Osteology and Provenance of the Parkinson Collection, New Britain

This summary report presents and discusses the results of the osteological analysis performed by me, Dr. Damien Huffer, at the Etnografiska Museet during November and December 2019. The collection assessed is the "Parkinson Collection" of human crania (n=45) exported from New Britain, Papua New Guinea, in 1897, or earlier. This report is compiled in advance of a short case study research article focused on the osteoarchaeology results, to be submitted as a to the *International Journal of Osteoarchaeology*, as well as perhaps a longer article focused on results of collaborative archival research between museums to better understand Parkinson's human remains collection and sales activities in historical context. This additional publication would be submitted to the *Journal of the History of Collections*.

This article, like the summary report presented here, takes a mixed-methods approach to further advance the interdisciplinary study of Colonial-era human remains collecting. It combines a literature review, evidence available in newly transcribed and translated archival records, as well as a multi-pronged osteological assessment. The report is structured as follows: a) Introduction; b) Method and theory useful for osteological analysis of ethnographic human remains collections; c) Background and context of the Parkinson collection; d) Demographic assessment; e) Decoration and other cultural modifications; f) Taphonomic modifications; g) Trauma and pathology; h) Discussion; i) Conclusion – contextualizing Colonial collecting within present-day trafficking. Tables and figures discussed are submitted as supplemental material.

Introduction

Today, museums, descent communities, law enforcement and osteologists/forensic anthropologists are increasingly becoming cognizant of both the realities of the history of anthropology and Colonial collecting of human remains, and more recently, today's trafficking in human remains. This project assessing the osteology and collecting history of the Parkinson collection held by the Etnografiska Museet is therefore part of a global effort to develop and refine a new approach to understanding a "macabre" practice: the collection of Indigenous human remains in both the Colonial past and digital present.

There exists today a multifaceted, complex, human remains collecting community operating across several social media and e-commerce platforms, despite efforts to control trafficking (Huxley and Finnegan 2004; Vergano 2016; Kim 2012; Killgrove 2016; Halling and Seidemann 2016; Seidemann 2017; Huffer and Chappell 2014; Huffer and Graham 2017, 2018; Huffer et al. 2020a,b). Within this community, modified skulls from a variety of Indigenous cultures are relatively highly sought-after. These include allegedly authentic skulls or mummified heads taken from 'enemies' or heirloomed from 'ancestors' from the Dayak of Borneo, the Asmat of West Papua (Indonesia), the Iatmul (Papua New Guinea), the Munduruku (Brazil), and *tsantsas*, or "shrunken heads" of the Jivaroan tribes of Ecuador and Peru, among many others, including numerous Melanesian, Micronesian and Polynesian cultures currently less "famous" among today's human remains collectors.

In the course of European exploration of its remote colonies and subsequent interaction with Indigenous people from the mid-1800s to early 1900s, modified crania were actively sought by officials or 'natural historians' of several nations, deemed exotic 'curios' or specimens of

customs or burial traditions that were, even at that time, changing or disappearing under pressure from Western missionaries. Colonial-era accounts (e.g. Bock 1881; Rutter 1929; Hose and McDougall 1993; Brooke 1866; Zegwaard 1959; Barbosa-Rodrigues 1882; von Martius 1867; Parkinson 1907) detailing how, why, and where human remains collecting occurred are often vague.

At the same time, as Indigenous people voluntarily (or forcibly) entered Western cash economies, new opportunities to use or re-use ancestral remains within nascent 'curio' markets surfaced, as is beginning to be understood and researched for Jivaroan "shrunken heads" (*tsantsa*)(Houlton 2018; Houlton and Wilkinson 2016, 2018). The modified remains that began to enter Western museums, therefore, can be expected to represent a wide variety of origins, lives and "afterlives". An integrated anthropological approach is needed to better understand who was collected and when, how crania were decorated and curated, original burial or storage conditions, whether or not the individual remains were altered after collecting (i.e. used as medical or teaching "specimens"), or whether museums hold post-Colonial "forgeries" (i.e. real, usually unprovenienced, human remains modified to appear to be an $18^{th}/19^{th}$ century Indigenous-made example, sometimes acquired from private collectors).

Osteological Analysis of Ethnographic Human Remains Collections: Theory and Method

Osteological data pertaining to demography, trauma and pathology creates a 'biological profile' for each individual. Even with only the cranium, mandible, and teeth present, much information is obtainable about individual life histories, burial/storage conditions, and post-mortem modifications using non-destructive methods (e.g. Bonogofsky 2011), let alone the minimally destructive methods outlined in the "Assessment for suitability of sampling" supplementary document. So-called biodistance data (assessment of variation in cranial and dental shape/dimensions via metric measurements and the presence and frequency of rare, morphological variations shared between individuals and populations) serves as by-proxy measures for individual or population-specific genetic variation in the absence of DNA analyses (e.g. Rathmann et al. 2017; Hubbard et al. 2015).

