

## A Critical Picture of Racism, Trophy Taking, and Forensics: Life Magazine May 22, 1944 “Picture of the Week”

Benjamin L. Coiner, Ronald Rabinowitz, Meghan E. Kapp, Jennifer B. Gordetsky\*

*From the Vanderbilt University School of Medicine, Nashville, TN (BLC); Department of Urology, University of Rochester Medical Center, Rochester, NY (RR); Department of Pathology, University Hospitals and Case Western Reserve University School of Medicine, Cleveland, OH (MEK); Department of Urology and of Pathology, Microbiology & Immunology, Vanderbilt University Medical Center, Nashville, TN (JBG)*

\*Correspondence: Jennifer B. Gordetsky, MD, Departments of Pathology and Urology, Vanderbilt University Medical Center, C-3321A MCN, 1161 21st Avenue South, Nashville, TN 37232; e-mail: jennifer.b.gordetsky@vumc.org

**Introduction:** The 2020 American Urological Association (AUA) Retrospectroscope Award winning presentation investigated the history of war trophies. Included was Life magazine’s May 22, 1944 “Picture of the Week” showing a young American woman gazing at a skull sent by her boyfriend serving in the Pacific theater of WWII. The caption claimed the skull was from a Japanese soldier “picked up on (a) New Guinea beach.” The displaying of human remains so casually in a magazine brings up the ethical considerations behind how we use human remains in medicine, art, museums, and collections. Identification and interpretation of bony characteristics and injuries from skeletonized human remains can help demystify medical history, reconstruct battles, and bring identity back to the faceless. We investigated what forensic and paleopathology techniques can tell us about battlefield human remains including the Life skull.

**Sources and Methods:** We reviewed the literature for information about the Life skull and characterization of physical traits and traumatic injuries that can be assessed from skeletal remains.

**Results:** Taking ‘trophies’ from human remains has occurred throughout human history. Anatomical trophy taking by US troops in the Pacific during WWII was fueled by rampant jingoism and anti-Asian racism of the time. Battlefield methods to remove soft tissue from bone included boiling, skinning, scrubbing, lye, and ants. Similar techniques are used by modern medical examiners. The tropical Pacific climate and lack of burial would have hastened natural decomposition of a fallen soldier. The bony pelvis and the skull are the two most useful parts of the skeleton for assessment of human remains. The pelvis is the most reliable bone in the human body for determining sex, followed by the skull. The pelvis and skull also aid in the determination of age at death. Estimation of likely ancestry primarily relies on the skull but is a challenging and increasingly controversial practice. Skeletal remains may show evidence of trauma to the pelvis and skull, providing clues as to cause of death. Pelvic injuries are associated with high rates of mortality from hemorrhage and disruption of the genitourinary system, and evidence of genital mutilation may be present. Forensic methods suggest the Life skull is consistent with male sex. Ancestry, age at death and age of the remains are unable to be determined from the photo. Publication of the Life skull led to public disapproval and an Army memorandum condemning the practice of taking enemy remains.

**Conclusions:** The pelvis and the skull provide useful, objective evidence when studying victims of past wars. Accurate determination of age at death, sex, and likely ancestry may be established from skeletal remains. Forensic methods and paleopathology can help restore the humanity lost by the faceless victims of war.

**Keywords:** History; War Trophies; Forensic; Paleopathology; Hate Crimes, Bioethics

The American Urological Association (AUA) Annual Meeting has included a History of Urology Forum since 1965. Organized by the AUA History Committee to celebrate and preserve urologic history, presenters at the History Forum may enter the annual contest for the best presentation and accompanying paper. The winner receives the AUA Earl Nation Retrospectroscope

Award, named in honor of former AUA president Dr. Earl Nation, which consists of a refurbished Brown-Beurger Cystoscope and a \$1000 honorarium supported by the William P. Didusch Center for Urologic History. The 2020 AUA Earl Nation Retrospectroscope Award-winning presentation titled, “War ‘Trophies’ & Phallotomy” with accompanying paper titled, “The (Not-So) Ancient

