# FORENSIC ANTHROPOLOGY REPORT

PCOME case #: 23-4316
Forensic Pathologist: Dr. Jennifer Chen
Agency: Tucson Police Department
Agency case #: 2312050060

On December 5, 2023, incomplete skeletonized remains (please see Skeletal Chart) were found by a hiker on Sentinel Peak in Tucson, AZ. The Tucson Police Department (TPD) notified the Pima County Office of the Medical Examiner (PCOME) that day, and medicolegal death investigators Jamie Gilligan and Alexis Chu, as well as Dr. Vollner and I went to the scene to assist in the search and recovery. Dr. Vollner and I arrived at approximately 1115 and were taken to the recovery location off a social trail on the east side of Sentinel Peak. As per the notes of Dr. Vollner, "There was a noticeable odor near the remains which were scattered around the moderate vegetation on the slope. The remains were marked and photographed after a search conducted by TPD … [and PCOME staff]. A quick, cursory inspection indicated that the majority of the foot bones, forearms, and hands were absent as well as several cervical vertebrae and the cranium." Dr. Vollner and I left the scene at approximately 1330.

On December 6, Dr. Jennifer Chen conducted a postmortem exam on the decedent, now designated 23-4316, at the PCOME. She then requested further anthropological analyses to aid in the identification process and examine for any signs of trauma. The remains of 23-4316 were then transferred to the W.H. Birkby Forensic Anthropology Laboratory for preparation and examination.

On December 21, I returned to the scene with TPD and US Border Patrol (USBP) Agents to conduct a search with USBP canines for the cranium and any additional skeletal elements. Two dogs searched the eastern slope of Sentinel Peak, both hitting on a packrat nest part way up the Peak, just downslope from the roadway that loops the summit. The packrat nest was excavated but no skeletal elements were found, just fragments of blue cloth. No other areas were signaled upon, and no additional skeletal remains were found.

At the PCOME, I examined the case from December 7 – 26, 2023 with the primary purpose of constructing a biological profile, documenting the dentition for identification purposes, and examining the remains for any signs of skeletal trauma. Skeletal radiographs were taken by morgue staff and reviewed by me without significant findings. Digital DEXIS dental radiographs of the maxillary teeth were taken by me; the mandible was not recovered. Additionally, photographs related to the anthropological analysis were taken by me throughout the exam. Two osseous samples from the right femur were resected for potential future DNA analysis, with one being released to TPD on December 14.

It was suspected that these remains were from a missing woman, **Terrassa Jo Fletcher-Bristol**, thus a comparative dental radiographic analysis was conducted along with the anthropological examination. The results of this comparison are presented at the end of this report.

The following biological profile was constructed for 23-4316:

| **Profile of 23-4316** | |
|---|---|
| Sex | **Female** |
| Age | **30 – 45 years old** |
| Population Affinity | **Unable to Assess** |
| Stature | **57.4 – 63.3 inches** |
| Trauma | **Perimortem and postmortem fractures** |
| Postmortem Interval | **1 to 6 months** |

**Sex:** **Female**

Available pelvic nonmetric traits (Klales et al. 2012) were run in MorphoPASSE v1.0 (Klales 2018) using Random Forest modeling with a contemporary, unknown ancestry sample and predicted to be a female with 100% probability and a Kappa value of 0.9281.

**Age:** **30 – 45 years old**

The left and right pubic symphyses were scored as a phase 4 using the Hartnett (2010a) method. For females used in this study sample, a phase 4 had a mean age of 43.26 years and a 95% range of 33 – 58 years.

The left and right fourth sternal rib ends were scored as a phase 3 using the Hartnett (2010b) method. For females used in this study sample, a phase 3 had a mean age of 32.95 years and a 95% range of 27 – 38 years.

The medial end of the right clavicle was scored as a 3 of a 3-phase system (Langley-Shirley & Jantz 2010). The highest posterior density (HPD) for females in a phase 3 was 30.1 years with a 95% confidence interval of $\geq$ 22.5 years.