Very little osteoarchaeological research on ethnographic modified human remains has been conducted globally (e.g. Bonogofsky 2011; Douglas and Stodder 2006), but what has been done includes preliminary investigation of osteological signatures of Dayak headhunting and how modification varied between groups and possibly between the late 1800s and early 1900s (e.g. Okumura and Siew 2013; Huffer and Okumura in prep; Mally 2015, 2017). Conducting similar research for other collections within their cultural and temporal context, such as the summary results presented here, benefits museums and descent communities alike.

Osteological data collection proceeded according to standard and data-specific methods (Buikstra and Ubelaker 1994; Hauser and DeStefano 1989; Pilloud and Hefner 2016; Scott and Irish 2017). Age estimates were obtained primarily from assessment of degree of cranial suture closure, tooth eruption (for younger individuals), and general assessment of degree of tooth wear (however, exceptionally gritty or soft food, or use of teeth for purposes besides eating, can result in teeth more or less worn than would be expected for the age estimate derived from bones). White and

Folkens (2005) and Buikstra and Ubelaker (1994) provide concise summaries of standard scoring procedures for cranial sutures.

Sex estimates were obtained through the macroscopic comparative analysis of those aspects of the cranium that show greatest sexual dimorphism (although degree of variation between males and females is population specific). The primary aspects are: 1. Supraorbital margin; 2. Glabella; 3. Mastoid process; and 4. Nuchal crest. General cranial, mandible and tooth size and robusticity can also be informative for estimating the sex of an individual, especially from the skull alone. Each sexually dimorphic region is scored 1-5 based on degree of robusticity (see White and Folkens 2005), where scores entirely or mostly 1 or 2 suggests female, mostly 4 or 5 suggests male. While it is always ideal of have additional bones to assess, especially the pelvis, at least general sex estimates can be made from adult crania as well.

Evidence for taphonomic modifications, trauma, pathology, and decoration was recorded macroscopically and for the most part recorded as present or absent, accompanied by descriptive notes. Photographs of each skull were also taken from front, right, left, back, and underside (basicranial) perspectives, in addition to detail shots of maxillary and mandibular dentition and specific aspects of each skull as warranted, some of which are selected as figures below. All photographs were taken on a black background within a Lastolite brand "cube" at chest height, using a label, large-object scale bar, 5cm scale bar, or external lighting where needed.

Cranial and dental metric measurements were collected using Cocraft brand digital calipers and spreading calipers, while the presence of rare osseous and dental variants ("non-metric traits") were assessed macroscopically or using a 10x handheld magnifying lens. In tables 5 to 8, all measurements are reported to the nearest one (cranial) or two (dental) decimal points, in millimeters. Cranial and dental non-metric traits were recorded as 0 (absent) or 1 (present), with few exceptions, in which case categorical variation was recorded for later double-checking as to where the "breakpoint" between trait presence or absence should be. Statistical analysis of this data will proceed later and form part of a separate research article in progress but are not discussed here.

The Parkinson Collection: Known History and New Information

This section provides a brief summary of what is known about Parkinson (and family's) whereabouts and collecting activity in the late 1800s specifically, about his relationship with the practice of acquiring human remains, and ends with discussion of any pertinent new information contained in the documents held in the Etnografiska Museet archives, newly translated and transcribed by my colleague Dr. Anke Hein (https://www.arch.ox.ac.uk/people/hein-anke).

Richard Heinrich Robert Parkinson was born 1844-13-11 in Schleswig, Germany (when this province was part of Denmark), and died in 1909 in New Britain (see Specht 1999 and Parkinson 1907 for summaries of his childhood, married life to two spouses, and early collecting activities elsewhere in the Pacific). His and his families collecting activities in New Britain began in 1882 when they arrived in the "Duke of York" Islands and, by 1884, he was settled in Ralum (new modern day Rabaul) on the northeast coast of the Gazelle Peninsula. Thus, his (or his family member's or possibly employers) collecting activities in the late 1800s seem to have focused on

the Gazelle Peninsula and would have brought him into contact with the coastal Austronesial Tolai people, the Papuan-language speaking Baining people and related smaller groups in the Baining Mountains, and perhaps as far south as the Wide Bay area, where the Gazelle Peninsula joins the rest of New Britain. See figure 1 for the location of the highest mountain in the Baining Mountains, Mt. Varzin (Vunakokor).

By 1884, Parkinson, courtesy of his employers and casual business partners Thomas and Emma Farrell (nee Forsythe) had begun collecting for or communicating with the Australian Museum in Sydney to ship several containers worth of artifacts and zoological specimens (Specht 1999). Archival records preserved there document these transactions, including for human remains. A shipment is said to have arrived in 1890 (Specht 1999: xx), after which their contact at the museum requested more, 'as fresh as possible so the bones can be whitened', and 'thousands' if possible. Parkinson expressed reservations about this given the "trouble" and "danger" involved, and could not fill Ramsay's largest requests, especially as "keeping sinews on the hands and feet" and to "keep the scalp and hair on the skull" required grave robbery soon after burial. The condition of some of skulls discussed below, however, suggests that he tried to find ways to accommodate at least the latter request.

