Introduction
The decrease in the oral health of humans has been attributed to the development of agriculture, which greatly increased carbohydrate consumption. Previous studies have found a differential occurrence of oral health between men and women, emerging as early as 12 ky, during the domestication of plants. 1 Archaeological skeletal populations have consistently found a variance in oral health between the sexes, across cultures, and over time. Researchers have attributed the sex differences in oral health to the effects of pregnancies (hormonal changes and nutritional effects) and earlier growth and development in women. 2,3 Most oral pathological conditions appear in soft tissues. But some (dental caries, periodontal disease, tooth loss, periodontal disease) present themselves on the teeth and alveolus and can be identified in the archaeological record. 1 This project examines a sample of Caucasian men and women grouped in adult age categories to record evidence of dental caries and periodontal disease. The results of this project will be compared to existing literature to determine if these results are concurrent with the trend of women being more predisposed to oral health pathological conditions than men.

Materials & Methods
The human remains examined are a selected sample set from the Robert J. Terry Anatomical Collection, a collection of 1,728 Caucasian and African American males and females ranging from ages 14-102. These people lived and died in the 19 th to mid 20 th centuries. The study sample was comprised of Caucasian males and females between the ages of 20-87, grouped into three age groups: 20-41 years, 42-60 years, and 61+ years. Individuals who were edentulous were excluded from study since much of the analysis was based on dental health. Teeth for each individual were measured with digital sliding calipers from the CEJ (cemento-enamel junction) to the alveolar crest, on both the labial and buccal sides (Figure 1). The greatest distance measured was then subtracted by 2 and was recorded for bone loss. If bone loss measured between 3 and 6 mm, the tooth was recorded as being moderately affected by periodontal disease (Figure 2). If bone loss measured greater than 6 mm, the tooth was recorded as being severely affected by periodontal disease (Figure 2).

Periodontal Disease

Fig 2. Examples of moderate (left) and severe (right) periodontal disease.

Discussion
Data collecting and the patterns of the results clearly exemplify the complexities that arise in examining oral health. The results of this study do not completely support the hypothesis that women experience higher rates of oral pathological conditions, but the results do elucidate that sociocultural and environmental conditions have a substantial contribution to oral health than just biological conditions alone. This data supports that the gap in oral health that has existed for thousands of years between men and women may be closing, due to higher influences of sociocultural and environmental factors than only biological ones. Recent research suggests that more modern populations of humans, especially in North America, are experiencing less gaps in oral health than observed in past populations. 7 The present research sheds an additional light on the diversity of health across populations and the constant change populations undergo.

When looking across age groups, oral health conditions worsen steadily with increasing age for both sexes, but do not show a significant difference in overall conditions until approximately age 60. After 60, women are significantly different than men (Figure 5). At the average age range of pregnancies in women (20-35 y.o.) there is a slightly higher rate of pathological conditions observed overall, but the sample size for the women is not large enough to statistically assess this hypothesis (Figure 5).

Further research would involve evaluating populations similar to the ones studied for this project, with the expectation for better understanding the factors that may cause the shift in oral health across sexes. By understanding influences other than biology that affect oral health, we may be able to explain the complexities of pre-historic, historic and modern oral health and discern the differences between sexes and population groups as well as these fluctuations through time.

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References