Practice of Anatomical Trophy Taking: An Emphasis on Penile Dismemberment" investigated the history of war trophies from antiquity to modern times with a focus on genital trophy taking and mutilation.(1) Included was Life Magazine's May 22, 1944 "Picture of the Week" featuring a trophy skull from World War II (WWII) (Figure 1)(Life magazine, (May 22 1944, p. 35)). While not a genitourinary war trophy, the picture is a striking example of human remains as trophies in modern warfare. The photograph is also a shocking example of a war crime fueled by the rampant jingoism, propaganda, and anti-Asian racism of the time.

We investigated the 'Life' skull and trophy taking in WWII. In doing so, we more broadly investigated what forensic and paleopathology techniques can reveal about skeletonized battlefield human remains. With genital trophy taking and mutilation common in historical conflicts, and pelvic trauma known to be

devastating, we sought examples of what forensic evidence might be retained on the bony pelvis. We further sought to apply forensic methods used on skeletonized human remains to help restore some of the identity taken from the faceless victim of a war crime shown in Life Magazine.

#### SOURCES

We searched the literature for information on the 'Life' skull, the nature of trophy taking in WWII, and the characterization of physical traits and traumatic injuries that can be assessed from skeletal remains. Searches of PubMed and Vanderbilt University's online library database were performed including the terms "trophy skull," "World War II," "Life Magazine May 22, 1944 Picture of the Week," "biomedical ethics," "museums," and "collections." Forensic pathology, paleopathology, and osteology textbooks were also searched.



**Figure 1:** "Picture of the Week", Life Magazine. Natalie Nickerson, 20, of Phoenix, Arizona purportedly writing "her lieutenant" in response to receiving the depicted skull he sent, as promised, by post from the battlefield beaches of New Guinea. Life editors added, "The armed forces dissapprove strongly of such things." Life Magazine, 5/22/1944, p35

## RESULTS AND DISCUSSION

### War Trophies in WWII

The acquisition of human remains from enemy dead as trophies and souvenirs has been documented throughout human history and continued to modern times.(2-4) During WWII, the practice of taking enemy body parts was especially common in the Pacific theater, the grim culmination of pervasive anti-Asian racism in the United States that allowed for the unjust incarceration of Japanese Americans, dehumanizing wartime propaganda that included disturbing hunting metaphors of Japanese soldiers, and hatred stirred by events at Pearl Harbor.(2,4-7) No comparable evidence of this practice has been documented in the European theater.(4,5,7) In fact, all known WWII trophy skulls in the forensic record have been identified as Japanese, illustrating an apparent ideologic difference between the two theaters.(4)

Human remains appear to have existed on a spectrum of WWII battlefield trophies, from weapons and uniforms to personal items and body parts. Although collecting equipment and personal possessions was more common, taking body parts including teeth, skulls, bones, ears, and noses was well-described in letters, diaries, memoirs, newspapers, and photos.(4,5,8) Up to 60% of the remains of WWII Japanese soldiers repatriated from the Mariana Islands in 1984 were reported to not have crania.(9) The desecration of fallen enemy soldiers in the Pacific was so common during WWII that the United States military denounced the practice, threatening disciplinary action for taking body parts of fallen Japanese soldiers, further supporting the widespread nature of this wartime atrocity.(4,5,7,8) Nevertheless, the practice continued, and Japanese remains have been documented in a range of settings, including display on military vehicles, home candle ornamentation, and a letter-opener given to President Franklin D. Roosevelt by a Pennsylvania Congressman, reportedly made from the arm bone of a Japanese soldier.(2,5)

### Life Magazine "Picture of the Week"

One of the most high-profile cases of trophy taking during WWII was featured in the May 22, 1944 Life Magazine "Picture of the Week" by Ralph Crane (Figure 1). The magazine featured a full-page photograph of a