Specht (1999) goes further to detail that Parkinson was offering to provide human remains to other individuals (such as George Dorsey, chief curator of the then Field Columbia Museum, Chicago) as late as 1905 and 1906. Whole skeletons were sought, something that Parkinson stressed the "Natives could not be trusted with the collecting", and that skulls from the Gazelle Peninsula could be sent without delay, but from other areas (the Wide Bay region or beyond?), it would take more time and cost more. The latest mentions of shipment sizes include a box of 50 Gazelle Peninsula skulls ready to ship (US $2.50/skull), and another box of 75 from elsewhere that Dorsey could please come pick up. Where these crania ended up, if they ever left, is unknown at present. By the 1920s after Australia took control of the former province of German New Guinea (which included New Britain and New Ireland), collecting was banned. To what extent grave robbery or violation continues in this region to feed today's private and online market is also unknown.

In terms of materials held by the Etnografiska Museet archives (translated and transcribed for this first time to be included in this project), there are pages of four separate letters between Parkinson and Dr. Hjalmar Stolpe. In chronological order, they date to: 1. 1896-5-17 (sent from Stockholm to Parkinson in Ralum, formerly Rabaul); 2. 1896-10-15 (sent from Ralum, Bismark Archipelago to Stolpe in Stockholm); 3. 1897-2-10 (sent from Ralum, Bismark Archipelago to Stolpe in Stockholm); 4. 1897-11-15 (sent from Ralum, Bismark Archipelago to Stolpe in Stockholm).

The content of these letters suggests that Stolpe had known of Parkinson for some time, such that Stolpe recommended Parkinson be admitted to the Swedish Society of Anthropology and Geography. In the first letter, Stolpe introduces himself as a curator in the Museum of Archaeology who is also partial to ethnography. He details his travels throughout the Pacific as part of Swedish expeditions, his own private collection and habit to "collect things like mad", and laments that the days this is possible in Polynesia are fading. His collecting focus at the time, however, seemed to be firmly on ornaments and other artefacts.

Parkinson responds kindly in the second letter, explaining that he is British but grew up in Denmark and is thus "Native Dane" enough to understand Swedish and read articles Stolpe sends. His children, being raised in New Britain, were even actively learning Swedish songs. Parkinson disagrees with Stolpe, however, on the role of later Polynesian migrations from west to east as a source of influence on already established Melanesian cultures and languages (Stolpe suggests the now-known-to-be-correct explanation of back-migration in later prehistory). In the third letter, Parkinson makes first mention of donating a collection of skulls, either shipped via contacts in Bremen, or possibly shipped via England. Whether the skulls mentioned here are the same as the collection now held by Ethnografiska is unknown, as the rest of the letter mentions his work in the Solomon Islands and Bougainville.

Most directly relevant to this project is the below portion from the letter dating November 15th:

> "Today, I am sending you to your address a box with 50 skulls of the natives of the Gazelle Peninsula. These include individuals of both sexes and all different ages and without exception natives without intermixing with other tribes as it can happen along the coast. The skulls all come from the area around Mount Varzin (Beautemps Beupre) in the center of the Gazelle Peninsula, more specifically from villages on the northern and northeastern mountain slopes."

He continues and concludes this short letter by expressing the hope that this collection will "fill a gap in the collections of the museum", but that "you" (Stolpe) would have to clean the skulls after they arrived in Stockholm. Their current condition indicates this was never done. In fact, there are several individuals with specific teeth at some point glued into the wrong socket, or backwards, and two individuals with the mandible glued to the cranium. Whether this was done by the "the freight forwarder Christian Meyer in Bremen" (as mentioned in the letter), or by Stolpe, or previous curators, is unknown.

Osteological Analysis of the Parkinson Collection: Results

Demographics

The first step in conducting an osteological analysis of a poorly known collection is to perform a demographic assessment of age and sex estimates (see table 1). In the case of the Parkinson collection held by Etnografiska Museet, age and sex estimation assessment suggest 29 male or probable male, 13 female or probable female and three juveniles (two older children, one child). In terms of age estimation, 20/40 (50%) are comfortably young adult, four individuals (10%) are comfortably older adult (50+), and the remainder are not able to be accurately placed into one adult age class (i.e. their combination of cranial suture closure scores and tooth wear is not conclusive).

