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C O N F I D E N T I A L

CAREFUL! Please be sensitive to the needs of science, social issues and the human spirit.

Forensic Report – OL13-16 JCMEO 13-01412

Summary: These remains, originating in Jackson County, Missouri, represent a 35-55 year-old male of Caucasoid ancestry. There is no reported time or cause of death. These remains are possibly too old to be considered as a forensic case. However, they are probably recent enough to be of significant historical interest. MNI = 1.

I. Introduction: On 6 Aug 2013, at the Office of the Jackson County Medical Examiner,, I studied cranial and some long bone remains found as a result of a trenching operation near Hanger #2 of the Down Town Airport, Kansas City, Missouri.

II. Bones present: Calvarium, and diaphyseal portions of the right tibia and fibula and the right first metatarsal, small portions of the frontal and both parietal bones. Teeth #2 - 8 and 10 - 15 were present.

III. Condition: Fair to good, stained a fairly uniform light brown suggesting these elements had probably been together and in contact with soil for an undetermined period of time.

IV. Age: 35-55 years, based on suture closure (Olivier 1969) and (Meindl and Lovejoy 1985), supported by dental attrition (Brothwell 1987).

V. Sex: Male, based on cranial morphology (Buikstra and Ubelaker 1994) and discriminant function analysis (Giles 1970).

VI. Stature: About 180.16 cm (71 inches) based on the right 1st metatarsal following Byers et al. (1989).

VII. Race: Caucasoid, based on cranial morphology (Rhine 1990) and discriminant function analysis (Giles and Elliot 1962) and (Jantz and Ousley 2005).

VIII. Anomalies: Possibly a button osteoma located on the left maxilla below and to the left of the nasal spine.

IX. Pathological condition: Tooth #2 holds an occlusal restoration.

X. Trauma: General postmortem damage associated with the taphonomic environment.

XI. Time of death: Unknown (not tested).

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XII. Cause of death: Unknown.

XIII. X-rays and photographs: Digital radiographs and photographs.

XIV. Identification: Not made.

XV. Recommendation: These remains, originating in Jackson County, Missouri, represent a 35-55 year-old male of Caucasoid ancestry. There is no reported time or cause of death. These remains are possibly too old to be considered as a forensic case. However, they are probably recent enough to be of significant historical interest. MNI = 1.

XVI. These remains were left with the Office of the Jackson County Medical Examiner.

Respectfully submitted,




Michael Finnegan

Date: 7 Aug 2013

Cited Literature

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January 7, 2014

Briana Curtin
Kansas City Coroner's Office
Kansas City, MO

RE: Case No. 13-01412 Unknown Human Remains

Dear Ms. Curtin:

On August, 2014, a maxillary left canine and 1st molar were delivered via FedEx to the Human Identification Laboratory. The teeth were extracted from a skull allegedly recovered underneath an airport runway last paved in 1927. Medicolegal Investigator Briana Curtin of the Kansas City, MO, Jackson County Medical Examiner's Office requested histological examination of the teeth for evidence of age and season at death.

Evidence Submitted and Condition on Arrival:

The teeth arrived in individually sealed jeweler's boxes inside a signed sealed plastic evidence bag. Each was individually photographed prior to the beginning of testing.

Laboratory Methods:

1. Each tooth was cleaned using tepid soapy tap water followed by an alcohol rinse. The teeth were then embedded under vacuum in Silmar Resin. Two 500 micron thick sections of each tooth were cut on a Buehler low speed saw, mounted to petrographic slides using Devcon epoxy, and ground and polished on Buehler polishing paper using water and polishing fluid as lubricants. The ground sections were examined under polarized transmitted light using an Olympus BX-40 microscope.

Results:

Cementum bands were observed on the transverse cross sections of the both teeth.

- Tooth #3 exhibited a transparent outermost band and three pairs of transparent increments
- Tooth #6 exhibited a transparent outermost increment and four pairs of transparent increments.

Significance:

The outermost band of cementum indicates the season in which the deceased died. A transparent band indicates a spring/summer death, between April and September to be more precise (Wedel 2007, Wedel *et al.* in prep)

The number of pairs of bands can help determine the individual's age at death when it is added to the age at which the tooth erupts and is in occlusion. Tooth #3 exhibited 3 pairs of bands and it erupts and is in occlusion by age 11 ± 30 months. Adding 3 years to this age yields an estimate of 14 years ± 30 months (11 years 6 months – 17 years 6 months).

Tooth #6 erupts and is in occlusion by age 12 ± 30 months. It exhibited 4 pairs of bands. Adding 4 years to this age yields an estimate of 15 years ± 30 months (10 years 6 months – 19 years 6 months).

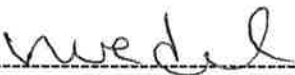
When these age intervals are combined, the result is an age range of 10 years 6 months to 20 years 6 months). However, because the bottom of the tooth #6 age estimate is much younger than the bottom of the age estimate derived from tooth #3, we recommend an age estimate of minimum of 20 years 6 months based on the top of the examined teeth's ranges at eruption with the years of cementum accretion added on.

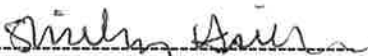
These results should be considered in light of whether any third molars were present and in occlusion. If so, the age estimate derived from teeth #'s 3 and 6 may be too young, and an age estimate of 21-25 years may be more appropriate (Scheuer and Black 2000).

Summary:

Histological examination of two teeth from case number 13-011412 was undertaken and revealed that the individual likely died between April and September at the minimum age of 20 years 6 months. The teeth will be returned to the Kansas City, MO, Coroner's Office via FedEx.

Sincerely,


Vicki L. Wedel, PhD, F-AAFS


Shirley B. Hsieh, MSMS

References Cited:

Wedel, V.L. (2007). Determination of Season at Death Using Dental Cementum Increment Analysis. *Journal of Forensic Sciences* 52(6)1334-1337.

Wedel, V.L., S.B. Hsieh, K. Hermsen (In Prep) A large known-age and known-season at death validation study of determining season at death using dental cementum increment analysis.

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