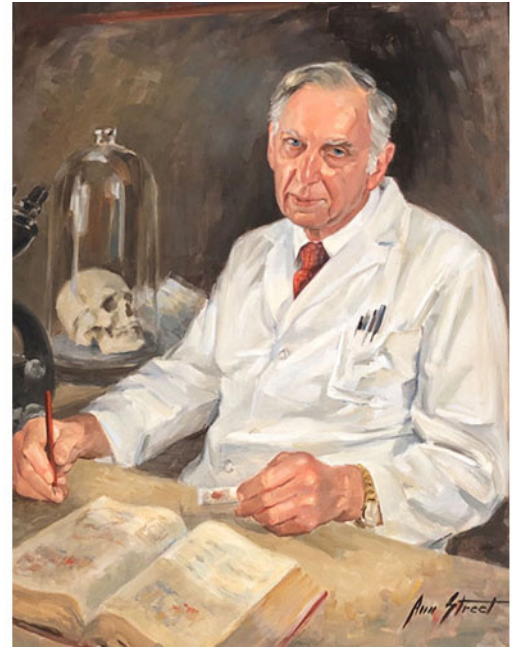
young woman seated at her desk looking at a human skull with signatures on the cranium captioned, "Arizona war worker writes her Navy boyfriend a thank-you note for the Jap skull he sent her." The photo itself may not immediately elicit horror or conjure gruesome wartime images in the mind of the viewer, as the presentation of the human skull has long been seen in the media and art. The skull is a common motif representing death or meant to evoke the popular *memento mori* trope. Skulls and otherwise potentially shocking depictions of human anatomy are often seen in art related to anatomy or medicine. From Andreas Vesalius (Figure 2a), to 18th century Scottish surgeon John Hunter, to former Vanderbilt University Medical Center Department of Pathology Chairman John L. Shapiro M.D. (1956-1971) (Figure 2b), the portraits featuring prominent figures in medicine often also prominently feature a human skull. The following commentary accompanied the "Picture of the Week," quickly offering macabre context and concisely demonstrating the inherent and casual anti-Asian racism of the era:

"When he said goodbye [sic] two years ago to Natalie Nickerson, 20, a war worker of Phoenix, Ariz., a big, handsome Navy lieutenant promised her a Jap. Last week Natalie received a human skull, autographed by her lieutenant and 13 friends, and inscribed: 'This is a good Jap - a dead one picked up on the New Guinea beach.' Natalie, surprised at the gift, named it Tojo. The armed forces disapprove strongly of this sort of thing."

The publication garnered the attention of United States military leaders and led to a memorandum from the Army's judge advocate general condemning the practice, which was a violation of the 1929 Geneva Convention on the sick and wounded.(5) Orders for military commanders to prevent this practice and appeals to the American media to cease publication of similar stories did not prevent the Japanese media from obtaining this information, sparking indignation and fueling anti-American sentiments.(5) As for the "big, handsome Navy lieutenant," Naval investigation resulted in a letter of reprimand after finding that he demonstrated poor judgement.(5)

### Cleaning and Decomposition of Human Remains

Most Japanese trophy skulls and other body parts



**Figure 2a (Left):** Lithograph of Andreas Vesalius (1514-1564) by Adolphe Mouilleron (1820-1881), c.1850, after Edouard Hamman (1819-1888) (Philadelphia Museum of Art). **Figure 2b (Right):** Portrait of John L. Shapiro M.D., Chairman of the Department of Pathology (1956-1971), Vanderbilt University Medical Center

