

Twiggy: An Osteological Reconstruction of a Skeletal Model's Identity



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Introduction

GVSU's Anthropology Department currently houses the articulated remains of an individual nicknamed "Twiggy," but nobody knows where they came from or when they arrived here. Typically, little is known about individuals used as anatomical models, as is true in this individual's case. To continue using these remains as teaching material, it is imperative that we understand more about their life. Certain life events and environments can be recorded within the remains of an individual, so it is unfair both to Twiggy and to students to ignore this. In reconstructing their history, Twiggy is able to reclaim part of their identity, and students will be better able to learn how someone's story can manifest itself in their remains.

Methods

A profile was constructed for the individual by estimating traits such as age, sex, and stature from measurements and non-metric traits. Their remains were analyzed for trauma, pathology, and non-specific indicators of stress. Additional research provides insights into the unique history of this specific anatomical model.

Profile

The individual is a complete skeleton besides a missing left hand. The remains are clearly that of a female, based on a multitude of non-metric traits in both the skull and pelvis. She was likely early- to mid-thirties at the time of her death based on cranial fusion (Figure 2), sternal rib end, an unfused sternal rib cap, and an unfused iliac crest. Her teeth were in too poor condition to provide any substantial evidence for age or origin identification. This person demonstrates a mix of traits indicative of origin, but based on the historical precedent of skeletal model origin and the one record she retains at GVSU, it is likely that she was of Indian origin. She was somewhere between 4'8" and 5'3" in stature. Due to a slightly more robust left arm, an asymmetrical spinal fracture, and a spinal shift, it is possible that she was left handed.

Pathology and Trauma

This individual's teeth were poorly maintained both in life and in death; 7 teeth were missing, 4 were broken, and 8 of them displayed serious carious lesion(s), or cavities (Figure 7). She appears to not have developed third molars. Considering the relatively young age of this individual, she displays significant arthritis in her spine, femur sockets, mandible (asymmetric), in the posterior end of several ribs, and in her hands (Figure 6). She also had several fractures; this includes a fracture on one of her scapula, as well as evidence of actively healing fractures on her left tibia and fibula that indicate that the leg was crushed at one point. There was an odd overgrowth in the ankle that could also be indicative of a fracture. She demonstrates a possible case of asymmetric spondylolysis on the 1st lumbar vertebrae, with the fracture present only on her left side (Figure 3). Her spine also exhibits several unique traits, including a non-metric trait consisting of two holes on one of her vertebrae, flattening of the spinous process on the last 4 thoracic vertebrae, and a slight spinal shift.

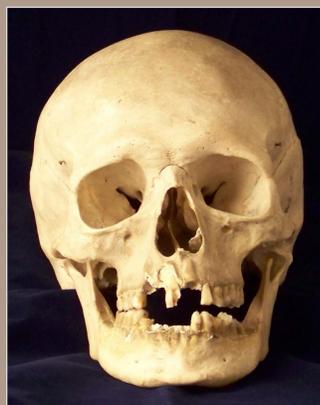


Figure 1. Front view of Twiggy's skull



Figure 2. Profile view displaying no fusion along the sphenotemporal suture

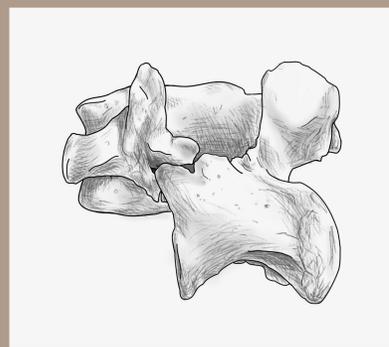
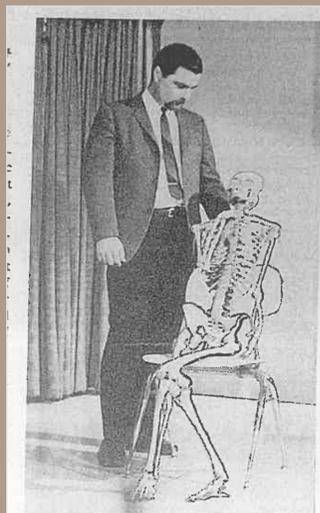


Figure 3. Digital rendering of the possible spondylolysis on the L1 vertebrae



Would you care for this dance, my dear?

