frequencies of LEH defects are often used to pinpoint periods of childhood stress related to particular "events" such as weaning, this paper will use the mean number of stress episodes by age-at-formation to examine the *process* of childhood fluctuations in health. Understanding the cumulative process of childhood health as represented by enamel hypoplastic defects requires more critical analysis of our current methods for analysing timing data and what they are in fact representing.

Dudar, J. C., Wayne, J. and Saunders, S.R. "Using ancient DNA to infer kinship structure from past peoples". (Department of Anthropology, University of Florida; Department of Pathology, McMaster University; Department of Anthropology, McMaster University)

Stoneking (1995:1261) has argued that, "...for the real anthropological potential of ancient DNA to be realized, we need to see more studies analyzing the sorts of questions that anthropologists are interested in." Studying kinship structure in past societies can yield important clues in the understanding of human biological evolution and cultural change through time. Several research strategies have been proposed over the years to address this issue: material culture pattern analysis, mortuary analysis, non-metric skeletal trait analysis, and most recently ancient DNA (aDNA). Each of these approaches have their own set of theoretical limitations and methodological challenges, however only aDNA can provide an accurate characterization of genotype and thus generate probabilities of individual biological relationships.

This paper presents statistical methodologies that may be used to calculate individual aDNA kinship probabilities: the Parentage Index (PI) utilizes short tandem repeat (STR) DNA loci, and the calculation of the Probability of Kinship by Chance (PrKBC) uses mtDNA sequence data (and Y-chromosome loci, although not explored in this study). These statistical approaches were borrowed from paternity testing (Brenner 1993) and forensic science (Allen et al. 1998) and altered to suit the identification of individual genetic relationships within the context of an archaeological burial site.

Reconstructions of past societies by definition necessitates the synthesis of other sources of culturally relevant information. Therefore, recommendations are also presented for the integration of this biological kinship approach with other equally important data sources through a practical application on a small (N=38) pioneer cemetery from Oshawa, Ontario. A coffin hardware chronology and historic records analysis, as well as osteological estimates of sex and age-at-death, assisted in the estimation of the broader social kinship structure of these pioneers.

FitzGerald, Charles "Age Estimation Using Enamel Microstructures". (Institute of Archaeology, University College, London)

The histological microstructures of enamel, cross striations and striae of Retzius, are formed with regular periodicity during crown development. Utilizing these microstructures and the neonatal line, laid down at birth, the age at death of the Cochrane infant was estimated from three tooth germs extracted from the infant's remains. These were embedded in epoxy and two longitudinal thin sections from mid-crown were from

prepared from each tooth. One, the maxillary I2, had its crown complete at 2.4 months making it of no value in establishing age. However, crown completion was incomplete in the other two teeth, a maxillary canine and a maxillary M1. On the basis of analysis of these the age at death of the infant was estimated as occurring at between 4.7 and 5.1 months after birth.

Fukuzawa, Sherry "A longitudinal study of dental arch size in untreated individuals from 4 to 20 years of age". (Department of Anthropology, University of Toronto) (Student Paper)

The purpose of this study was to evaluate on a longitudinal basis the changes in intercanine and intermolar widths and depths of individuals from ages 4 to 20 years. Eighty females and eighty males from the Burlington Growth Study were evaluated at 4, 14 and 16-20 years of age. A comparison of orthodontic measurements (i.e. on the mesio-buccal cusp) and anthropologic measurements (maximum buccal width) were assessed to identify the applicability of dental measurements in anthropological samples. In general, between 4 to 14 years of age there were significant increases in all width and depth measurements. After the eruption of permanent dentition, no significant changes were observed in the maxillary or mandibular widths. The arch depths, however, significantly decreased in the distal segment. Orthodontic and anthropologic measurements of the same teeth demonstrated similar trends over all age stages. The similarity of changing dental arch parameters by these measurements allows for the comparability of orthodontic samples with anthropologic samples, where attrition or caries frequently prevent orthodontic measurements to be taken.

past tense

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3

Gardner, Janet C. "Pathology of the Krapina Neandertals". (Department of Anthropology, Northern Illinois University, DeKalb, Illinois)

The Krapina hominid skeletal collection from the Husnjakovo rock shelter, located 40 kilometres north of Zagreb, Croatia, represents the largest sample of Neandertal remains discovered. A recent macroscopic study of the collection was undertaken to record identifiable pathologies. The extensive size of the collection makes it informative in developing an understanding of Neandertal health; however, due to its fragmentary and co-mingled state, discussion relating to intersample comparison is limited. Preliminary results will be presented and consideration will be given to future research questions.

Generally the majority of the bones present in the sample represent osteologically healthy individuals, although several exceptions are noted. While this conclusion concurs with the results of the radiographic survey by Kricun *et al.* (2000), debate arises in regards to diagnoses of specific conditions. In addition to previously reported pathologies, the current study presents new findings that have not been discussed in the literature to date. Most notable are subtle changes to cortical bone surface that are idiopathic in nature. These are in addition to previously described cranial and post-cranial trauma, non-union (or possible amputation), and osteoarthritis.

3 → 2

Gill-Robinson, Heather "A brief overview of the palaeopathology of northwest European peat bog bodies". (Forensic Department, Belleville Police Service)

The profusion of popular press, television programmes and Internet websites related to archaeology in general, and bog bodies in particular, is somewhat misleading. It is all too easy to assume that some authors who write brief articles on bog bodies are providing the audience with all of the information that needs to be known - and that the information is accurate. This is not always the case. A second related problem is that with the bog body information in print and on television is that authors have a tendency to rely upon the save few very well-preserved bodies. This research presents evidence that hundreds of lesser-known bodies, often ignored by writers and some researchers, reveal very different information.

As part of the research for my Master's degree and extensive literature and records search was undertaken. The information pertaining to the bog bodies was correlated using a database. In total 369 records, containing information in 32 data fields, were completed. This information was then analyzed to provide basic data on bog body age at death, date of death, sex, location, preservation status and palaeopathology.