Decoration and Cultural Modifications

As can be seen in table 2, a total of 23/45 individuals (51%) show clear or trace evidence for some kind of decoration. Here, I use the terms additive vs. reductive, borrowed from Douglas and Stodder (2006) to describe how decoration is applied; whether it is added to the remains or created by removing bone or deliberately removing teeth. In Etnografiska's collection from Parkinson, no individuals fall into the reductive category. Table 2 indicates that individuals of all

age classes and both sexes, as well as both older juveniles, had decoration applied to the crania. Decoration almost entirely takes the form of small loops of frond, grass, or in one case, twisted rope, attached to one or both zygomatic arches (eight individuals, both sexes and not restricted to one age class), as well as the application of medium/dark red pigment, or evidence that pigment had once been present (15 individuals, both sexes and not restricted to one age class). Only five individuals exhibit either remnant hair still attached to the skull, or one or more teeth stained deep black and rendered shiny, most likely from betel nut use; discoloration different than that caused by soil. An example can be seen in figure 2. All those individuals listed in table 2 as not having decoration either clearly do not, or possible traces of decoration cannot be readily distinguished from post-mortem taphonomic changes, discussed further below.

Taphonomy

The presence or absence of various taphonomic modifications for each individual can be seen in table 3. When assessing post-mortem alteration to human remains as indicative of burial or storage condition or modification after death, especially of a Colonial era or unprovenienced collection, taking a forensic anthropological approach is most prudent. Thus, further information and definitions of each category recorded for can be seen in, e.g. Haglund and Sorg (1996) or Pokines and Symes (2013). Approximately half of the individuals (n=24) show some form of postmortem breaking or damage where "fresh" bone or tooth root is exposed. This includes postmortem breaking of enamel. Interestingly, almost no individuals show signs of animal damage or insect activity, such as egg casings or pupae, but almost all individuals have traces of mud (or actual adhering soil), and roots or rootlets, and these mostly concentrated in the basicranium of the skulls, as well as in the orbits, nasal, and often, endocranially (inside the skull).

On the cranial vaults, most individuals also show at least some evidence for staining or the accumulation of dark brown, black, or deep reddish-purple organic residues, often rendering the skull mottled in appearance. A few individuals (n=6) show clear demarcations between lighter and darker areas. 19 individuals (42%) show signs of spalding, or the flaking away of the surface layers of bone, often accompanied by a smoothing or weathering of the exposed bone. Only five individuals, however, show clear or possible evidence for bleaching, or the whitening of bone due to sun exposure. The most atypical aspects of the taphonomy of this collection, however, is the presence of preserved dry tissue on the basicranium or in the orbits or nasal cavity of four individuals, all males of various ages (see figure 3).

Pathology and Trauma

Data pertaining to prevalence of trauma, osseous or dental pathology and condition can be seen in table 4. A useful guide to recognizing, scoring and interpreting a wide range of pathologies in human skeletal remains is Ortner (2003). In terms of patterns of osseous pathology within the Parkinson collection, overall frequency is relatively low, with 16/45 individuals (35%) showing any clear or possible (i.e. faint and somewhat indistinct) evidence for bone destruction or remodeling in response to pathology. In most cases, and across age class and sex categories, pathology is limited to distinct patterns of pitting or destructive wear on either the cranial vault or mandibular fossa and condyles. The most severe example recorded of bilateral pitting and wear on both the mandibular fossa and condyles can be seen in figures 4a and 4b (1897.09.0007; an

older adult female). Individuals showing pitting or wear in the mandibular fossa or condyles do not always show corresponding elevated levels of tooth wear.

In terms of osseous pathology related to metabolic deficiencies or malnutrition, very little evidence is seen across the collection (although the rest of the skeletons to which these crania belong might instead show significant evidence for active or healed pathology). One common osseous manifestation of malnutrition (in this case, iron deficiency or anemia) is *cribra orbitalia*, that manifests as pitting or sometimes boney "spicules" (spikes) of bone located on the orbital roofs. It is often co-morbid with *porotic hyperostosis* or pitting of the cranial vault surface with distinct borders separating areas of pathology from unaffected bone (e.g. Oxenham and Cavill 2010). Here, only two possible examples of *cribra orbitalia* are noted, both in young-middle aged adult individuals, one male, and one female. Several more individuals show evidence for periosteal (bone surface) pitting on the cranial vault or palate, and distinct from taphonomic modifications.

Dental and gum (periodontal) health is generally good. General levels of occlusal (chewing) surface tooth wear or enamel chipping is not uniform, with several individuals showing relatively unworn teeth considering their age estimate, and very few individuals showing antemortem enamel chipping. While almost all individuals show at least light accumulation of dental calculus, pitting or recession of the gum line (indicators of periodontal diseases like gingivitis) is observed in 64% of individuals (29/45), across all age classes and both sexes, but in general, degree of severity is light. Only three individuals show any evidence for dental caries (cavities), with those recorded being small, shallow, and located on the occlusal surface.

