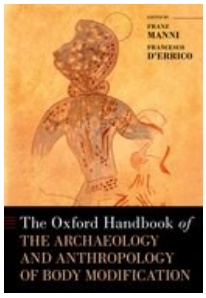

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CHAPTER

25 Finger Amputation in the Ethnographic and Archaeological Records

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Abstract

Several published studies indicate that amputating finger segments, and even multiple entire fingers, for nonmedical reasons has been a surprisingly common practice over the past few hundred years. This chapter reports the results of a study undertaken (a) to shed further light on the occurrence of finger amputation via a survey of ethnographic and historical documents and ethnographic and archaeological objects, and (b) to review the ethnohistoric literature to identify motivations for amputating healthy fingers. Based on information gathered from six online resources using keywords from seven different languages, the survey of ethnohistorical texts revealed that at least 181 remarkably diverse societies engaged in finger amputation as a cultural practice, and that it was not limited to a particular geographic region or type of society. The search for finger amputation-related ethnographic and archaeological objects produced evidence that the total number of societies that engaged in finger amputation in the past may be over 200 and suggests that the practice has a time depth of thousands, possibly even tens of thousands, of years. In addition, the chapter identifies seventeen different reasons for engaging in it other than trying to solve a medical problem with the targeted finger. Among the most common of the nonsurgical motivations were mourning a deceased loved one, appealing to a deity for assistance, and punishment. Taken together, the findings reported in this chapter demonstrate that finger amputation was a widespread cultural practice in the past, one that was invented multiple times, in multiple places, for multiple reasons.

Keywords: finger amputation, permanent body modification, finger bowl, cross-cultural analysis, isolated phalanx, missing phalange, rock art, hand image, finger necklace, hand impression

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Introduction

For many of us, the idea that somebody would amputate a finger without it being a necessity is hard to accept. We see finger amputation (FA) as a medical phenomenon. It happens accidentally; or, if done deliberately, it is a surgical procedure, one that is carried out to deal with a problem with the finger(s) involved. However, several studies indicate that the practice of amputating healthy fingers for cultural reasons has been surprisingly common over the past few hundred years (Lagercrantz 1935; MacLeod 1938; Söderström 1938; McCauley, Maxwell, and Collard 2018).

Lagercrantz (1935) analyzed FA in fifty-five African societies. Twenty-six of them practiced FA to mourn a relative or as a religious sacrifice. Another seventeen removed fingers from recently deceased individuals. The remaining twelve used FA as a punishment. MacLeod (1938) discussed the practice of FA in fifteen North American Indigenous societies and reported that mourning and religious sacrifice were the main reasons for engaging in it. Söderström (1938) investigated FA in Oceania. He identified thirty-seven societies that practiced it and documented the motivations of twenty-eight of them. Fourteen engaged in FA as a mortuary custom; six used FA to create an identity marker; and five employed it as a cure for illness in a manner reminiscent of bloodletting (Miton, Claidière, and Mercier 2015). Another two societies amputated fingers in religious rituals, and one engaged in FA as a marriage custom. In McCauley, Maxwell, and Collard (2018), we reported on a worldwide survey of FA in which we identified 121 societies that engaged in the practice and distinguished ten motivations for doing so, nine of which did not involve a medical goal.

p. 956 The study we report on here builds on our 2018 survey of the ethnographic literature. The present study had two aims. The first was to shed more light on the occurrence of FA via a survey of ethnographic and historical documents and of ethnographic and archaeological objects. The study's second aim was to try to identify additional motivations for FA recorded in ethnohistoric records and then, if necessary, revise our taxonomy of FA motivations.

Before we go any further, some definitions are in order. We define *FA* as the deliberate removal of one or more finger segments. A finger segment comprises a phalanx and its associated soft tissues. The phalanges of the hand are the bones at the core of the fingers. Normally, there are fourteen phalanges in a human hand. The thumb has two (a proximal phalanx and a distal one); whereas the index finger, middle finger, ring finger, and little finger all have three (a proximal phalanx, middle phalanx, and distal phalanx). In principle, therefore, FA can involve the removal of between one and twenty-eight finger segments. We stress that the removal of the segment(s) had to have been deliberate for us to consider it FA in our survey; we ignored cases in which the loss of fingers was unintentional.