The data revealed 2:1 male: female sex ratios; nearly 1/4 of the bodies were under age 18 at death and nearly 15% of the bodies were restrained in the bog by some means. Finally, the recorded levels of trauma and palaeopathology do not fully support the idea that bog bodies, as a population, were physically abused at the time of death or suffered violent deaths.

Ginter, Jaime "Dental modification and social status: an analysis of burials at Altar de Sacrificios". (Department of Anthropology, University of Western Ontario) (Student Paper)

2
summary
A major concern of Mesoamerican archaeologists has been trying to interpret and understand the practices and lifeways of the Maya. In particular, the construction and representation of social status has been one aspect of Maya life that has received considerable attention. In Maya studies, research has attempted to infer social status from health, diet, and mortuary practices. However, attempts to determine if a relationship exists between social status and dental modification have been lacking. This paper seeks to determine if an association between social status and dental modification can be determined from an analysis of individuals with and without dental modification at Altar de Sacrificios. Before any association between these two variables can be examined, the often difficult practice of identifying social status in a mortuary context must be accomplished. Various factors including burial context and type, head orientation, body position, grave goods, age, sex and health were analysed in an attempt to determine the status of individuals within Altar de Sacrificios society. Due to the fact that at many Maya sites a strong relationship exists between gender and social status, particular attention will be paid to the gender differences in dental modification at the site. The preliminary results of this analysis indicate that a relationship between social status and dental modification does not exist at Altar de Sacrificios.

Glencross, B. and Sawchuk L. "Analysis of prehistoric trauma data". (Department of Anthropology, University of Toronto)

Traditional analyses of "accidental" trauma in prehistoric skeletons mainly involve the description of individual cases. Then, in the 1970's palaeopathologists began looking at trauma data in a broader context. Using the biocultural approach, biological, cultural, and environmental factors leading to injury, and the effects on individuals and populations were identified through a synthesis of skeletal, clinical, and archaeological data. While this line of inquiry has generated many theoretically intriguing hypotheses, few have been subject to the rigors of empirical testing. This presentation considers the usefulness of Poisson regression models in the analysis of bioarchaeological trauma data. The methodology is illustrated with an example from a study of long bone fractures in skeletons recovered at the archaic period site, Indian Knoll (150H2), Ohio County, Kentucky. The occurrence of fracture episodes amongst individuals was tested to determine the nature of events leading to injury. Preliminary results show distributions that fit the Poisson model of discrete, random events that may be interpreted as "accidental" trauma.

Gruspier, Kathy "Anthropology as applied to human rights abuse investigations". (Office of the Chief Coroner, Province of Ontario)

This paper will discuss the use of anthropology in the investigation of human rights abuses. The discussion will surround forensic work done over the past year in Kosovo and East Timor. The work in East Timor involves using anthropological knowledge to teach the indigenous people how to set up a new infrastructure for death investigation, including lecture to the judges and the judiciary as they are appointed.

Helmuth, Hermann "Early Peterboroughians: osteological and pathological observations". (Department of Anthropology, Trent University)

Human skeletal remains from a 19th c. cemetery now housing the Peterborough Armoury were unearthed in 1998 and 1999. Ten skeletons and remains of some 30 commingled individuals are represented, comprising possibly 20 males and 12 females, five subadults and 35 adults. Cranial measures prove the skeletons to be Europeans. Overall health must have been poor with severe signs of degenerative joint disease, nutritional-metabolic deficiencies, some fractures and a high "diseased and missing" dental index in addition to strong periodontal disease and frequent abscesses.

Hoppa, Robert D., and Pletcher, Scott "Relaxed selection and health: implications of demographic change and genetic well-being". (Department of Anthropology, University of Manitoba; Department of Biology, University College, London)

The demographic evolution of human population structure can be reconstructed from both archaeological and genetic evidence. Archaeological evidence has demonstrated the development of localized, regional populations with increasing population densities and genetic mixture over time. Genetic evidence has also contributed significant information, fuelling discussions about the origins of modern human populations as well as demographic collapse among prehistoric human populations. Regardless of specific

issues related to these areas, a clear trend toward larger, more globalized, aging populations has been observed for humans. Explanations for the aging human population include dramatic reductions in age-specific mortality rates due to scientific and societal advancements.

There is evidence for extremely high deleterious mutation rates in hominids, and coupled with the reduced influence of natural selection in modern societies, the accumulation of mildly deleterious mutations might pose a health burden worthy of serious consideration. In this paper we examine the potential rising impact of the accumulation of mutations in modern human populations. It is proposed that anthropological data regarding long-term changes in age-specific selection, the frequency and magnitude of population bottlenecks, and changes in geographic structure of human populations, together with biodemographic data concerning the age-specific properties of new mutations can be used with evolutionary models of aging to provide insight into the biological and societal implications of an aging population. Key areas for future exploration of this issue are discussed.

Jacks, Katharine "Affiliative relationships between male white-faced capuchins: evidence of male-bonding in a female-bonded species". (Department of Anthropology, University of Alberta) (Student paper)

2
length
I investigated male affiliative behaviour in four multi-male groups of white-faced capuchins (*Cebus capucinus*) in Santa Rosa Park, Costa Rica. As indicators of male affiliative relationships I examined the amount of time males spent in non-aggressive contact, contact rest, grooming, and proximity with other group members. There were no significant differences in the time males spent affiliating with coresident males or females but the range of variation in male-male affiliative interactions was much greater than that between males and females. In an attempt to explain this variation I examined the correlation between the four measures of affiliation and several factors which may influence the development of affiliative relationships between males: age relationship, group size, adult sex ratio, rank distance, and the minimum number of months males have resided together. The age relationship between males was positively associated with male-male grooming interactions. That is, dyads containing at least one subadult male spent more time grooming than adult male dyads. Group size was negatively correlated with total contact, contact rest, and grooming, while adult sex ratio (M:F) was positively correlated with total contact and grooming. This indicates that affiliative behaviour is more frequent between males residing in smaller groups with sex ratios closer to parity. Total contact, contact rest, and grooming interactions were all positively correlated with the length of time male dyads have resided with one another. The time male dyads spent in proximity to one another was not significantly correlated with any of the independent variables investigated.

