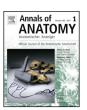
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Research article

The identification and restitution of human remains from an Aché girl named "Damiana": An interdisciplinary approach



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SUMMARY

In June 2010, the postcranial skeleton of an adolescent girl was returned by the Natural History Museum of La Plata, Argentina, to the Aché community in Paraguay. In March 2011 the missing skull was identified in the anatomical collection of Charité in Berlin. We initiated a historical and anthropological investigation to confirm the identity of the human remains and to reconstruct the fate of the individual in question in its historical context.

Anthropological publications from Argentina had indicated that the girl named "Damiana" was abducted by colonising settlers in Southern Paraguay in 1897 at the age of 3–4 years, later taken to La Plata in Argentina where she grew up as a "maidservant", and died in 1907 of "galloping consumption". In accordance with these reports, the present palaeopathological investigation confirms tuberculous meningitis as a likely cause of death. It also demonstrates some markers of "stress", the nature of which, however, is difficult to determine. Surviving letters and publications by Berlin anatomist Hans Virchow reveal that the girl's preserved head was sent from La Plata to Berlin in January 1908 for comparative investigations in the context of the racial theories of the time. We were convinced that the justified wishes of the Aché community to bury these remains alongside those restituted in 2010 outweighed any future scientific interest in these remains. In April 2012, the skull and two related specimens were returned from the Charité to the Aché community, mediated by the Paraguayan ambassador in Berlin.

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1. Introduction

The Berlin Charité, like other academic institutions with a comparable history, has acquired and housed large anthropological collections, big parts of which stem from the colonial period. Owing to lack of individual data in the primary documentation and the high number of records lost in the course of the 20th century, it has so far generally proven difficult to make positive statements about the origin of human skulls in these collections and how they were obtained, distributed, scientifically analysed and assigned to specific collections. It was for this reason that the interdisciplinary "Charité Human Remains Project" was launched in the autumn of 2010 to investigate the present anthropological collections as well as to explore their historical past in relation to colonial history and history of science. The project has been funded by the Deutsche Forschungsgemeinschaft (German Research Foundation). Due to Germany's specific colonial past, the main focus of the project so

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far has been on specimens originating from Africa (Winkelmann, 2012).

In February 2011, by way of an enquiry of a journalist related to the Grupo Universitario de Investigación en Antropología Social (GUIAS) from Argentina, it was first brought to our attention that one of the skulls in the anthropological collection of the former Institute of Anatomy of Berlin University may be related to the case of an Aché girl named "Damiana" from Southern Paraguay. The Aché, pejoratively called "Guayaki" in the past, are a native South American population, which originally lived in the tropical forest of eastern Paraguay and who then subsisted on forest food products and limited farming, mainly relying on hunting and gathering. Since the first arrival of the Spaniards about 400 years ago, the Aché lived a rather reclusive life, mostly avoiding contact with outsiders (Hurtado et al., 2003). In the 1960s, expanding agriculture forced the last Aché from the forests and reduced the population to <350 (Reed, 2008). Between 1971 and 1979, they were settled on reservations but moved to what was identified as their ancestral homeland in 2000 with a recent population size of more than 1000 individuals (Ireland and Ziker, 2011; Reed, 2008).

At the time of the mentioned enquiry, it was known that the girl in question died in La Plata, Argentina in 1907 and that her postcranial skeleton had been kept at the *Museo de Ciencias Naturales de La Plata* by local anthropologist Robert Lehmann-Nitsche

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while the head had been sent to anatomist Hans Virchow of Berlin University for anthropological research (Lehmann-Nitsche, 1908; Virchow, 1908a). In 2010, the postcranial skeleton was restituted by the Museo de La Plata to the Aché communities in Paraguay (Weisinger Cordero and del Carmen Maza, 2011). At this time, the whereabouts of the skull were still unclear, most likely due to a confusion of anatomist Hans Virchow with his famous father, the pathologist Rudolf Virchow (1821–1902), who was associated with other anthropological collections. The presence of the skull in question could be confirmed shortly after the enquiry. As a basis for negotiations about a possible return of human remains, we initiated an interdisciplinary investigation to confirm the identity of the present remains with the published case of "Damiana" and to elucidate the historical fate of the female individual behind these remains. Eventually, human remains were returned from Germany to Paraguay in April 2012. This restitution comprised not only the skull, but also two related specimens from the same collection: the dried scalp and a specimen of the tongue preserved in formalin.