The definition of FA outlined in the preceding paragraph covers both the amputation of finger segments to try to resolve a medical problem with the targeted segment(s) and the amputation of finger segments for other reasons. We refer to the former as *surgical FA* and the latter as *cultural FA*. In the study reported here, we were primarily interested in cultural FA. We did not ignore surgical FA, but our focus was on the cultural type.

The chapter is divided into four sections. The first outlines the evidence for the occurrence of FA that we managed to track down. We first consider mentions of FA that we encountered in our searches of the ethnohistorical literature. We then discuss material evidence we identified that either reliably points to FA or is at least suggestive of FA. This evidence includes ethnographic objects, skeletal remains, and artifacts from archaeological sites. In the second section of the chapter, we present the motivations to engage in FA that we identified in ethnohistoric documents. In the third section of the chapter, we discuss the key findings of the study and, finally, in the fourth section, we highlight some potential avenues for future research.

Occurrence of Finger Amputation

We will first outline the evidence for the occurrence of finger amputation customs. This evidence comes from ethnohistorical sources and material remains.

Methods

We searched several electronic resources for mentions of FA. These included the eHRAF World Cultures database, the eHRAF Archaeology database, d-place, and the ebook version of the Encyclopedia of World Cultures (Levinson 1991–1996). In addition, we conducted searches with JSTOR and Google Scholar.

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We used the following keywords in our searches: 1) amput*, 2) cut*, 3) digit*, 4) finger*, 5) index, 6) little, 7) middle, 8) phalan*, 9) pink*, 10) pointer, 11) remov*, 12) ring, and 13) thumb*. The addition of an asterisk to a keyword allowed variants of the keyword to be included in the search (e.g., amputate, amputated, amputation, amputee, etc.). We searched for the keywords singularly and in pairs (e.g., "pink* AND cut*").

Initially, we focused on English-language documents. Subsequently, we searched documents written in Chinese, French, German, Latin, Russian, and Spanish, with the aid of Google Translate. We intend to investigate mentions of FA in texts in additional languages in future studies.

In addition to searching for mentions of FA, we collated data on the type of subsistence, residential mobility, and social stratification of the societies mentioned in the ethnohistorical texts as practicing FA. As far as possible, the socioeconomic data were selected to relate to the time when the FA was recorded.

Mentions of Finger Amputation Customs in Ethnohistorical Texts

We identified mentions of FA in 253 ethnographic and historical texts pertaining to 181 different societies. The texts were published between 1661 and 2021 CE. Information about the societies is provided in the Online Supplementary Material (OSM), along with details of the publications.

Of the 181 societies for which mentions of FA were found, just four were recorded as engaging only in surgical FA. According to the texts we consulted, the other 177 societies either engaged in surgical FA *and* cultural FA or cultural FA only. We assume that the latter societies would have removed a finger to deal with a medical problem with the targeted finger if necessary, and that such cases were simply not mentioned in the texts, but we cannot say for sure.

The earliest mention of a FA custom is from 883 BCE. It is found in a text connected with Ashurnasirpal II, who was the ruler of Assyria between 883 BCE and 859 BCE, and it concerns the amputation of fingers and other body parts as a method of torture (De Backer 2009). The most recent records of FA date to 2003 CE. There are two of these. The first pertains to the Iranian authorities' using FA as a punishment for theft (Peters 2005). The second relates to the 2003–2011 Iraq War. In the relevant document, a US army veteran is reported as stating that in the first year of the war, he witnessed US soldiers removing fingers from victims of Saddam Hussein's forces who had been buried in a mass grave, to identify them (Dempsey 2016). Thus, the time span for FA customs suggested by the ethnohistoric texts in our sample is 2,886 years.