More telling of dental health is the prevalence of so-called "linear enamel hypoplasia", as well as dental abscesses and evidence of antemortem tooth loss. Seven individuals (16%) showed some evidence for macroscopic enamel defects, especially on anterior teeth (canines and incisors). However, the number of affected individuals or teeth is most certainly underestimated due to both teeth lost antemortem or postmortem, and that microscopic assessment has not been carried out (Hassett 2014). Fourteen individuals, all but two males, and of all adult age classes, show evidence for abscesses that have destroyed bone on one or both sides of the affected tooth root. All are located at molar roots and, in most cases, affect only one tooth. In three cases (1897.09.0002; 0017; 0028), it is likely that multiple abscesses occurred, causing substantial antemortem tooth loss and possible subsequent infection and mortality.

Prevalence of trauma across this assemblage is also relatively low, with a total of 12 individuals showing any evidence of healed trauma of any sort. All but three individuals are female, and categories of trauma comprise both crushing fractures (to the maxilla and orbital margins) as well as 5 (possibly 6) examples of healed cranial vault trauma. One of the larger examples of cranial vault trauma can be seen in figure 5 (1897.98.0039; a young adult probable female). Interestingly, the shape made in each case of vault trauma is "teardrop" shaped, suggesting each was made by similarly shaped object, perhaps a spiked weapon. To summarize, if this collection of crania can be said to be "representative" of the populations from which they came, then interpersonal violence was relatively infrequent.

Discussion

The demographic data obtained for this collection by standard age and sex estimation methods for crania indicates that, as Parkinson suggested in his last letter to Stolpe, the shipment he sent to the museum really does contain individuals of "both sexes and all different ages". This demographic profile further suggests, then, that Parkinson (or anyone he employed to collect remains for him, given his stated aversion to it) knew enough basic osteology to not simply take skulls at random. If this is the case, however, then it is arguable that the Parkinson collection is not entirely representative of its source populations (hypothesized for now to be one or several Baining villages). If so, this pattern of collecting would be markedly different from the actions of early German (or other Western) anthropologists in the Pacific (e.g. Spennemann 2006). This has direct significance for interpreting patterns of pathology and trauma especially as being representative of community-level health and levels of conflict in the late 1800s and in response or relation to Western contact and possible associated changes to diet and customs.

Parkinson notes (1907: 70) that, upon the occasion of a death in a Baining community:

> "On the death of a Baining, be it man or woman, it is just as simple… After they (the family) have departed, a grave is dug and the corpse laid in it; in many villages the grave is filled in, elsewhere the corpse lies there freely exposed. Whether dogs or pigs use the body as food seems to make no difference to the survivors."

From the evidence obtainable from the collection at Etnografiska, it being only crania, there is little evidence for the kind of trampling damage, gnawing or breaking that might be expected if the entire body was left exposed for large animals to disturb (although of course the skeletons associated with these skulls might tell a different story). The patterns of staining, spalding, and possibly the presence of soil and roots in the patterns observed could be due to each individual having been fully buried before later exhumation to remove the skull in the process of collecting, as suggested was done for Tolai "big men" (Parkinson 1907:81).

However, I propose that on balance of evidence, collecting would have occurred after secondary mortuary rituals in which the skull (sometimes not entirely decomposed, as evidenced by those individuals with dried tissue still present) was removed from its place of primary internment and put elsewhere; in this case, likely a sheltered elevated area that was still also open to the air and elements. If these crania belong to individuals from villages on the slopes of Mt. Vunakokor, as Parkinson suggested in his 15th November letter to Stolpe, then secondary burial or storage as an ossuary within a shallow cave, in which the dead of both sexes and all ages can reside together as collective ancestors could be possible. Especially suggestive of this, at present level of analysis, is the relative lack of disturbance by scavengers, the consistent pattern of soil and roots being present on or through the underside of the skull (suggesting the skulls were left sitting upright), as well as the distinct two-tone pattern of staining seen on several skulls, in which one section is stained a dark reddish-purple, a color caused by manganese or iron rich soil (ref here). Furthermore, whether these crania all came from one location or were collected from several hypothetical ossuaries, the prevalence of hair and dried tissue on some individuals, let alone variation in patterns of discoloration and staining, suggests that degree of exposure to sun, water, air, etc. varied substantially.

Patterns of trauma and pathology, on first analysis, seem to be comparable with those seen in other, albeit prehistoric, skeletal assemblages in Melanesia/Near Oceania (e.g. Scott and Buckley 2010; Buckley et al. 2008). However, very little comparative research has been conducted on Colonial era populations, and almost all those focus on trauma and decoration (e.g. Okumura and Siew 2013; Bonogofsky 2011; Mally 2015, 2017). The relatively minimal and unelaborate decoration when compared to the crania carving or overmodeling traditions elsewhere in Papua New Guinea and Melanesia (e.g. Douglas and Stodder 2006) is interesting and will be investigated further for publication. Significantly, five individuals show shiny black staining on the labial (outer) surface one or several teeth. All but one are male, and all but one are younger adults.