White-faced capuchins are labelled as a female-bonded species; however, the data presented here demonstrate that some males also form strong, enduring (due to parallel emigration), affiliative bonds with one another. These males display high levels of mutual tolerance, cooperation and preferential affiliation; qualities used to identify male-bonding in other primate species. I propose that white-faced capuchins have the capacity to be dual bonded (both male and female-bonded). The findings I present add to the increasing evidence of the intraspecific and intrageneric variation observed in male primate

relationships and illustrates the importance and necessity of long-term studies on multiple groups and populations. (Student paper)

Jimenez, Lilia and Liston, Maria A. "Patterns of vertebral pathology and anomaly in the Quackenbush skeletons". (Department of Anthropology and Classical Studies, University of Waterloo)

In 1972 a mass grave containing 13 individuals was excavated at the Quackenbush site in Ontario. The site is located about 30 km north of Peterborough and probably dates to the Late Woodland Iroquoian tradition, although the cultural remains have not yet been published. The skeletal remains were originally published by Dr. Hermann Helmuth of Trent University, who graciously allowed us to re-examine the material. This study focuses on the vertebral pathology of the 8 complete adult skeletons (youngest is 25-30 and oldest 62; 4 females and 4 males). We scored the vertebrae for evidence of osteophytosis the bodies, intervertebral disk compression, articular facet pathology, laminal spicules (caused by the ossification of the ligamentum flavum), and other developmental anomalies. A pattern analysis was used to examine the data for patterns of stress in the cervical, thoracic and lumbar vertebrae, differences in right and left sides, and differences in patterns associated with sex and age differences.

Johnson, Jennifer A. "Reading, writing and anthropology". (Department of Anthropology, University of Toronto) (Student Paper)

Anthropology presents a unique perspective on human populations, their history and their behaviour. Bringing anthropology to the public is important as it teaches valuable skills for living in a multicultural society like Canada. There are numerous ways to reach out and bring anthropology to our youth including incorporating anthropology into classrooms. As students, we are in a unique position to assist in reaching out and bringing our knowledge and skills to students and teachers at various levels in the education system. This presentation will begin with a brief overview of the role that anthropology plays in Ontario secondary school education. This will be followed by a discussion of personal experiences and practical ideas about how to present anthropology to our youth. These ideas include assisting schools and local organizations in developing anthropological projects for students or having students come to the university for field trips. Finally, some of the resources that are available for those interested in teaching anthropology to our youth will be presented. 3→4

Katzenberg, M. Anne "Introduction". (Department of Archaeology, University of Calgary)

Salvage excavation of a small historic cemetery in Cochrane, Alberta resulted in the recovery of one infant coffin burial. All other graves in the small church cemetery had already been excavated earlier in the 20th century and the individuals had been moved to the newer town cemetery. Historical research pointed to the most likely families to have used the small cemetery around 1900, and further suggested that the remains encountered were those of a six-month-old girl. Traditional osteological methods of age determination (dental crown development and diaphyseal length) gave an age range of 2 to 4 months. Because historical research pointed to a particular individual with living

descendants in the town today, we sought to obtain a more precise age by analysis of enamel microstructure, and to determine sex from presence or absence of the Y chromosome. If these methods supported the historical research, then we planned to compare mtDNA with that of living descendants. This paper presents the background to work carried out by Charles FitzGerald and Dongya Yang.

Lazenby, Richard "Sex and the single metacarpal". (Anthropology Program, University of Northern British Columbia)

The human second metacarpal has been the focus of numerous studies related to intra- and interpopulation variation in growth and development, health and disease, aging, and function. A locus of study has been the explanatory power of sex / gender in the interpretation of this variability. This paper explores the pattern of adult sexual dimorphism in second metacarpal gross and cross-sectional morphology in two populations, 19th century EuroCanadian settlers and late prehistoric / historic Inuit (Thule/Dorset?). Population-specific differences in overall size and shape, articular morphology, and geometric measures such as percent cortical area, resistance to bending and torsion demonstrate unique patterns of genic-behavioral interaction. These results are contextualized in terms of known or inferred differences in sexual division of labour, and justify a critique of global models of behavioral inference applied to material of unknown or dubious population affinity, E.g., the fossil record.

Lichtenfeld, Marc J. "Thin-plate spline: a graphical computer-based shape analysis program and its use in physical anthropology". (Department of Anthropology, University of Western Ontario) (Student Paper)

length
3
Biomorphometrics is a subdiscipline of multivariate analysis and is defined as the study of variation and change between biological shapes with the consideration of growth. Thin-plate Spline is a biomorphometric tool that can be used to graphically visualize statistical analyses as it suggests many biometric insights. Thin-plate spline analysis shows the geometric difference between two configurations as a continuous deformation using a regression function with homologous landmarks in order to minimize the bending energy. This bending energy is thought of, as the minimum energy needed to bend an infinitely thin metal plate over a set of landmarks so that the height of each of the landmarks is equivalent to the coordinates of the matching points in the other form. Thin-plate Spline has been credited with two important aspects. First, that it allows for graphical analysis of depicted shapes, and second, that it allows for rigorous statistical testing of the aspects of the variation (Lynch et al., 1996). Types of study where Thin-plate Spline is useful include a comparison of two populations of single forms, populations of specific comparisons and comparisons between populations of contrast; however, these can all be brought down to the level of the individual specimen very easily. Thin-plate Spline is also very useful for studies that include small sample sizes.

This study has two main goals. Firstly, to define how Thin-plate Spline can be used by physical anthropologists. Secondly, to demonstrate its use by applying James Rohlf's Thin-plate Spline computer-based graphical program TPSPLINE (1997) to 10 Postclassic artificially culturally modified Maya crania. TPSPLINE can show the nature of a particular artificially modified cranium quantitatively by giving a bending energy score,

while qualitatively (graphically) showing how the deformation was carried out as compared to a non-modified shape.