**Population Affinity:** **Unable to Assess**

The cranium was not recovered; therefore, population affinity was not assessed.

**Stature:** **57.4 – 63.3 inches**

Postcranial measurements taken of the sacrum, left scapula, and right humerus, femur, tibia, and fibula were imported into Fordisc 3.1 (Jantz & Ousley 2005). Several stature regression equations were assessed using the postcranial measurements with a 90% prediction interval within a 20$^{th}$ century 'White female' sample. An equation based on bicondylar femoral length, maximum femoral

length, and sacral height produced a stature estimate of 60.4 ± 3.0 inches and a 90% confidence interval range of 57.4 to 63.3 inches.

**Trauma:** **Perimortem and postmortem fractures**

A complete perimortem sagittal fracture of the mandibular body, just distal of tooth # 31, was noted. The fracture characteristics and similarities in color between the fracture margin and the rest of the mandible indicate the fracture occurred while the bone still maintained viscoelastic qualities. However, this event still may have occurred after biological death.

Postmortem fractures of right ribs 2 and 3 at approximately the angle, were also noted.

**PMI:** **1 to 6 months**

The remains were skeletonized with some desiccated ligamentous tissue articulating the elements. The remains were yellow and greasy with an odor of decomposition, and extensive animal activity was noted. Based on the state of the remains, the postmortem interval was estimated to be 1 to 6 months prior to discovery (Galloway et al. 1989).

**Dental Examination of 23-4316**

At the dental examination of 23-4316, 14 mandibular teeth were represented (see Dental Chart); the maxillae were not recovered. Teeth # 17 and 32 were missing antemortem. Tooth # 30 was missing postmortem. Amalgam restorations were present on the following teeth and surfaces: # 18 (O), 19 (O, B), 20 (O), and 31 (O). The crowns of teeth # 21 and 24 had postmortem damage and loss. Teeth # 24 and 25 were both medially rotated approximately 30º. Extensive alveolar bone loss was noted on the anterior teeth (#s 24 and 25).

**Comparative Dental Analysis**

The written dental records for Ms. **Terrassa Jo Fletcher-Bristol (DOB 12/16/1985)** were received by the PCOME on December 7, 2023, from the Indiana Department of Corrections via TPD. The corresponding digital dental radiographs acquired by TPD Detective Wilfert were received December 11 via email. In total, the records consisted of appointment notes from 09/12/2014 to 11/02/17, plus 4 bitewing radiographic images (dated 5-1-19) and 1 panoral radiograph (dated 9-13-17).

On December 8 and 11, I examined the dentition of the decedent (23-4316) to conduct a dental radiograph comparison. Photographs and DEXIS digital radiographs of the decedent's

dentition were taken by me and compared to the antemortem dental radiographic images of Ms. **Terrassa Jo Fletcher-Bristol.** The Comparison Table below highlights the consistencies (✓) and inconsistencies (-) of my examination.

**COMPARISON TABLE**

| **Tooth #** | **Antemortem Records of Terrassa Jo Fletcher-Bristol** | **Consistency** | **Postmortem Exam of 23-4316** |
|---|---|---|---|
| 1 | Missing antemortem | - | Not recovered |
| 2 | Caries (O) | - | Not recovered |
| 3 | Resin restoration (O) | - | Not recovered |
| 4 | Natural | - | Not recovered |
| 5 | Natural | - | Not recovered |
| 6 | Natural | - | Not recovered |
| 7 | Fracture | - | Not recovered |
| 8 | Natural | - | Not recovered |
| 9 | Fracture / chip? | - | Not recovered |
| 10 | Fracture | - | Not recovered |
| 11 | Natural | - | Not recovered |
| 12 | Natural | - | Not recovered |
| 13 | Natural | - | Not recovered |
| 14 | Caries (OL) | - | Not recovered |
| 15 | Natural | - | Not recovered |
| 16 | Missing antemortem | - | Not recovered |
| 17 | Missing antemortem | ✓ | Missing antemortem |
| 18 | Amalgam and resin restorations (MOLB) | ½ ✓ | Amalgam restoration (O) & caries (MOLB) |
| 19 | Amalgam restorations (O, B) | ✓ | Amalgam restorations (O, B) |
| 20 | Amalgam restoration (O) | ✓ | Amalgam restoration (O) |
| 21 | Natural | - | Postmortem crown damage and loss |
| 22 | Natural | ✓ | Natural |
| 23 | Natural | ✓ | Natural |
| 24 | Natural | - | Postmortem crown damage and loss |
| 25 | Natural | ✓ | Natural |
| 26 | Natural | ✓ | Natural |
| 27 | Natural | ✓ | Natural |
| 28 | Natural | ✓ | Natural |
| 29 | Natural | ✓ | Natural |
| 30 | Amalgam restorations (O, B) | - | Missing postmortem |
| 31 | Amalgam restoration (O) | ✓ | Amalgam restoration (O) |
| 32 | Missing antemortem | ✓ | Missing antemortem |