were opportunistic acquisitions, not the trophy of one's own kill.(2,4,10) This appears to be consistent with the account the Navy lieutenant provided in the photograph's commentary, that it was "...picked up on the New Guinea beach." Yet how could the Life skull be in such a clean state if it was found in the field? Just as numerous accounts exist depicting the acquisition of human remains as wartime trophies in the Pacific theater, details of how soldiers removed the soft tissue from skulls and bones are available. Common forensic methods to remove soft tissue include scalpels, brushes, simmering, dish detergent, bleach, or dermestid beetles. (11) In WWII, soldiers removed soft tissue from war trophy bones by boiling, skinning, scrubbing, treating with lye, ants, and even a disturbing account of towing remains in the ocean behind a ship.(2,4,5,8) Given the historical accounts of soldiers cleaning Japanese skulls in the Pacific theater and the simplicity of effective methods, the 'Life' skull was likely cleaned in the field. Weathering and decomposition of human remains varies greatly across different locations around the world, with factors including temperature, access by insects or other scavengers, burial, humidity, rainfall, and individual characteristics like clothing and body size affecting decomposition rates.(12-14) In tropical locations such as New Guinea and the South Pacific, high temperatures, high humidity, and rainfall are known to

facilitate decomposition.(12,15,16) In the case of another purported Japanese trophy skull taken when securing an island in the Pacific, an American soldier found a crashed Japanese fighter plane with the skeletonized remains of a pilot in the cockpit, from which he took the skull.(10) Together, evidence supports accelerated surface decomposition in the South Pacific that could have aided cleaning of the 'Life' skull.

### Human Remains in the South Pacific

Japanese soldiers are not the only remains that have been found on islands in the South Pacific. Humans have long inhabited islands of the Pacific, with prehistoric skeletal remains found on New Guinea and other islands in the region in a variety of burial contexts that date back thousands of years.(17-21) Space for land burial on many islands in the South Pacific is limited, with the same burial location often repeatedly used, and erosion of burial sites close to coastlines observed.(16,21) Happening upon more distant, even ancient, remains while stationed in the South Pacific is not unfathomable. Unfortunately, determination of time since death from skeletal remains is challenging. Bone decomposition is complicated by widely variable rates observed between different environments and burial conditions.(12,13,22) It is certainly possible that the 'Life' skull could have been from a soldier, prisoner, or even an inhabitant of New

Guinea who had died during or before WWII. Indeed, the same May 22, 1944 issue of Life Magazine reports on the Japanese military using Chinese and Javanese laborers on New Guinea.

### Utilizing forensic and paleopathology techniques for the interpretation of skeletal remains

Upon reaching adulthood, the pelvis and the skull are the most reliable indicators of age at death and sex, and the skull is the most useful when determining ancestry.(23–28) Osteological features may be affected by both heritable and environmental factors, however, and significant variation exists between individuals and populations.(23–25,27,28) As such, no one feature is diagnostic of any age, sex, or ancestry, and assessment must not rely on any feature in isolation.(27,29)

Determination of sex from skeletal remains is well-studied and accurate.(27) The pelvis is the most useful skeletal element when determining sex. Numerous adaptations are present in the female pelvis to accommodate childbirth via creation of a wider pelvic inlet. Easily observable distinguishing characteristics include a larger subpubic angle, wider greater sciatic notch, and more triangular shaped obturator foramen.

(25,27) The overall size and robusticity of the skull strongly suggests sex, with larger skulls and more robust features indicative of male sex.(25,27,28) Robusticity is most easily visualized at sites of muscular attachment. The mastoid processes and temporal bones are among the more useful sites for evaluation, with robusticity presenting as wider and/or longer projections at these sites in males.(25,27,28,30) Males also tend to have more prominent superciliary arches with supraorbital tori present, described as more prominent brow ridges. (25,27,28)

Estimating age at death from the pelvis is commonly accomplished by assessing the pubic symphyseal surface. Well-described, age-related changes progressing from a rugged, billowing symphyseal surface in young adults to complete erosion of surface features in late adulthood have led to development of formal systems that estimate age at death within 5-10 years.(25) Assessment of age at death from the skull relies primarily on cranial suture closure, with increased suture closure suggesting increased age.(27,29) Similar to pubic symphyseal surface changes, the degree of suture closure is uniform across populations and scoring systems exist that estimate mean age with standard