Parkinson notes ritual tooth blackening as part of initiation rites among the Sulka and related tribes on Wide Bay, southern Gazelle Peninsula (Parkinson 1907), but their territory is too far away from Mt. Vunakokor to be the likely source population for these individuals. Betel nut chewing to stain the teeth black, however, is known from cultures throughout New Guinea and the Pacific, one reserved for select ceremonial uses (Zumbroich 2015), but today and perhaps as recently as Colonial times, began to be used more ubiquitously. No patterns of deliberate tooth ablation (tooth removal) with associated healing are observed. Some individuals have dark stained teeth of a different appearance to what is expected from betel nut use, suggesting the possible introduction of tobacco by this time.

From the results and discussion presented above, several areas of further research are identified that will be explored in more depth as this report is edited and prepared for submission as a journal article. These include:

-More in-depth analysis of the data at hand, including data visualization such as graphs or, where suitable, statistical analysis.

-Further investigation of what, if any, human remains collections Parkinson sent to other museums, whether these have already been repatriated (when, and to whom?). There is some indication (Specht 1999) suggesting that a shipment was sent to the Australian Museum in approximately 1886, thus before the Etnografiska Museet. Contact has been made with relevant curators there, as well as the Field Museum (also mentioned in Specht 1999).

-Further investigation of any literature describing Colonial-era burial practices of the Baining and related peoples, beyond what Parkinson (1907) described.

-Any information obtainable about where the Etnografiska Museet shipment might have resided between New Britain and Bremen, and Bremen and Stockholm, if anywhere.

Conclusion

As has been demonstrated above, and as will be expanded upon in more details as the journal article is prepared and finalized for submission, there are insights to be gained through the systematic osteological and taphonomic analysis of ethnographic human remains collections held by museums. While not everything can be known or understood about the individuals "collected", or turned into 'curios' or 'specimens', especially when only the skull was collected and written records are sparse, the research presented here indicates the continued utility of

applying the same techniques as employed by field archaeologists and forensic anthropologists to uncover what we can. In a larger sense, law enforcement and descent communities who seek repatriation of remains are increasingly realizing the benefit of collaboration with the scientific community to make prosecution of trafficking at all possible, and to help to ensure that repatriated remains return to the descent community(s) with the most realistic claim (Collard et al. 2019; Young 2016).

In those instances where these somewhat 'orphaned' collections are under the care of curators and osteological experts, we have the chance to look back on past collecting activity with the hindsight afforded by the advances in methodology and ethics that anthropology and museology has seen in the 20th and 21st centuries. However, as discussed in the introduction above, and as seen in figure 6, the private human remains trade for authentic or alleged authentic ethnographic human remains continues apace and continues to hide behind unevenly applied international legislation and the complacency of social media and several e-commerce companies. If we hope to see real legal reform, effective prosecutions, and the stripping of social media companies of their ability to 'wash their hands' of this problem, then as much data as possible about what separates Indigenous-"made" Colonial-era examples of modified remains from forgeries from as many cultures as possible needs to be obtained and, where agreed upon, made privately available to law enforcement and policy makers. Museum research is crucial to this effort, and thus to restoring some measure of humanity and identity to the collected.

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Definition of Terms Used in Tables

The below presents the official (or my own) definition of key terms and abbreviations used in each table, for ease of interpretations. Table contents and final form might change somewhat when the "case study" article is prepared for submission to Int. J. Osteoarchaeology.

Table 1:

1. Age Class: C = child (approximately 8 to 12 years old); OC = older child (approximately 12 to 17 yrs old); YA = young adult (approximately 18 to 30); MA = mature adult (approximately 30 to 50); OA = older adult (approximately 50 years old or older).

2. As a sex estimation category, "juvenile" here corresponds to those with age estimations too young to accurately determine sex from the skeleton.

3. The "Male?" and "Female?" sex estimation categories correspond to those skulls for which sexual dimorphism is not distinct, but the preponderance of evidence suggests either male or female to be more likely.

Table 2:

1. Additive vs. Reductive refers to whether the decoration present was put on to the skull (or is additional to the bone itself), or results from the deliberate removal of bone or teeth (e.g. carving, tooth filing, deliberate tooth removal, etc.). From Douglas, M.T. and Stodder, A.L.W. (2006). *Cranial evidence of ethnicity on the Sepik Coast, Papua New Guinea.* Gotland University Press.

2. "Accoutrement" = decoration attached to the skull; in this collection limited to botanical items.

3. "Other" = modifications or aspects of the collected skull due to cultural practices or preservation conditions, such as hair remaining attached to the skull, or teeth blackened, likely from betel nut chewing.

Table 3:

1. Postmortem breaking here is defined as any damage to bone or teeth that occurred after death and exposes fresh (unaged or weathered) bone below it, or where enamel has broken off. This could be due to previous improper handling, incorrect storage, etc.

2. Animal damage is here defined as any evidence for damage or surface alteration caused by the actions of animals (e.g. trampling, rolling, gnawing, etc.)