Liston, Maria A. "The Smith's Knoll Cemetery from the battle of Stoney Creek, Ontario: fragments and possibilities". (Department of Anthropology and Classical Studies, University of Waterloo)

In 1998-1999 the city of Stoney Creek, Ontario undertook an extensive renovation and redesign of the small battlefield cemetery park associated with the battle of Stoney Creek on 6 June 1813. The site traditionally was believed to contain the burials of the American soldiers killed in the battle, but the only markers were modern. Sampling and excavation by RGS Archaeological Services recovered a large quantity of human remains in the area where a wheel-chair ramp would be built. The skeletons had been repeatedly disturbed during the later farming and building use of the area and the bones were commingled and very fragmentary. The initial appearance of the skeletal material was disappointing and offered little promise for research. However, using a large team of both advanced and beginning undergraduate students from the University of Waterloo and Wilfred Laurier University, the bones were reconstructed and inventoried, and a number of research projects were carried out. The analysis of this material has yielded considerable information about the demographics, health status and general condition of soldiers during the War of 1812. Experimental reconstructions have provided information about the effects of 19th century military technology on bone. In addition, the project has offered excellent opportunities for teaching, student research, and building liaisons between the university, city government, and Parks Canada.

Love, B., Müller, Hans-Georg, and Hoppa, R.D. "Doing it right: the use of invariant weight functions in palaeodemography". (Max Planck Institute for Demographic Research, Rostock, Germany; Department of Statistics, University of California, Davis; Department of Anthropology, University of Manitoba)

The two critical issues in palaeodemography explored for most of the last three decades have been accuracy of ageing techniques, and representativeness of samples. The traditional approach to palaeodemography has been to focus on individual age estimates, and then aggregate those to reconstruct population level parameters. However, more recently researchers have begun to try and estimate mortality profiles directly from the distribution of age-indicator data. The problem of estimating the lifetime distribution from osteological samples using age indicator stages is shown to be an inverse statistical problem. If it is demographic data that is desired, then the traditional approach of estimating individual age at death is in fact incorrect and an alternative theoretical approach is required - one in fact that begins with the overall age structure being estimated, and individual estimates of age derived secondarily.

It follows from Bayes' theorem that first estimating individual age-at-death and then combining these estimates to obtain a mortality profile is not a correct procedure. Using the concept of an invariant weight function associated with each osteological age indicator stage or category, provide the probability that a specific age indicator category is observed, given age-at-death. These functions can be estimated by nonparametric kernel regression from a reference data set and in their entirety capture the relevant stochastic properties of a chosen age indicator. For the actual estimation of the mortality

schedule a parametric distribution for the lifetimes in the target sample is assumed. Maximum likelihood is used to identify the unknown parameters of this distribution. As some components in the relevant likelihood are estimated nonparametrically, one has a semiparametric model. The reliability of this approach is demonstrated on both simulated data, and on known-age archaeological samples. The results show that this method is statistically valid, consistent and asymptotically bias-free method for obtaining mortality profile from osteological age indicator data.

Lovell, Nancy "Old techniques, new approaches, and surprising results". (Department of Anthropology, University of Alberta)

Transmitted light microscopy, a well established technique for examining the histological structure of human bone, was used to examine the penetration of consolidants applied to archaeological bone in a comparison of the consolidants' absorption characteristics. Contrary to the (naive?) expectation that penetration into compact bone would occur from the periosteal and endosteal surfaces toward each other, a non-random pattern of penetration that appears to be a function of the relative age of Haversian systems (osteons) was observed. These results suggest that diagenetic adsorptive contamination and chemical exchange may occur preferentially within new Haversian systems and thus may help explain the variation in elemental concentrations of bone that has plagued palaeodiet studies over the past fifteen years.

MacIntosh, Andrew "The role of adult males in the rank relations of juvenile male black-handed spider monkeys (*Ateles geoffroyi*): a case study". (Department of Anthropology, University of Calgary) (student?)

The process of rank acquisition has been documented in some cercopithecine species. Rank acquisition in these species entails a polyadic process whereby mothers actively intervene on behalf of their daughters against other individuals. In contrast to cercopithecines however, wherein females are philopatric, it is the female spider monkeys that disperse. As a result of male philopatry, the role of adult males in juvenile male rank relations may be important. It has been shown that the relative rank of juvenile males among peers correlates with that of their mothers' among adult females. Presented here is a case study documenting the rank relations of two juvenile male black-handed spider monkeys (*Ateles geoffroyi*) living in captivity, and their relationships with the adult male of the troop.

4 This study is based on 52 hours of focal animal data collected on a group of spider monkeys housed at the Calgary Zoo. A female dominance hierarchy was established using dyadic agonistic interactions (displacement and aggression) between the four adult females. Dominance between the juveniles was assessed in the same way. The affiliative and agonistic interactions between the adult male and the two juvenile males are presented in this study.

The two young males did inherit the rank of their mothers in relation to each other (the highborn male was thus dominant to the lowborn male). Interventions by the mothers occurred rarely. In fact, the dominant female was never seen to intervene on behalf of her son. This is not in itself surprising, as agonistic interactions in spider monkeys are rare. The highborn juvenile male engaged in more affiliation with, and received less

aggression from, the adult male. The significance of this relationship may be important when considering rank relations in juvenile males of the genus *Ateles*.

Matzke, Lise "The world of anthropology before the world of university: teaching four-field anthropology to grade school students". (Department of Anthropology, University of Toronto) (student)

The academic world of anthropology is fascinating to both researchers, and the public in general. The very nature of anthropology concerns and connects all human beings and their primate relations. Thus, the research and study of any sub-discipline of anthropology is as profound and important as that of any physical science. Furthermore, anthropology is as any science or social science, best taught to young students as early as grade school. This presentation discusses the University of Victoria - Mini University Program in which anthropology was taught in a hands on manner to grade school students aged 7 to 14. For three years the success of this program was witnessed by the program's management, instructors, children, parents, and in some cases, public school teachers denoting that, anthropology before university is not only fun, but a valuable addition to any grade school curriculum. when?