**Figure 3.** Right acetabular carbine bullet wound in a 24-30 year old male found in a mass grave of 47 victims of the battle of Lützen, Germany during the Thirty Year's War, 1632. Photo by Andrea Hörentrup (LDA Sachsen-Anhalt) from Nicklisch et al. doi.org/10.1371/journal.pone.0178252.g010 (37)

deviations of approximately one decade.(25,27) Ancestry is consistently described as the most challenging information to derive from skeletal remains.(24,26–28,31) More importantly, and especially considering our discussion of the anti-Asian racism at play in the widespread anatomical trophy taking from Japanese soldiers in the Pacific theatre of WWII, modern forensic estimation of ancestry is a controversial realm. Most modern forensic anthropologists prefer to discuss “likely ancestry” as opposed to “race”—modern determination of ancestry is aimed at discovering useful identifiers as to how an individual would have likely identified or been classified in the context of their life, and attempts to avoid the implication of outdated racial typologies.(24) Forensic “likely ancestry” is based on geographic microevolutionary phenotypic human variation.(31–34) This is distinct from, but may be misinterpreted as, social race. Eugenics and the biological race concept, which makes attempts at scientifically justifying racism, have long been debunked.(31–34)

Though estimating an individual’s ancestry may indeed still offer useful information for anthropologists, medical examiners, and investigators, alike, the foundation of the practice is built from a categorization of ancestry that classically falls into three large groups, European, African, and Asian, which reflect remnants of colonialism and antiquated, over-simplified views of race.(24-17,31–34,35) It has become increasingly clear that modern estimation of ancestry must be undertaken with an understanding of implicit and explicit systemic racism, structural disparities, and ways in which a more productive paradigm might be developed.

As the practice is today, determination of ancestry from skeletal remains relies heavily on visual assessment of subjective traits, including nasal, orbital, zygomatic, maxillary, and cranial morphology.(25–28) It must be noted that a significant amount of variation and overlap exist between groups due to the uniqueness of all individuals and the populations within which they live.(33) Many craniofacial features are assessed together when estimating likely ancestry of an unknown individual, and often entered into large databases and compared with skeletal measurements from individuals with known ancestry.(24,31,33)

### **Forensic Evidence Left Behind on Battlefield Skeletal Remains**

Skeletal remains may show evidence of injury and provide clues as to cause of death. Evidence of trauma to the skull or pelvis found in skeletal battlefield human remains is particularly informative. Injuries to the head or pelvis are associated with high morbidity and mortality from damage to the brain, genitourinary system, and hemorrhage. Characteristic patterns of primary bone injuries include blunt force, sharp force, and gunshot injury.(27) Additional patterns of injury, such as bone warping, and evidence of healing can offer insight into the temporality of the trauma and whether the injury was distant, perimortem, or postmortem.(27,36) Modern examples include a series of 24 trophy skulls from WWII and the Vietnam War, where 8 skulls had evidence of perimortem, battlefield trauma (e.g. gunshot, shrapnel, blunt-force), offering insight into cause of death and supporting the classification as a war trophy.(2) Evaluation of skeletal trauma is especially important when studying historical warfare, where evidence of trauma provides objective information that may be used to reconstruct historical accounts of conflict or understand ancient violence where contextual information is absent.(36,37-39,40) King Richard III died in 1485 during the Battle of Bosworth Field. Historical accounts of his death exist but his remains were not discovered until 2012. Analysis of his skeleton revealed three potentially fatal perimortem injuries: one large penetrating cranial injury, one sharp force cranial injury, and one large penetrating pelvic injury.(41) A mass grave from the Battle of Lützen (1632) during the Thirty Years War shows handgun musket ball trauma to the skull, pelvis, and other bones in more than half of the soldiers, consistent with cavalry attack.(37)(Figure 3) Lesions found in the pelvic bones of two individuals from the Battle of Stoney Creek during the War of 1812 were determined to be consistent with buckshot ammunition, thus representing the first identification of this type of injury and adding objective evidence to battle conditions.(38)