Twiggy arrives

Grand Valley welcomes the arrival of a new faculty member. She came last week-- in a casket.

Her name is "Twiggy," after England's famous scrawny model, and she's a gift from Lodge No. 12, Grand Rapids International Order of Odd Fellows to the GVSC anthropology department.

Homer Burch and Lec Lloyd, members of the Lodge, explained that the skeleton, that of an adult female probably from India, was used in initiation ceremonies of the Lodge. After fulfilling her use and now that Lodge 12 is merging with another in the city, Twiggy was left without a place to call home.

Professor Richard E. Flanders, head of GVSC's anthropology department (he's the one on the left) stated that Twiggy will be used for studies by his students and those in anatomy classes.

Figure 4. Lanthorn article describing Twiggy's arrival at GVSC



Figure 6. Metacarpals of the right hand displaying significant arthritis



Figure 7. Diagram of Twiggy's dentition

TWIGGY'S TIMELINE

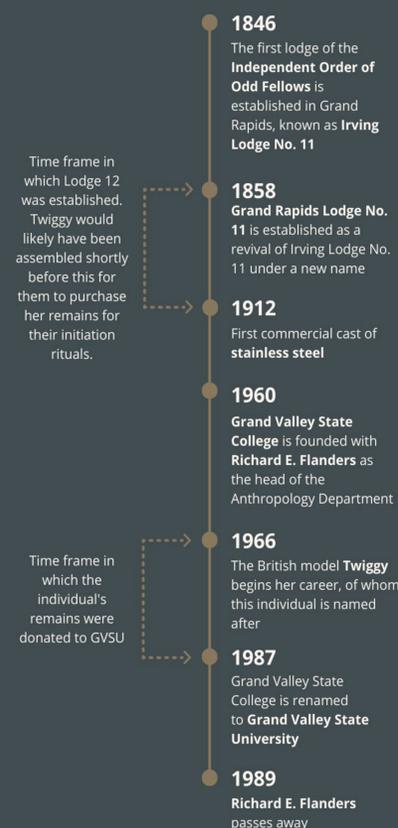


Figure 8. Timeline of Twiggy's journey post-mortem

Discussion

Based on the abundance of arthritis, dental caries, and fractures that Twiggy has sustained at her young age, it can be said that she did not live a very comfortable life. The arthritis suggests large amounts of movement and physical stress. This is supported by the potential spondylolysis fracture in her spine, which is typically brought about by intense physical activity. In addition, due to the time period in which she was assembled (see below), it is quite possible that her body was procured unethically by robbing her grave, as legislation was not yet in place to prevent this. Once she was acquired, assembled, and sold, she would continue her life after death in Grand Rapids, MI. The only record of Twiggy in the Anthropology department was found in a very brief Lanthorn article of an unknown date (Figure 4). Between this article and what appear to be brass fastenings, it can be hypothesized that she was assembled shortly before the establishment of the Independent Order of Odd Fellows' Lodge 12, which was somewhere in between 1858 and 1886. She then served in their initiation rituals until she was donated to Grand Valley State College somewhere between 1966 and 1987, where she has remained since (Figure 8).

Further Directions

It is first important that a disclaimer is included, as some information is lacking or temporarily inaccessible due to the abrupt adjustments in response to the COVID-19 pandemic. It is also important to note that, although a lot of information exists on the history of cadaver acquisition, there is not a lot of literature detailing the history of medical skeletons, which typically originate from different sources than cadavers. Additional research could be done in this area to fill in gaps in the literature, especially since few medical skeletons retain records with them.

With that being said, there are still further avenues that could be investigated in regards to Twiggy's history. One of these could entail further analysis into her story in life with investigation into the mechanics responsible for her pattern of arthritis and her multitude of fractures. This could involve some research into daily life and occupations in late 19th century India. Another route may involve doing additional research to find records of the Odd Fellows' Lodge 12; when it was established and when it merged with another lodge in particular.

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