Merrett, Deborah C. and Meiklejohn, Christopher "Multiple deaths as a result of a single event: forensics at the origins of agriculture". (Department of Anthropology, University of Manitoba)

The threat of house fires has been part of human experience since the use of fire began. Mud brick construction, used in Near Eastern Neolithic villages, did not eliminate this threat. The site of Bouqras, dated to ca 6000 BC, is located at the southern-most limits of non-irrigation agriculture in the Euphrates valley of central Syria. Excavations revealed a fire that extensively damaged three adjacent buildings. Fire-exposed skeletal remains of six individuals were recovered from one of the structures. Large quantities of charred roof beams, evidence of burning on remains of all six individuals, and no evidence of purposeful burial suggested to the excavators that the deaths may have been the result of a single event.

This paper examines these human skeletal remains from a forensic perspective, exploring the possibility that the six individuals died as a direct result of the recorded house fire. The skeletal remains were examined with respect to skeletal completeness, location within the structure, position and orientation of body and limbs, position of the skeletal remains relative to the floor of the structure, and the location and intra-skeletal distribution of the burnt bone.

The macro-evidence supports the hypothesis that all died at the time of the fire. However, micro-examination of the intra-skeletal distribution of burnt bone suggests that the skull of one individual was at least partly fragmentary prior to the fire. These results suggest that, even after the passage of 8,000 years, it may be possible to assess the time of death relative to an archaeologically visible event such as a building fire.

Muldoon, K.M., Gunnell, G.F., and Gagnon, M. "Omomyid (tarsiiformes) primates from an eocene basin margin assemblage, South Pass, Wyoming". (Department of Anthropology, Washington University; Museum of Paleontology, University of Michigan, Ann Arbor; Department of Anthropology, University of Toronto)

Studies on extant populations have shown that novel characteristics and new taxa often arise in isolated populations at environmental boundaries, such as basin margins (Smith *et al*, 1997; Kunin, 1998). If this hypothesis is correct, then the same should be true for fossil vertebrate assemblages. Areas other than basin centres have rarely been sampled in the palaeontological record of Western North America. Basin margins are thus important in that they provide a picture of community structure that has never been adequately represented in previous studies of omomyid evolution.

Recent fieldwork in middle Eocene (late Gardnerbuttean, earliest Blackforkian) sediments along the eastern margin of the Green River Basin at South Pass has yielded a unique assemblage of omomyid primates. Compared with time-equivalent basin centre faunas, this basin margin assemblage differs both in content and composition. The sample includes two species of *Absarokius*, *Washakius*, and *Omomys*; one species of *Anaptomorphus*, *Trogolemur* and *Uintanius*; and a new, primitive species of *Utahia*. Omomyid diversity is higher at South Pass than in any other known early Cenozoic primate assemblage. The fauna is typified by the presence of unique (absent from basin centre assemblages) and rare taxa (uncommon in both basin centre and marginal assemblages). Additionally, one species differs morphologically from its counterpart in basin centre assemblages, but does not represent a new species, suggesting that populations occurring in marginal habitats exhibit increased variability relative to populations in more homogenous habitats. The presence of these taxa supports the hypothesis that unique habitats are being sampled in basin margins.

Differences in the South Pass sample result not only from distributions of primates across ecological zones, but also as a result of evolutionary processes. The South Pass omomyid fauna fits a model whereby marginal areas provided heterogeneous habitats conducive to the production of successful evolutionary innovation (Gunnell and Bartels, in press).

Nelson, A.L., Wang, J. and Hegele, R.A. "Ancient DNA from the Peruvian north coast". (Department of Anthropology, University of Western Ontario; Robarts Research Institute, London)

This paper presents preliminary results for the recovery and analysis of ancient DNA from individuals from two sites on the Peruvian north coast. The sites are San Jose de Moro and Pacatnamu, located within 10 km of each other in the Jequetepeque Valley. The sample considered here includes individuals from the Moche (AD 100-800) and Lambayeque (AD 900-1100) cultures. The sites were clearly in close contact, as indicated by artifactual evidence. However, there are also clear differences as indicated by tomb construction, diet and social status. Thus, the analysis of ancient DNA presents an excellent opportunity to use genetic data to assess the relationship between biological and cultural change over time, and to examine how biological relationships between the sites map onto the observed cultural patterns.

We have recovered, amplified and sequenced both nuclear DNA and mt-DNA from individuals from both sites. Analysis of the sequence within the D-loop of the mt-DNA

indicates an overall low level of genetic variability, both within and between the sites. Furthermore, there are indications at San Jose de Moro that an mt-DNA lineage crosses the cultural boundary between the Moche and Lambayeque time periods.

These results must be recognized as preliminary. The total number of individuals assessed is still small ($N = 7$ from San Jose de Moro and $N = 2$ from Pacatnamu). Furthermore, preservation of the mt-DNA was generally poor, although it was better at San Jose de Moro (7 out of 12 individuals) than at Pacatnamu (2 out of 10 individuals). Modifications of existing chemical methods of DNA extraction and purification had to be developed for processing these samples. However, the results are suggestive and encouraging, and will be pursued as part of a multidisciplinary analysis of these two populations.

Padiak, Janet and Sawchuk, L. A. "A century before Walkerton: using GIS for public health analysis". (Department of Anthropology, University of Toronto)

Borrowed from geography, GIS (geographic information systems) provide tools for analysis of data with location as one of their attributes and offer new modes of hypothesis testing for physical anthropologists tracking health and disease parameters. This presentation focuses on how GIS can be applied to the study of the occurrence of deaths from enteric infection caused by organisms borne in contaminated water. The case study used for illustration is that of the British colony of Gibraltar in the late 19th century, with parallels drawn from the outbreak of *E. coli* infection traced to contaminated aquifers in Walkerton, Ontario. Because almost no GIS databases exist for historical populations, the materials and methods required to create a digitised map are described. This brief discussion of GIS allows physical anthropologists to see how methods can be borrowed from other disciplines, integrated into anthropology, and then provide a practical tool applicable beyond the gates of academia.