The following consistencies were documented between the radiographic images of Ms. Terrassa Jo Fletcher-Bristol and the DEXIS images taken at the PCOME of 23-4316:

- The placement and morphology of the dental restorations on teeth # 19, 20, and 31.
- The crown morphology of tooth # 28.

**Conclusions**

PCOME case 23-4316 consisted of the skeletonized remains of a single female individual recovered from a desert area in Tucson, AZ. A perimortem mandibular fracture was observed during the anthropological analysis. Postmortem damage by means of animal scavenging was also noted on many of the skeletal elements.

Consistencies exist between the dental radiographs and notes obtained from the Indiana Department of Corrections for Ms. Terrassa Jo Fletcher-Bristol and the remains of 23-4316.

It is my professional opinion, based on comparison of antemortem and postmortem radiographic images and dental records, that the remains designated as 23-4316 are those of the person known as **Terrassa Jo Fletcher-Bristol (DOB 12/16/1985)**.

Caitlin CM Vogelsberg, PhD

Digitally signed by Caitlin CM Vogelsberg, PhD
Date: 2024.01.09 14:39:00 -07'00'

Caitlin CM Vogelsberg, PhD, D-ABFA Date
Forensic Anthropologist

**Enclosures:**
Skeletal Chart
Dental Chart

## References

Galloway A, Birkby WH, Jones AM, Henry TE, Parks BO (1989) Decay rates of human remains in an arid environment. *Journal of Forensic Sciences*, 34(3): 607-616.

Hartnett KM, 2010. Analysis of age-at-death estimation using data from a new, modern autopsy sample—Part I: Pubic bone. *Journal of Forensic sciences*, 55(5): 1145-1151.

Hartnett KM, 2010. Analysis of age-at-death estimation using data from a new, modern autopsy sample—Part II: Sternal end of the fourth rib. *Journal of Forensic Sciences*, 55(5): 1152-1156.

Jantz RL, Ousley SD (2005) FORDISC 3: Computerized Forensic Discriminant Functions. Version 3.1. The University of Tennessee, Knoxville.

Klales AR (2018) MorphoPASSE: the Morphological Pelvis and Skull Sex Estimation Database. Version #1.0. Topeka, KS: Washburn, University.

Klales AR, Ousley SD, Vollner JM (2012) A revised method of sexing the human innominate using Phenice's nonmetric traits and statistical methods. *American Journal of Physical Anthropology*, 149:104-114.

Langley-Shirley N, Jantz RL (2010) A Bayesian approach to age estimation in modern Americans from the clavicle. *Journal of Forensic Sciences*, 55(3): 571-583.

