Cotlow Award Application 2011

Department of Anthropology
The George Washington University
Washington, DC 20052

***

1. Personal Information

Applicant’s name: Cheyenne Lewis
Degree sought: Bachelors of Science and Bachelors of Arts
Field of study/major/minor/concentration: Biological Anthropology (B.S.) and Archaeology (B.A.)
Expected date of graduation: May 2012

Faculty advisor(s) (who have served as your mentor or mentors for this proposal): Dr. Douglas Ubelaker, Curator of Physical Anthropology at the Smithsonian Institution

2. Language Skills

Does the proposed project involve the use of a “field language”? No

If yes, state what the language is and your degree of fluency in speaking, reading, and writing it:

3. Title of the Project and Abstract

Project Title: Use of Dorsal Parturition Pits as a Female Characteristic on the Human Pelvis

Abstract of the Project (provide a summary description of the project’s goals, location, methods, and relevance to anthropology) [80 word maximum]:

The goal of this research is to examine the possible use of dorsal parturition pits as a female sex characteristic on the human pelvis. The project will use the Terry Collection to test a large number of female and male pelves for these pits while also taking into consideration age. The results of this research will have applications in both forensic and archaeological settings in which it could help positively determine sex of an individual especially with fragmentary remains.

(79 Words)
4. Description of the Project (describe your overall research goals, what the project is generally about, and where you will conduct the research and why) [250 word maximum]:

One of the primary methods by which human remains are sexed involves the aggregate of both qualitative and quantitative measurements from across the body; however, the pelvis has the highest accuracy rate for estimating sex. One feature on the pelvis, dorsal pubic pitting, has been touted as evidence of pregnancy or parturition. Many studies conducted have shown that there is not much conclusive support for this conclusion; nevertheless, these pits may still be limited to the female pelvis. The goal of this research is to investigate whether these pits are limited to the female pelvis and to what degree they show up on the pelvis based on age.

This project will use the Terry Collection (NMNH, SI) which contains over 1700 individuals. Using the excellent records of this collection, sex and age can be determined for each pelvis. From the records, the pelves examined will have both known age as well as known sex. Also, this collection will provide a large sample size. Through visual inspection, the degree of pitting on the dorsal side of the pubic bone of the pelvis will be determined. These data will then be statistically analyzed to determine the significance of the presence of these pits. The results of this project will contribute to the techniques which anthropologists use to sex human remains.

(218 Words)

5. Significance of the Project to Anthropology (in this literature review describe how the proposed research relates to other anthropological research on the topic, and/or region as relevant; use American Anthropological Association style for works cited--no footnotes) [500 word maximum]:

Identifying the sex of an individual can be vitally important in a forensic setting and can also be important for an archaeological research. Of the many methods by which the skeleton can be sexed, it is a standard to use the pelvis (if available) for sex estimation as it provides the most abundant and accurate data (Ubelaker 1999). There are many qualitative and quantitative measurements on the pelvis that can contribute overall to the analysis of sex (White and Folkens 2005). The pelvis can provide a wealth of information about the individual and the possible determination of parity status has long been sought through indicators on the pelvis. The so-called “scars of parturition” are an example of a possible indicator of parity; there are several features that are commonly classified as scars of parturition, but, in this study, the focus will be on pits located on the dorsal surface of the pubic bone.

The correlation between so-called scars of parturition and parity has long been debated within physical anthropology. Observations of these bony changes on the human pelvis were originally attributed to the stresses of pregnancy such that these “scars” are left as evidence of labor (Angel 1969). However, there are several studies that contradict each other as to the true nature of this relationship. Some studies claim that there is no statistically significant relationship between the dorsal pitting and parity status (Cox and Scott 1992, Holt 1978) while other studies found that a correlation could be made, especially in younger women (Snodgrass and Galloway 2003). Judy Suchey found that there was a statistical association between the number of full-term pregnancies and the degree of dorsal pitting but overall the correlation was not strong (Suchey et
al. 1979). In addition, a relationship between the presence of these pits and age has also been
found (Kelley 1979, Suchey et al. 1979). One interesting study examined the association
between the degree of resorption on the dorsal pubic surface and parity and did not find a large
difference between females and males (Tague 1988).

These studies represent the various aspects to this problem of assessing the significance of the
dorsal pits. However, most of these articles make the assumption that these features are only
found on the female pelvis, since the studies singularly focused on female pelves. However,
these dorsal pits have not been conclusively shown to be a female sex characteristic and the
degree to which they are found in both males and females has not been examined thoroughly.
This research project will examine this problem and hopefully will determine whether dorsal
pitting can be conclusively used as a female characteristic.

6. Methods (clearly outline or list your research questions; describe the data you will collect and
how you will collect it; discuss your analytical methods; and show how the data will address the
research questions) [300 word maximum]:

The intended methods for examining this feature will be based on prior established methods
(Snodgrass and Galloway 2003) and only qualitative methods will be employed. This study will
rely on pelves from individuals with known age-at-death and sex. The Terry Collection contains
a wide range of ages and fairly equal distribution of females and males, which will allow for an
equal number of pelves in each category to be examined.

