



Physical Anthropology Section – 2008

H3 Separately Discovered Skeletal Remains and the Path to Reassociation: A Case Review

Audrey Scott, MA*, Simon Fraser University, Department of Archaeology, 8888 University Dr., Burnaby, British Columbia V5A 1S6, CANADA; David Sweet, DMD, PhD, Bureau of Legal Dentistry Lab, University of British Columbia, 6190 Agronomy Road, Suite 202, Vancouver, BC V6T 1Z3, CANADA; Derek Congram, MSc, Simon Fraser University, Department of Archaeology, 8888 University Drive, Vancouver, BC V5A 1S6, CANADA; and Stephen Fonseca, Office of the Chief Coroner, Identification and Disaster Response Unit, 2035-4720 Kingsway, Burnaby, BC V5H 4N2, CANADA

After attending this presentation, attendees will have an understanding of the potential for missing minute, yet essential, pieces of artifactual evidence when recovering skeletal remains from the crime scene. Attendees will also have gained an understanding of the importance of interdisciplinary cooperation when reassociating skeletal elements and identifying an unknown deceased individual.

This presentation will impact the forensic community by educating forensic practitioners and investigators about reassociating separated human skeletal remains, as well as emphasizing the importance of anthropological and odontological techniques for recovering minute and easily missed, yet vitally important, pieces of evidence.

In late 2006 and early 2007, Forensic Anthropologists at Simon Fraser University and Forensic Odontologists at the BOLD Laboratory of The University of British Columbia received from the BC Coroners Service two separate cases involving the skeletonized remains of unknown individuals. The two scenes were located several kilometers distant from each other, and the discoveries were made several months apart. Distinct morphological characteristics and similar injury patterns suggested the remains actually represented one individual, which was later supported by DNA analysis.

The cranium was discovered submerged in a semi-urban recreational lake, and exhibited evidence of a mostly healed Le Fort II fracture of the left maxilla. Additionally, there was a healed surgical trephination of approximately 1 cm in diameter on the left parietal, with an associated notch in the posterior-inferior margin. The root of a single tooth remained *in situ*; all other teeth had been lost antemortem or during the postmortem interval.

Approximately six months later, the postcranial remains of an individual were found in a brushy, semi-urban setting approximately 3 km from the lake. This individual exhibited multiple severe healed fractures of the ribs, consistent with a major crushing chest injury. Screening of the associated soil matrix produced several artifacts of internal soft tissue microsurgery. A maxillary fixed dental bridge was recovered along with a mandible, although no cranium was found at this location.

The similarities in injury patterns, degree of injury healing, and morphology of articulation points between the cranial and postcranial remains suggested a single unidentified person. Odontological examination revealed consistency between the dental bridge and missing maxillary dentition; the color, contour and surface condition of the cranium and post-cranial remains; and the mandibular and maxillary alveolar contours. A goodness-of-fit examination supported a match of the temporomandibular joints and condylar heads; the shape and sizes of the dental arches; and articulation of the dental bridge with the lower anterior teeth. Forensic anthropological examination produced biological profiles of both cases which were of the same sex and age range. Both cases had injury patterns consistent with a severe trauma, and exhibited the same degree of healing, suggestive of a single event. A goodness-of-fit examination of the articulation of the occipital condyles and the unique morphology of the first cervical vertebra supported a single individual. The results of DNA analysis were consistent with the two sets of remains representing a single person.

This unusual case presented a rare opportunity for the reassociation of disassociated remains, and highlights the importance of investigating improbable relations between distinct and apparently separate sets of remains. The discovery of the microsurgical hardware emphasizes the importance of a detail driven recovery and examination of unknown remains.

Reassociation of Skeletal Elements, Forensic Anthropology, Forensic Odontology