As outlined in “The (Not-So) Ancient Practice of Anatomical Trophy Taking: An Emphasis on Penile Dismemberment,” genital trophy taking and mutilation were common in past conflict.(1) Evidence of these practices may be found in skeletal remains. In a collection of remains from Medieval Ireland (400 CE–1200 CE) one male individual was found to have a

pattern of sharp cut trauma to the pelvis that included several parallel cuts inferior to the pubic symphysis, suggesting phallotomy.(42) Investigation of remains found in a mass grave from the Massacre at Fort William Henry (1757) during the French and Indian War revealed a spectrum of cuts and trauma to the pubic region in all five men present, suggesting intentional genital mutilation. (39)

### **Who was the Victim Featured in Life Magazine?**

Assessment of the 'Life' skull utilizes subjective skeletal features of a single view skull image without three-dimensional evaluation and therefore is severely limited. However, we are afforded good perspective of the facial region and other helpful cranial features. The photograph also offers useful size comparison to an adult female. Applying the osteological features described above, the skull's features appear consistent with male sex due to the large mastoid process, prominent browridge, frontal bossing, and overall size when compared to the woman in the photo. No determination can be made with respect to age, given the inability to assess cranial suture closure. No skeletal trauma is apparent in the limited photograph to determine cause of death. Finally, understanding the inherent challenges of determining ancestry and the inability to assess all craniofacial features, no definitive estimation of ancestry is possible. However, the contextual evidence strongly supports that this is a trophy skull from a male Japanese soldier, and is a conclusion supported by previous publications.(2,5) The potential identity of the 'Life' skull also includes New Guinean burial remains as well as Chinese and Javanese laborers.

### **The Ethics of Human Remains and Collections**

The displaying of human remains so casually in Life magazine brings up the ethical considerations behind how we use human remains in medicine, art, museums, and collections.(43–46) Modern collections must recognize the complex ethical factors that deal with post-mortem human rights. While we use human remains to help further scientific endeavors, one must be respectful of the decedents' humanity and privacy when presenting their pathology to the public. The way in which an individual's remains are displayed can create misperceptions or incorrect conclusions regarding the pathology, which may lead to stereotypes. Factors to consider include the ethical display of the remains, consent for obtaining the remains and displaying them to the public, and the manner

in which the remains were acquired.(43–46) The trophy skulls taken during WWII represent a war crime and at least some have been repatriated to Japan in accordance with Rule 114 of the International Committee of the Red Cross's customary international humanitarian law, which pertains to the return of remains and personal effects of the dead.(2,4,7,47) It would be ethically inappropriate to display such remains to the public. While we have included the 'Life' skull image for the purposes of this paper and its discussion of history and bioethics, we have chosen to exclude other images of this type of atrocity for the reasons stated above.

It is important that all exhibits operate within an ethical framework. Ownership of human remains, especially those obtained without consent, can be controversial and ethical determination of whether those remains should be displayed is determined by the collection circumstances and connections to living persons.(43–45) The International Council of Museums has a code of ethics regarding the display of human remains.(46)

### **CONCLUSIONS:**

The pelvis and the skull provide useful, objective evidence when studying victims of past wars. Accurate determination of age at death, sex, and likely ancestry may be established from skeletal remains. Evidence of trauma found in the skull or pelvis may offer clues as to cause of death and atrocities lost to time. Forensic methods and paleopathology can help restore the humanity lost by the faceless victims of war. The May 22, 1944 Life Magazine "Picture of the Week" reportedly features the skull of a fallen Japanese soldier "picked up on the New Guinea beach." Considered together with the widespread nature of anatomical trophy taking by US troops in the Pacific fueled by rampant jingoism and anti-Asian racism of the time, it is quite likely the skull featured in the May 22, 1944 Life Magazine "Picture of the Week" is truly that of a Japanese soldier. Although our investigation found no evidence to discredit the original claim that the skull belonged to a Japanese soldier, New Guinean burial remains and non-Japanese victims of war, such as Chinese and Javanese laborers, cannot be entirely excluded. Our investigation into anatomical trophy taking in WWII sheds light on one of the more reprehensible outcomes of the era's inherent racism, which contributed to countless war crimes in the Pacific theatre.