Parish, Joseph M. "Stirrup Court 21: The bones of an individual affected with a neuromuscular disorder of unknown aetiology". (Department of Anthropology, University of Missouri-Columbia) (Student Paper)

In 1982 the remains of 29 individuals were unearthed at the site of the Stirrup Court Cemetery in London, Ontario. These individuals resided in what is suggested to be a 19th century peri-urban community adjacent to the historic township of London. The remains of all individuals were thoroughly documented for the master's thesis of the author (Parish 2000). The remains of burial 21 revealed that this individual was markedly different from his contemporaries in several respects. Upon gross examination, the skeleton contains several obvious and subtle morphologic abnormalities that suggest the existence of a genetic disorder that affected the neuromuscular system at large. In addition, several non-genetic pathological conditions are present. This paper presents the preliminary descriptions of these skeletal abnormalities at the macroscopic level, with photos, and makes suggestions of possible disorders that may have caused this suite of traits. It is suggested that a partial expression of Down's Syndrome is a strong candidate, but further research at the genetic level is currently being undertaken to evaluate this hypothesis. Further suggestions would be appreciated. Historic records research is also discussed. this second line of evidence strongly ensures the identity of the individual based on other adjacent, known individuals and burial customs of Europeans. It also

3→2

strongly supports the suggestion of an obvious disorder that would have been perceptible by the individual's contemporaries.

Finally, the paper suggests that the mere presence of such individuals in small skeletal collections has a great deal to say about attitudes in the 19th century concerning individuals with severe disorders. These attitudes, and practices based on these attitudes, may differ greatly from practices in the early 20th century where institutionalisation was the norm. It promotes the stance that investigations in physical anthropology concerning skeletal collections are not limited to quantitative descriptions about palaeopathology but rather can give quite valuable information about the social environment and attitudes at the time period being examined regardless of sample size.

Pavelka, Mary S. McDonald and Fedigan, Linda Marie "Is there adaptive value to reproductive termination in Japanese macaques? A test of the grandmother hypothesis". (Department of Anthropology, University of Calgary; Department of Anthropology, University of Alberta)

According to the "grandmother hypothesis," menopause evolved in women as a result of selection favouring additional care for existing children and grandchildren as opposed to continued production of offspring. Although universal midlife termination of reproduction has not been documented in other primates, some researchers have argued that postreproductive female alloprimates may also have a positive impact on the survivorship of existing descendents. We tested the grandmother hypothesis in female Japanese macaques by comparing the survivorship of offspring, final infant, and great-offspring of females who terminated reproduction prior to death with that of females who continued to reproduce until death. Females were identified as reproductively terminated when the time lag between last parturition and death was greater than two standard deviations of the female's own interbirth interval (Caro *et al.* 1995). SURVIVAL analyses revealed no significant differences in the survivorship of descendants of reproductive and postreproductive females. Further exploration of possible differences between these two groups of females likewise revealed no differences in dominance rank, matrilineal affiliation, body weight, infant sex ratio, age at first birth, or lifetime reproductive success. However, postreproductive females were significantly longer-lived than reproductive females, and as a result had a greater number of reproductive years and produced more infants. Our findings fail to support the grandmother hypothesis, and instead suggest that reproductive termination in this population of Japanese macaques is most closely associated with longevity and its repercussions.

Peckmann, Tanya "Bones from the past: an osteological analysis of the palaeodemography and life history of the 19th century northern frontier in South Africa". (Department of Structure and Function, University of Cape Town Medical School) (Student)

This project involves the identification and study of the people buried at the De Tuin historic mission station. It will be achieved through the excavation and subsequent lab analysis of the human skeletons from this site.

De Tuin was a mission station to the "Basters" between 1861 and 1868, whose descendants currently live in Rehoboth, Namibia. It is known that De Tuin had a substantial community at that time, and because of the availability of water in the otherwise desert environment, it attracted other groups of San, Khoikhoi, and Bantu

speaking peoples. Despite the historical record, it is still difficult to secure a direct association of the graves with the Baster community or any other people.

So far, all of the individuals excavated at De Tuin have been children, all under the age of 15 years at death, most under the age of 5 years at death. All of the skeletons have been found in association with coffin wood and nails. The reason why so many children are represented is still unknown, but the biological analysis may help with the mystery of this death patterning.

I will be comparing these data to skeletal remains found within other sites in the same ecological biome, Bethulie, Philippolis, and Colesberg, in the Nama Karoo and Wolmaransstad in the Grassland biome. The Northern Cape section of the Savanna biome will also be analysed, specifically the Campbell series and Danielskuil sites. The Griqua, who historically have had a similar lifestyle to the people of De Tuin, are also to be compared although ecologically they have been situated in the Savanna of the Northern Cape.

The overall significance of this project lies in the understanding of health and disease in the 19th century Northern Frontier of South Africa. It will also add to the unwritten history of the Khoisan peoples and a history of South Africa, which allows for a new connection to be created between traditional peoples and the scientific community.

Pfeiffer, Susan "Advancing methods and hypotheses in palaeohistology". (Department of Anthropology, University of Toronto)

Questions that are addressed through histological examination of archaeologically-derived human bone often require more time, equipment and training than do questions based on gross morphology. In my lab, formerly at Guelph and now at Toronto, we are working with new hardware and software, as we seek to make data collection easier and files more easily accessible. Research by Mike Brown, Lorrie Dixon, and others, demonstrates the need for flexibility in methodology. Some questions are better served by digital data capture, others by traditional video imaging. Software packages Image Pro Plus and Optimas will also be discussed, in the context of work on osteon size. Being labor-intensive and subject to complications from diagenesis, palaeohistological work especially needs to be hypothesis driven, so that results are realized before fatigue overwhelms the workers.