3. Insect traces are here defined as evidence that insects once occupied any area on or in the skull, including spider webs, egg cases, pupae cases, etc.

4. Soil is here defined as any residue or actual soil from the original burial or depositional environment remaining on the bones or teeth.

5. Roots are here defined as the presence of roots or rootlets from grass, vascular plants, or even trees remaining on or in the cranium, or traces/imprints of roots formerly present.

6. Tissue is here defined as any dried or fresh traces of tissue or ligament (excluding hair) remaining on or in the skull.

7. Staining is here defined as discoloration (darker than the light tan of cleaned “natural bone”) that has permanently set into bone, enamel or dentin (tooth roots).

8. Spalding is here defined as any evidence for exfoliation (flaking off) of the outer surface layers of bone.

9. Bleaching is here defined as any evidence for whitening of bone due to intense sun exposure.

10. Weathering is here defined as the “corrosion” of exposed bone, usually taking on a soft and friable look.

11. Polishing is here defined as the external surface taking on a smooth and shiny experience, either from deliberate modification or storage and handling.

Table 4:

Trauma refers to any modification to bone or teeth caused by accidental or intentional injury or violence, whether fatal or not, whether showing signs of healing or not.

1. “Antermort” = antemortem, or before death. As opposed to peri (during) or post (after) death.

2. BFT = blunt force trauma. Usually crushing or depression fractures, as opposed to stab, chop or cut wounds.

3. Osteoma is a new piece of bone usually growing on another piece of bone, typically the skull. They can be in response to a light head wound where new bone grows over the injury.

4. Osseous pathology is here defined as any evidence in the bone for systematic or acute infection. The bone can show well demarcated pitting, lesions, or the surface can take on a “woven” appearance as new bone grows over an infected area.

5. Caries are what is commonly known as cavities.

6. “Calc” = dental calculus; hard compact food residue that often accumulates just under the gum line and becomes cemented to teeth in those without regular dental hygiene.

7. Abscesses are acute severe infections usually at the bottom of the tooth socket (the apex of the root) that can destroy surrounding bone and, without treatment, be fatal due to infection.

8. LEH = “linear enamel hypoplasia”. These are faint lines or pitting seen in the enamel of deciduous or permanent teeth that demarcate when an individual experienced (and survived) a period of malnutrition.

9. Periodontitis = Gum disease, manifested on bone as pitting or recession of the gum line (“alveolar margin).

10. Chipping = Evidence for antemortem breaking off of small pieces of enamel without otherwise compromising the tooth. Often caused by eating gritty food.

Tables 5-8:

The various measurements and “non-metric” traits (rare variants) of bone and teeth for which each skull was assessed are too numerous to list and define here. Definition, methodology, and visual references can be found in:

1. Buikstra, J.E. and Ubelaker, D.H. (eds.) 1994. *Standards for Data Collection from Human Skeletal Remains: Proceedings of a Seminar at the Field Museum of Natural History.* Fayetteville, AR: Arkansas Archaeological Survey.

2. Hauser, G. and DeStefano, G.F. 1989. *Epigenetic variants of the human skull.* Stuttgart: Schweizerbart.

3. Pilloud, M.A. and Hefner, J.T. (eds.) 2016. *Biological Distance Analysis: Forensic and Bioarchaeological Perspectives.* San Diego: Academic Press.

4. Scott, G.R. and Irish, J.D. 2017. *Human Tooth Crown and Root Morphology: The Arizona State University Dental Anthropology System.* Cambridge: Cambridge University Press.

Table 8:

MDD = Mesio-distal (right to left) diameter.

BLD = Bucco-lingual (front to back) diameter.

CH = Crown height (from where the enamel joins the root to the topmost point)

ML-DB = Mesiolingual-distobuccal (bottom right to top left corner) diameter (molars only)

MB-DL = Mesiobuccal-distolingual (bottom left to top right corner) diameter (molars only)