I intend to collect data in four categories: female, male, young (18-45 yrs), and old (46+). These
categories will allow me to assess not only whether the dorsal pits are present but also what
factor age plays in this analysis (bone resorption affecting the degree of pitting). The qualitative
method I intend to use will include four classes of the degree of pitting: 0—none present, 1—few
shallow pits, 2—moderate shallow pits 3—moderate deep pits, 4—severe deep pitting.

The expected sample size of individuals in each category will be 100 with the total number of
individuals in the study equaling 400. However, if the time permits, the number of pelves in
each category will be increased equally in each category which will increase the sample size for
statistical analysis and consequently give a better range of data.

I plan on employing a two-way ANOVA test to determine the significance of the relationship
between the different stages of pitting, sex, and age. I will examine the overall correlation
between the degrees of pitting and female pelves versus male pelves as well as the correlations
between the degree of pitting and age of female pelves and the degree of pitting and age for male
pelves.

(277 Words)

7. Research Ethics (describe how you will ensure that your research project is conducted in
accordance with anthropology guidelines and the guidelines of your particular field within
anthropology, and in the case of “Human Subjects Research,” according to the criteria of GW’s Institutional Review Board. For the former, consult the Web site of the American Anthropological Association (http://www.aaanet.org). For the latter, discuss requirements with your faculty mentor and/or with Professor Barbara Miller, the IRB rep in the Anthropology Department. Most student projects involving living humans fit in the IRB category of “excluded” meaning that IRB forms do not need to be submitted, if they follow AAA ethical guidelines in terms of informed consent and avoidance of harm to participants, do not involve medical topics and do not identify particular individuals. In some instances, IRB approval does need to be sought, usually in the “expedited” category.” Information on these categories is also available at http://www.gwumc.edu/research/human/aboutus/html) [150 word maximum]:

The American Anthropological Association (AAA), the American Association of Physical Anthropologists (AAPA) and the American Academy of Forensic Sciences (AAFS) were all consulted on the ethics of using human remains in research. None of these sites specifically address this issue but overall they advise that researchers must not “harm the safety, dignity, or privacy of the people with whom they work, conduct research, or perform other professional activities.” The skeletal remains used will be given the respect and care they deserve as they were once living beings. The privacy of the remains will be maintained in that aside from information concerning age-at-death, sex, and other possible pertinent measurements, no personal information will be published. Additionally, only the research catalogue number will be used if a specific case is referenced. Finally, permission to use the skeletal research collection will be gained from the institution prior to the start of the project.

(150 Words)

8. Research Product (discuss how you will use and present your findings including, for example, a presentation at a professional meeting, a film, a museum exhibit, a publishable paper, a thesis) [150 words maximum]:

The first priority of this research and the final project will be towards the presentation at the Cotlow Conference in October 2011. Following this, the research and its data will be used towards a thesis in order to graduate with special honors in Biological Anthropology. Furthermore, Dr. Ubelaker and I plan on publishing the results of this research project in a peer-reviewed academic journal.

(64 Words)

9. Timetable (briefly describe the schedule of your research activities week-by-week or as appropriate):

March-April 2011—Seek official permission to use the Terry Collection
15 August 2011—Return to GW early and begin work on the Terry Collection
Mid-late September 2011—Finish work on the Terry Collection and begin analysis
Mid-October 2011—Present findings at the Cotlow Conference
October-December 2011—Write-up of senior honors thesis
December-March—Submit thesis; write up and submit findings for publication
10. Budget Amount and Projected Expenditures

Total Amount Requested: $297.50

Projected Expenditures (list the expenditure categories for your project, for example, transportation—international, domestic, local; room and board; and research supplies). Funds from a Cotlow award cannot be used for tuition, academic fees, or for purchasing equipments such as a laptop or camera [awards range from a few hundred dollars to $1800]

Transportation= $97.50 (roundtrip Metro fare to the Smithsonian for 5 weeks)
Food Expenses= $200 (returning early to D.C., two weeks before school begins)
Housing= $0 (I will help move in freshmen so as to gain free housing for the two weeks before housing opens officially)

11. Staff (if others are to participate in the project as researchers or research assistants, please give their name and qualifications): none

12. Outside Financial Support (list any other sources of funding for the project, either obtained or applied for, with amounts and restrictions): None

13. References Cited/Select Bibliography (list the sources you have cited in the proposal and/or used as background research. Use the style defined by the American Anthropological Association [see http://aaanet.org]; list a minimum of 10 sources cited to a maximum of one page; more than 10 references are expected in proposals submitted by MA and PhD students).


Suchey, J. M., D.V. Wisely, R.F. Green, and T.T. Noguchi

Tague, R.G.


Ubelaker, D.H.


White, T.D. and P.A. Folkens


14. Permits (demonstrate that you have, or are seeking, any necessary permits such as a research permit, a research visa, an antiquities permit, letter of welcome from an institution, etc. Attach copies to this proposal).

I have a verbal agreement with Dr. Ubelaker that I can use the Terry Collection but I will be starting the official permission process with Dr. Hunt, Collections Manager of Physical Anthropology, within the month in order to have official access to the collection.