Pfeiffer, S., Stock, J., Chazan, M., Katzmarzyk, C., and Janetski, J. "An intriguing skeleton from the Natufian/Kebaran period, Petra, Jordan". (Department of Anthropology, University of Toronto; Department of Anthropology, Brigham Young University)

The relatively complete but fragile skeleton of an adult was excavated at the site of Wadi Mataha, Jordan, in 1999. Archaeological context and 14C dating suggest an age of >9000 B.P. Little is known about the people who initiated a transition from foraging to more sedentary lifeways at around this time. This skeleton, F-81, appears to have been a short man, estimated stature ca. 150 cm., aged 35 to 55 years at time of death. Cross-sectional properties of the F-81 long bones are robust when compared to other groups of foragers. This likely represents adaptation to a physically active lifestyle characterized by substantial terrestrial mobility. The right upper limb is substantially stronger than the left. The full dentition shows excellent alignment and occlusion, with no evidence of caries or

alveolar resorption. The even, slightly undulating pattern of wear is consistent with a dietary origin. The cranial vault is low, the cranial bone quite thick. An intriguing circular hole in the frontal may link to Natufian practices of funerary modification of crania. There are few temporally and/or spatially comparable skeletal samples; comparisons thus far indicate F-81 to be unexpectedly small and robust.

Sattenspiel, Lisa and Herring, D. Ann "The impact of quarantine on the spread of the 1918-19 flu in central Canada". (Department of Anthropology, University of Missouri-Columbia; Department of Anthropology, McMaster University)

Quarantine is often proposed and sometimes used to control the spread of infectious diseases through a population. Yet there is usually little or no information on the effectiveness of quarantine practices that is not of an anecdotal or conjectural nature. This paper describes how a mathematical model for the geographic spread of infectious diseases can be used to address the potential effectiveness of quarantine. The model is applied to data from the historical record in central Canada around the time of the 1918-19 influenza epidemic. Information on the daily mobility patterns of fur trappers throughout the region prior to, during, and immediately after the epidemic are used to determine whether rates of travel were affected by informal quarantine policies imposed by community leaders. The model is then used to assess the impact of observed differences in travel on the spread of the epidemic. Results show that when mobility rates are very low, as in this region, quarantine practices must be highly effective before they alter disease patterns significantly. Simulation results suggest, though, that effectiveness varies depending on when the quarantine was implemented and how long it lasted, and that a policy of introducing quarantine at the earliest possible time may not always lead to the greatest reduction in cases of a disease.

Sawchuk, L.A., Burke, S.D.A., Trinidad, A., Benady, S., and Cox, R. "Assessing development in four-year Gibraltar children". (Department of Anthropology, University of Toronto; Department of Anthropology, McMaster University; Department of Education, Gibraltar; M.D., St. Bernard's Hospital, Gibraltar; Health Visitor, Gibraltar Health Services)

Continued research into the relationship of breast feeding and cognitive development of Gibraltarian children has now focused on the impact of gender, parity, type of feeding, language spoken at home, class, mother's age at birth on 'school readiness' among four year children. Based on a birth cohort of over 300 children, stepwise regression analysis resulted in identifying 'mother's language spoken at home' as the key factor in explaining the greatest variation (adjusted $r^2=21\%$) in observed Croydon scores. Further analysis revealed that English spoken at home was closely associated with older mothers even after controlling for parity. It is hypothesized that a complex set of maternal factors plays an important role in a child's development and school readiness.

So, Joseph "Mind and body: applied biomedical anthropologist in a mental health setting". (Department of Anthropology, Trent University)

Research in biological anthropology has traditionally been designed to result in a measurable biological outcome, one that facilitates the construction of a testable

hypothesis. While the advent of postmodern discourse has dominated the broader discipline of anthropology in recent decades, biological anthropologists have been slow to adopt a more qualitative and critical-interpretive approach that have become the paradigm of choice by our cultural colleagues. This theoretical and methodological divergence is particularly evident in medical anthropology. Whereas sociocultural-medical anthropologists focus on the social and cultural determinants of health status, biomedical anthropologists essentially see culture as only one of a myriad of independent variables that impact on health outcome, which for the biological anthropologist almost invariably means physical health. True to the western Cartesian mind-body dichotomy, biomedical anthropologists have stayed away from mental health, except in psychiatric epidemiology where a more empirical and positivistic approach is the norm. Based on experiences from a twelve-year involvement in cross-cultural community mental health, one could argue that applied biomedical anthropologists do have a role to play in a community-based, client-centered mental healthcare setting. It ranges from designing and coordinating research projects, to quality assurance measurement and program evaluation, to community health promotion and outreach, and to policy-level involvements such as board representation and advocacy. Our training in the scientific method, coupled with a broader understanding of the issues of health and wellness can be useful for those interested in applying their expertise outside the traditional domains of biological anthropology.

Sofwanhadi, Rio "Secular trend pattern of cephalometric parameters in Javanese". (Department of Anatomy, Biomechanics and Physical Anthropology, University of Indonesia, Jakarta)

Cephalometric surveys have already been done in certain parts of Java islands (1983, 1994, 2000) to those Javanese in East Java, Central Java and the capital of Jakarta. Cephalometric parameters measured were: gop, eueu, zyzy, ftft, gogo, sogn, sosn, alal, chch, enen, exex, sasba, papra. The results were treated statistically to obtain the arithmetic mean and standard deviation of those 13 parameters. Correlation of parameters among regional groups was made. Classifications of parameters were also presented in percentage. The final conclusion was that there was a secular trend in cephalometric parameters within certain limits of time. There was also a surprising fact leading to the suspicion of the impurity of Javanese group surveyed.

Sperber, G. H. "Comparative Primate Craniogenesis". (Department of Anthropology, University of Alberta)

The completion of the sequencing of the human genome and identification of genes implicated in craniofacial embryogenesis provide insights into developmental morphological mechanisms. Comparative ontogeny and genomics adds comprehensiveness to understanding relationships between species. The common basic developmental phenomena of primate ontogeny diverge into distinctions of phylogeny. Conservation of homeotic genes and developmental pathways in embryogenesis provides minimal ontogenetic variation yet maximal phylogenetic diversity characterizing different primate species. Hominines possess a 46 chromosome karyotype; all other primates thus far karyotyped possess 48 chromosomes. Aneuploidies greatly influence phenotypic expression as in trisomy 21 (Down syndrome). Variation of developmental

phenomena in hominid evolution must relate to chromosome reduction and selective gene expression. Genetic mutations have led to ontogenetic variations in development, accounting for phylogenetic speciation within the primate order. Subtle alterations in the molecular biology of inductions, timing, gene expression, growth factors and their receptors during morphogenesis lead to paedomorphism and gerontomorphism that distinguish hominid from pongid development.