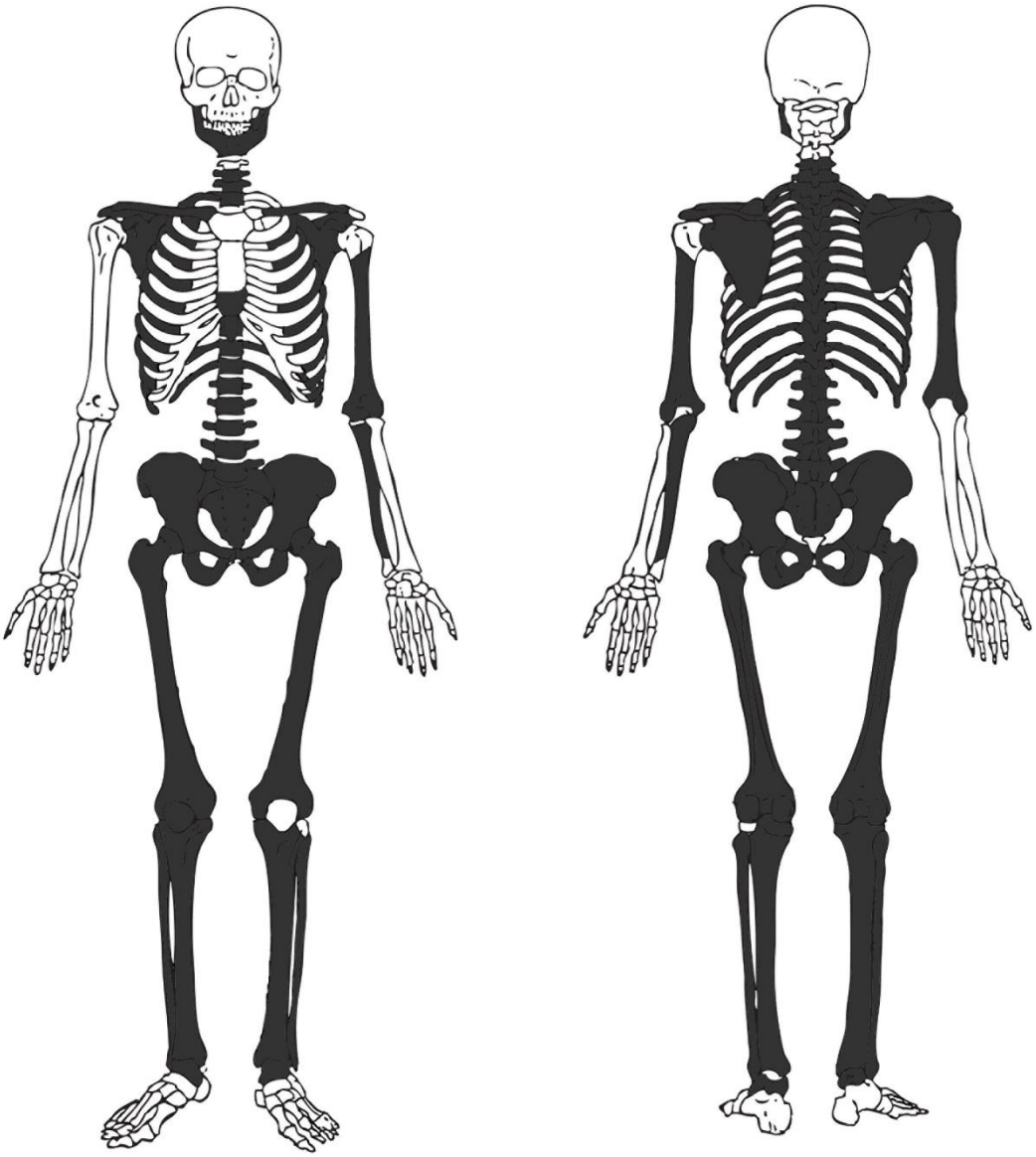
Skeletal Chart

WH Birkby Forensic
Anthropology Laboratory
Pima County Office
of the Medical Examiner
Forensic Science Center
2825 E. District St
Tucson, Arizona 85714

CASE: 23-4316

DATE: 13 December 2023

Elements Present



Dental Chart

WH Birkby Forensic
Anthropology Laboratory
Pima County Office
of the Medical Examiner
Forensic Science Center
2825 E. District St
Tucson, Arizona 85714

CASE: 23-4316

DATE: 8 December 2023