The research presented here used an interdisciplinary historical and anthropological/palaeopathological approach. Historical research can contribute to a "provenance analysis" by uncovering historical publications and archival sources and by investigating the historical context, including the colonial circumstances as well as the scientific methods and objectives of the time. The investigation of skeletal remains contributes in two ways, by examination of ancestry and by investigation of the individual fate behind the remains. Bones have been called "bio-historical documents" (Sommer and Krüger, 2011) and can contribute to the reconstruction of a personal biography (Aufderheide and Rodríguez-Martín, 1998; Haglund and Sorg, 1997). This includes information on sex, age, biological ancestry, diet, nutrition, diseases (of childhood and adulthood), violence, and possibly cultural background (as, e.g., in tooth manipulations). The interdisciplinary challenge is to create an accurate picture of individual fate and historical context by aligning and weighing the available historical and anthropological information.

Our detailed research questions in this case were:

- 1. Can the origin and individual fate of the girl be reconstructed beyond the information given in the original publications (Lehmann-Nitsche, 1908; Virchow, 1908a)?
- 2. What was the historical context of the acquisition of these remains in view of the colonial past and of the history of science?
- 3. Which diseases and which living and environmental conditions can be identified by examining the skeletal remains? Can the cause of death be determined?
- 4. Do the results of an anthropological and palaeopathological examination match the available historical information?

2. Methods

Our study was performed as part of the interdisciplinary approach of the "Charité Human Remains Project". Historical data were gathered by an investigation of all available historical publications and catalogues regarding the present case, supported by more recent publications and by a search for archival sources.

The skull was examined by anthropological and palaeopathological analyses. Palaeopathology is the study and application of methods and techniques for the research of diseases and related conditions from ancient skeletal and soft tissue remains. Applied anthropological methods (Martin, 1928; Buikstra and Ubelaker, 1994) included sex and age at death determination, biological ancestry estimation and metric analyses, and photographic documentation of results; palaeopathological investigation was by macroscopic inspection.

For our metric analyses, we additionally used FORDISC 3.1[©] Personal Computer Forensic Discriminant Functions (Ousley and Jantz, 2005; Ubelaker et al., 2002), which is an interactive computer programme, running under Windows, for classifying individuals by ancestry and sex using any combination of standard measurements (depending on the available comparing reference populations measured for FORDISC). Overall, we used 19 measurements of the cranium for this craniometric discriminant function analysis. Cranial analysis according to Martin (1928) was performed on 31 measurements and nine indices.

Part of the macroscopic examination was the search for transversal enamel hypoplasias, which are defined as transverse lines of deficiency in enamel thickness resulting from growth disturbances due to a disruption during the matrix apposition stage of enamel development (Goodman et al., 1980). These enamel hypoplasias can be used as an indicator of "stress" (e.g. malnutrition or disease) since stress can lead to growth disruption. In order to determine the age at the time of hypoplasia development with reference to the chronology of enamel development (Massler et al., 1941, p. 48), the distance of the centre of a given hypoplasia from the cemento-enamel junction was recorded. For conversion of the measured distance into age at development, a chart was used according to Goodman et al. (1980, p. 520).

3. Results

We will first present basic information about the starting point of our research, i.e. the specimens present in today's anatomical collection. This is followed by our research results which are divided into two subsequent sections: historical findings and anthropological/palaeopathological findings.

3.1. Specimens in the collection and available documentation

Three specimens in the collection of the former Institute of Anatomy of Berlin University could be linked to the present case: a macerated skull (complete with mandible), a dried scalp with hair, and a formalin-fixed specimen of the tongue and adjacent glands. The skull carried the inscription "1911.Nr. 46.b" in ink on the left parietal bone as well as on the left mandibular branch. Markings in ink designated muscle origins on the mandible, maxilla and zygomatic arch, often including the inscribed name of the related muscle. The skull was accompanied by a plastic plate with the inscription "Schädel u. Gesichtsmaske einer Guajaki-Indianerin. 1911. No. 46" [skull and facial mask of a female Guajaki Indian]. The scalp and tongue were accompanied by plastic plates also referring to a "Guajaki-Indianierin", to the year 1908, and to Nos. 18 and 19, respectively. The skull also carried a label with the number 100 and a tag with the number 515.

Records of these specimens were available in the historical *Zugangskatalog* (Collection Entry Catalogue) in possession of the Charité Centre for Anatomy. From 1883 to 1916, this catalogue was kept by Wilhelm Waldeyer (1836–1921), who was director of the Berlin Institute of Anatomy from 1883 to 1917 and president of the *Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte* (Berlin Society for Anthropology, Ethnology, and Prehistory; BGAEU) from 1893 to 1910 (Winkelmann, 2007). The catalogue entries are reproduced in Figs. 1 and 2. In these entries, "a" and "b" have obviously been confused, as the skull is labelled No. 46b, but referred to as "46a" in the catalogue. The number 515 refers to a list of European (!) skulls from the 1960s, also in possession of the Centre for Anatomy, with an entry "Guajaki-Indianerin" under this number. The number 100 cannot be associated with any catalogue or list.

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