The geographic locations of the 181 societies with FA customs are shown in Figure 25.1 and Table 25.1. In the table, we have grouped the societies into regions based on the United Nations' geoscheme, which divides the
p. 958 world's countries and territories into ↳ six regions and twenty-one subregions (United Nations, Department of Economic and Social Affairs 1999). Societies with FA customs occur in all five of the inhabited regions, but they are not evenly distributed (Table 25.1) and are more common in the Americas and Africa than they are in the other regions.

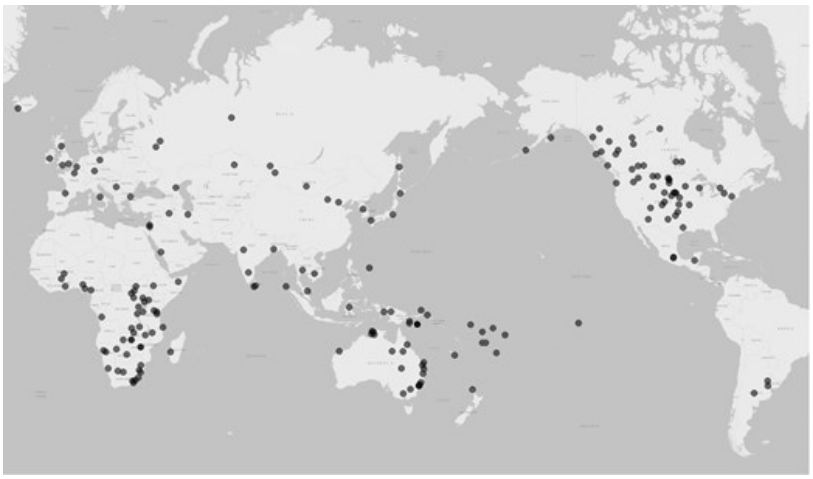

Figure 25.1. Approximate locations of the 181 societies with FA customs that we identified in our searches of ethnographic and historical texts. All circles are light grey; the darker grey circles indicate an overlap of societies. Information about the societies can be found in the OSM.

Data on the socioeconomic characteristics of the societies in the sample indicate that FA was not limited to a particular type of society (Table 25.2). Most of the societies relied on farming, but more than sixty of them lived by foraging, and a few combined farming and foraging. The situation is similar with respect to mobility. Most of the societies were sedentary, but almost eighty were partially or fully nomadic. Furthermore, there is no evidence that FA was associated with a particular degree of social stratification: societies with no class distinctions and societies with complex social stratification are both found in the sample in large numbers.

It is clear from the ethnohistorical texts that there is substantial variability among the societies with respect to FA customs even though there is a considerable amount of missing data (Table 25.3).

To begin with, there is variability in the proportion of the population involved in FA customs. In some cases, the entire population would participate. In others, it would just be a subset of the population. Subsets could include but were not limited to all members of a particular sex, individuals accused of a crime, or parents of
p. 959 children who had died (see section "Motivations for Finger Amputation" for further discussion of this issue). ↳

Table 25.1. Geographic Distribution of the 181 Societies Identified as Engaging in FA in Our Searches of Ethnohistorical Texts.*

Region	Subregion	Number of societies
America	Northern America	48
	Central America	3
	Southern America	3
	Caribbean	-
	Combined	54 (30%)
Africa	Eastern Africa	23
	Southern Africa	14
	Western Africa	6
	Central Africa	5
	Northern Africa	-
	Combined	48 (27%)
Oceania	Australia and NZ	22
	Melanesia	10
	Polynesia	5
	Micronesia	-
	Combined	37 (20%)
Asia	Eastern Asia	8
	Southern Asia	7
	Southeastern Asia	6
	Western Asia	4
	Central Asia	1
	Combined	26 (14%)
Europe	Eastern Europe	6
	Northern Europe	4
	Southern Europe	3
	Western Europe	3
	Combined	16 (9%)

*The regions and subregions are based on the United Nations geoscheme. Note that in the UN geoscheme, the Eastern Europe subregion rather confusingly includes Northern Asia. NZ = New Zealand. The regions and subregions are ranked according to the

number of societies that have been recorded as engaging in FA. Information about the societies can be found in the OSM.