## REFERENCES

1. Moreland H, Moran M: The (not-so) ancient practice of anatomical trophy taking: an emphasis on penile dismemberment. *Int J of Urol Hist* 2021; **1**: 42.
2. Yucha JM, Pokines JT, Bartelink EJ: A comparative taphonomic analysis of 24 trophy skulls from modern forensic cases. *J Forensic Sci* 2017; **62**: 1266.
3. Okumura M, Siew YY: An osteological study of trophy heads: unveiling the headhunting practice in Borneo. *Int J Osteoarchaeol* 2013; **23**: 685.
4. Harrison S: Skull trophies of the Pacific War: transgressive objects of remembrance. *J R Anthropol Inst* 2006; **12**: 817
5. Weingartner JJ: Trophies of war: U.S. troops and the mutilation of Japanese war dead, 1941-1945. *Pac Hist Rev* 1992; **61**: 53.
6. Nagata DK, Kim JHJ, Wu K: The Japanese American wartime incarceration: examining the scope of racial trauma. *Am Psychol* 2019; **74**: 36.
7. Harrison S: War mementos and the souls of missing soldiers: returning effects of the battlefield dead. *J R Anthropol Inst* 2008; **14**: 774.
8. Fussell P: *Wartime: Understanding and Behavior in the Second World War*. New York; Oxford University Press; 1989.
9. Sledzik PS, Ousley S: analysis of six Vietnamese trophy skulls. *J Forensic Sci* 1991; **36**: 520.
10. Bass W: The occurrence of Japanese trophy skulls in the United States. *J Forensic Sci* 1983; **28**: 800.
11. Mann RW, Berryman HE: A method for defleshing human remains using household bleach. *J Forensic Sci* 2012; **57**: 440.
12. Mann R, Bass W, Meadows L: Time since death and decomposition of the human body: variables and observations in case and experimental field studies. *J Forensic Sci* 1990; **35**: 103.
13. Pittner S, Bugelli V, Benbow ME et al: The applicability of forensic time since death estimation methods for buried bodies in advanced decomposition stages. *PLoS One* 2020; **15**: e0243395.
14. Cockle DL, Bell LS: Human decomposition and the reliability of a 'universal' model for post mortem interval estimations. *Forensic Sci Int* 2015; **253**: 136.e1.
15. Spennemann DHR, Franke B: Decomposition of buried human bodies and associated death scene materials on coral atolls in the tropical Pacific. *J Forensic Sci* 1995; **40**: 356.
16. Spennemann DHR, Franke B: Decomposition of human bodies and the interpretation of burials in the tropical Pacific. *Archaeol in Ocean* 1995; **30**: 66.
17. Pietrusewsky M: Multivariate analysis of New Guinea and Melanesian skulls: A review. *J Hum Evol* 1983; **12**: 61.
18. Scott RM, Buckley HR: Exploring prehistoric violence in Tonga. *Curr Anthropol* 2014; **55**: 335.
19. Fitzpatrick SM, Nelson GC: From limestone caves to concrete graves: 3000 years of mortuary practice in the Palauan archipelago, Micronesia. *Int J Osteoarchaeol* 2008; **18**: 439.
20. Valentin F, Détroit F, Spriggs MJT et al: Early Lapita skeletons from Vanuatu show Polynesian craniofacial shape. *PNAS* 2016; **113**: 292.
21. Spennemann DHR: No room for the dead. burial practices in a constrained environment. *Anthropos* 1999; **94**: 35.
22. Ross AH, Cunningham SL: Time-since-death and bone weathering in a tropical environment. *Forensic Sci Int* 2010; **204**: 126.
23. Krishan K, Chatterjee PM, Kanchan T et al: A review of sex estimation techniques during examination of skeletal remains in forensic anthropology casework. *Forensic Sci Int* 2016; **261**: 165.e1.
24. Cunha E, Ubelaker DH: Evaluation of ancestry from human skeletal remains: a concise review. *Forensic Sci Res* 2020; **5**: 89.
25. White TD, Folkens PA: *The human bone manual*. Amsterdam: Elsevier Academic; 2005.
26. Knight B: *Forensic pathology*. 2nd ed. London: Arnold; 1996.
27. Dolinak D, Matshes E, Lew E: *Forensic pathology: principles and practice*. Netherlands: Elsevier Science; 2005.
28. Byers SN: *Introduction to forensic anthropology: a textbook*. Boston: Allyn and Bacon; 2002.
29. Ubelaker DH, Khosrowshahi H: Estimation of age in forensic anthropology: historical perspective and recent methodological advances. *Forensic Sci Res* 2019; **4**: 1.
30. Spradley MK: Metric methods for the biological profile in forensic anthropology: sex, ancestry, and stature. *Acad Forensic Pathol* 2016; **6**: 391.
31. Ross AH, Williams SE: Ancestry studies in forensic anthropology: back on the frontier of racism. *Biology (Basel)* 2021; **10**: 602.
32. Adams D, Pilloud M: The (mis)appropriation of biological anthropology in race science and the implications for forensic anthropology. *Forensic Anthropology* 2021; **4**: 97.
33. Ousley S, Jantz R, Freid D: Understanding race and human variation: why forensic anthropologists are good at identifying race. *Am J Phys Anthropol* 2009; **139**: 68.