Tait, Gary S. "Scientific revolution and the genesis of scientific legendry". (Department of Anthropology, University of Toronto)

Modern historiographers have noted that standard histories of science, such as those given in textbooks and popularizations, are filled with stories about major figures, and more rarely, minor ones, which upon closer examination turn out to be largely fictional. These narratives can be referred to as "scientific legends", which have an historical basis, but with the passage of generations, have become embellished with fabricated details.

Three examples are discussed in this paper. Two concern celebrated anatomists who made controversial interpretations of their discoveries, namely, Eugene Dubois and Raymond Dart, while a third deals with the story of the Piltdown finds until 1953, when the hoax was exposed. It is argued that the main factor in the genesis of a scientific legend is the reformulation of facts and concepts that occurs whenever a major theoretical change takes place, although various idiosyncratic causes also contribute to the process.

Turtlebury, Adrienne "A comparison of infection on the tibiae of two military populations". (Department of Anthropology and Classical Studies, University of Waterloo)

Historical evidence indicates that for centuries soldiers in war time have suffered from high rates of infection and more often died from these diseases than succumbed to traumatic injury. Bacterial and fungal diseases affected respiratory health, and parasitic and viral agents plagued soldiers who lived in unsanitary conditions such as forts or while on the march. Documentary evidence indicates that the North American wars of the eighteenth and nineteenth centuries were no different. This study examines the presence and frequency of periostitis and osteomyelitis in the tibiae of two military populations. Fort William Henry, New York (French and Indian War) (n=21) and Stoney Creek (War of 1812) (n=38) are used to examine infectious diseases in the eighteenth and nineteenth century military populations. The data indicate that there is a statistically significant difference in the rates of infection between the Fort William Henry and Stoney Creek soldiers. The Fort William Henry population was less healthy both in terms of rate and severity of non-specific infectious lesions on the tibiae. The factors that account for this difference may include selection for health, older soldiers in the invasion force of the Battle of Stoney Creek, difference in host resistance, as well as an actual improvement in overall health status in later populations.

von Hunnius, Tanya "A direction of aDNA in the new millennium". (Department of Anthropology, McMaster University) (Student Paper)

In some respects, skeletal biology of past populations can only rely on ancient DNA (aDNA) research for the advancement of population biology and/or evolution and

palaeopathology. This is because skeletal biology normally relies on morphological descriptions at both a micro and macroscopic level to age, sex and characterize the presence of any pathology. Without aDNA research, many questions would not have been answered concerning skeletal population affinities, evolution of humans and fauna, as well as the possible origins and/or presence of certain diseases. The application of aDNA techniques to ancient civilizations has only been made possible by the advancements in modern molecular research. length

Within the realm of disease identification, modern biotechnology has been able to isolate genes that may play a significant role in human susceptibility. For example, certain polymorphisms in genes encoding for the natural-resistance-associated macrophage protein (NRAMP) have been shown to produce more susceptible phenotypes towards infections of mycobacterial organisms (e.g., tuberculosis and leprosy), leishmania and salmonella. Also, characterizations of certain vitamin deficiencies have suggested evidence of mutations within their receptors, thus inhibiting proper absorption and utilization. This means that archaeological theories proposing under nutrition for ancient populations might have to be reformulated to include a possible genetic component. Biotechnology has also been able to characterize chromosomal aberrations better. This provides the possibility of not only skeletal morphological identifications, but also genetic identification of chromosomal diseases in the past. Also, the sequencing of many bacterial and viral genome pathogens has allowed palaeopathologists to reaffirm or discover the presence of certain diseases (e.g., tuberculosis, septicemia, influenza, malaria and syphilis) within ancient human civilizations. Some of these new areas of molecular research will be discussed with respect to their possible role within physical anthropology and their influence of the production of new theories or justification of older theories. 3-22

By harnessing such valuable genetic information, skeletal biologists will be better able to describe and understand past populations. In essence, we have had to borrow/utilize information gathered from other disciplines in order to advance our own. As molecular research continues, so will its application within Physical Anthropology.

White, C., Spence, M. and Longstaffe, F. "The victims of the victims: isotopic analysis of the dental "necklaces" from the Feathered Serpent warriors". (Department of Anthropology, University of Western Ontario; Department of Earth Sciences, University of Western Ontario)

Teotihuacan was the first state-level society in the Americas. Like the metropolises of modern times, it was also multi-ethnic. Archaeological theories of migration, marriage patterns, political and economic organization relating to the maintenance of the state are being tested using analyses of oxygen isotope ratios in skeletal phosphate. These are based mainly on the assumption that we are what we drink, and that the oxygen-isotopic ratios of water sources vary according to climatic and geographic variables. In this paper, we use the human trophy dental necklaces from soldiers sacrificed at the Feathered Serpent Pyramid (Temple of Quetzalcoatl) to elucidate military behaviour. We find considerable variability in the geographic origins of the individuals represented by the necklaces, which suggests that the trophies were perhaps taken on different military campaigns. Furthermore, the soldiers themselves did not all come from Teotihuacan which suggests either a mercenary or tribute element to army membership.

Yang, Dongya and Saunders, Shelley "Sex determination and comparison with living relatives, using DNA". (Department of Anthropology, McMaster University; Department of Anthropology, Simon Fraser University)

DNA testing can provide useful information about identification; however, when contamination takes place, it can also yield false information. Contamination detection is mandatory with DNA testing.

In this case, DNA was successfully extracted from both bone and dry soft tissues of the infant remains. The sex was determined as female based on the results of amplification of amelogenin genes from the DNA samples. Two hypervariable DNA fragments of the human mitochondrial D-loop area were amplified and sequenced from the infant remains and one of its living relatives. A unique mtDNA sequence was identified in both individuals. This may indicate a close maternal relationship.