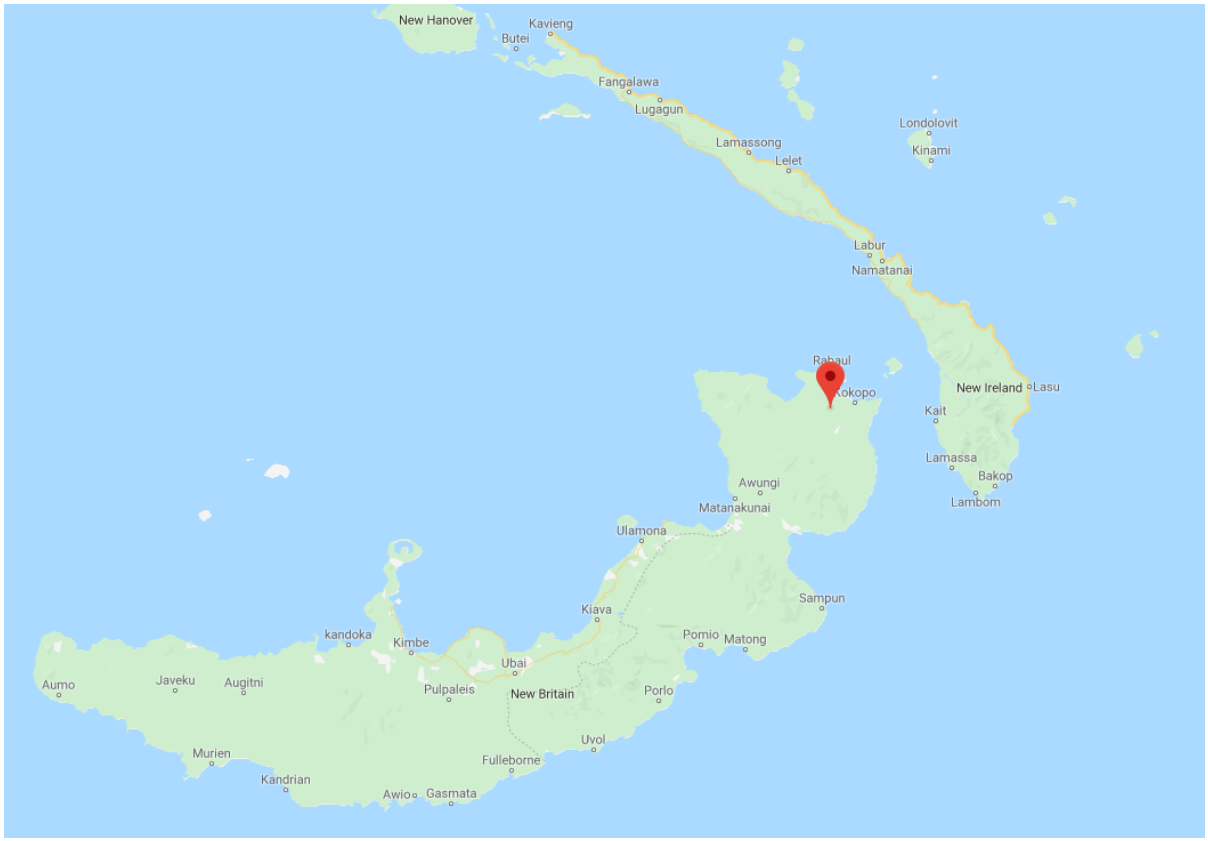

Fig. 1: Approximate location of Vunakokor (formerly Varzin) Mountain, northeast Gazelle Penninsula.

Fig. 2: Black organic residue and staining with traces of red pigment and hair (itself slightly stained red): 1897.09.0010

Fig. 3: An example of postmortem taphonomic processes; staining, breaking, dried tissue: 1897.09.0002

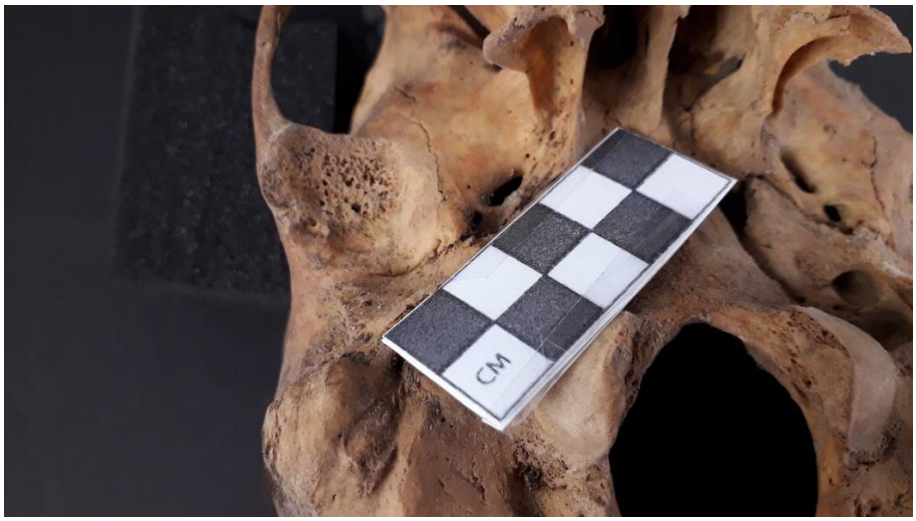

Fig. 4a: Severe osteoarthritic pitting in the right mandibular fossa (bilateral): 1897.09.0007

Fig. 4b: Severe osteoarthritic pitting and wear, right mandibular condyle (bilateral): 1897.09.0007

Fig. 5: Example of healed blunt force trauma breaking through both the internal and external cranial table, with woven bone at the base of the injury: 1897.09.0039.

Fig. 6: Part of the personal collection of a well-known Belgian dealer. Instagram, 2019-12-12, 14:20PM

[redacted]