34. DiGangi EA, Bethard JD: uncloaking a lost cause: decolonizing ancestry estimation in the United States. *Am J Phys Anthropol* 2021; **175**: 422.
35. Thomas RM, Parks CL, Richard AH: Accuracy rates of ancestry estimation by forensic anthropologists using identified forensic cases. *J Forensic Sci* 2017; **62**: 971.
36. Waldron T: *Palaeopathology*. New York: Cambridge University Press; 2008.
37. Nicklisch N, Ramsthaler F, Meller H et al: the face of war: trauma analysis of a mass grave from the Battle of Lützen (1632). *PLoS One* 2017; **12**: e0178252.
38. Lockau L, Gilmour R, Menard J-P et al: "Buck and ball": identification and interpretation of buckshot injuries to the pelvis from the War of 1812. *J Archaeol Sci Rep* 2016; **6**: 424.
39. Liston MA, Baker BJ: Reconstructing the massacre at Fort William Henry, New York. *Int J Osteoarchaeol* 1996; **6**: 28.
40. Walker PL: A bioarchaeological perspective on the history of violence. *Annu Rev Anthropol* 2001; **30**: 573–596.
41. Appleby J, Ruttly GN, Hainsworth SV et al: Perimortem trauma in King Richard III: a skeletal analysis. *Lancet* 2015; **385**: 253.
42. Geber J: Comparative study of perimortem weapon trauma in two early medieval skeletal populations (AD 400-1200) from Ireland. *Int J Osteoarchaeol* 2015; **25**: 253.
43. McCorristine S: The dark value of criminal bodies: context, consent, and the disturbing sale of John Parker's Skull. *J Conserv Mus Stud* 2015; **13**. Available at <http://doi.org/10.5334/jcms.1021220>
44. Sallam A: The ethics of using human remains in medical exhibitions: a case study of the Cushing Center. *Yale J Biol Med* 2019; **92**: 765.
45. Department for Culture, Media and Sport. Guidance for the Care of Human Remains in Museums. The British Museum 2005. Available at <https://www.britishmuseum.org/sites/default/files/2019-11/DCMS-Guidance-for-the-care-of-human-remains-in-museum.pdf>, accessed March 28, 2022.
46. Code of Ethics. ICOM Code of Ethics for Museums. Paris, France: International Council of Museums 2017.
47. ICRC, Customary IHL Database 2022. Available at [https://ihl-databases.icrc.org/customary-ihl/eng/docindex/v1\\_rul\\_rule114](https://ihl-databases.icrc.org/customary-ihl/eng/docindex/v1_rul_rule114).