There are also differences in the ages of participants. In some societies, only adults participated in the FA customs. In others, only adolescents or only infants participated in them. In twenty-one of the 181 societies, FA was not limited to a particular age group.

The sex of the participants varies too. In some societies, participation was sex dependent, so that the customs involved only males or only females. In other societies, both males and females participated.

The hand that was targeted is a further dimension of variation. Some societies targeted only the left hand;
p. 960 others focused on the right hand. Some societies targeted ↳ both hands. Several societies allowed participants to choose the hand from which finger segments would be amputated. In a few societies, the hand selected depended on the sex of the participant.

Table 25.2. Characteristics of the 181 Societies that We Identified in Our Searches of Ethnohistorical Texts for Evidence of FA.*

Type of subsistence	**Number of societies**
Farming	114 (63%)
Hunting and gathering	64 (35%)
Hunting and gathering and farming	3 (2%)
Type of residential mobility	
Sedentary	103 (57%)
Full nomadism	38 (21%)
Seasonal settlements	22 (12%)
Seasonal nomadism	18 (10%)
Type of social stratification	
No class distinctions	76 (42%)
Classes of aristocracy or elites	56 (31%)
Complex stratification (including occupational classes)	30 (17%)
Classes based on wealth	19 (10%)

*Information about the societies can be found in the OSM.

In addition, there is variation regarding the finger(s) targeted for amputation. Some societies limited amputation to one specific finger. Other societies did not limit amputation to only one finger and, instead, removed multiple fingers.

The number of finger segments typically amputated over the course of an individual's life also varies. In some societies, FA would be limited to either a single finger segment or a single finger (i.e., two or three segments, depending on the finger). Other societies would amputate multiple finger segments or even multiple entire fingers.

Lastly, the amputation method varies as well. Finger segments or entire fingers could be removed by cutting, burning, biting, or being constricted with string. A small number of societies employed several of these methods.

Material Evidence Linked with Finger Amputation

We identified material evidence that is either indicative or suggestive of FA in 145 publications. Some of this evidence is associated with ethnographically documented societies. The remainder is evidence from archaeological sites. Information about the relevant ethnographically documented societies and archaeological
p. 961 sites is provided in the OSM. Details of the relevant publications can also be found in the OSM. ↳

Table 25.3. Some Dimensions of FA that Vary among the 181 Societies in Our Ethnohistoric Sample.*

Proportion of the population involved	Number of societies
Subset of the population	154 (85%)
Entire population	14 (8%)
ND	13 (7%)
Age of participants	
Adults only	38 (21%)
Multiple age groups	21 (12%)
Children only	15 (8%)
Infants only	10 (6%)
Adolescents only	5 (3%)
ND	92 (51%)
Sex of participants	
Females only	44 (24%)
Males and females	22 (12%)
Males only	18 (10%)
ND	97 (54%)
Hand targeted	23 (13%)
Left hand	18 (10%)
Right hand	11 (6%)
Both hands	7 (4%)
Either hand	3 (2%)
Hand targeted depends on sex of participant	1 (1%)
Participant's nondominant hand	118 (65%)
ND	
Finger(s) targeted	

Little	48 (27%)
A combination of fingers	20 (11%)
Index	7 (4%)
Thumb	5 (3%)
All fingers	4 (2%)
Middle	2 (1%)
Ring	1 (1%)
ND	91 (50%)
Number of finger segment(s) targeted	
One	44 (24%)
Three, in the form of an entire finger	41 (23%)
Variable number of segments	27 (15%)
Variable number of fingers	23 (13%)
ND	46 (25%)
Method of removal	
Cutting	107 (59%)

*Information about the societies can be found in the OSM.

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Ethnographic Objects Indicative of Finger Amputation

The ethnographic objects indicative of FA are seven necklaces from North America. They all date to the nineteenth century CE and are described in detail by Owsley et al. (2007). Five of the necklaces are made of desiccated fingers (Figure 25.2). They were created by the Ute (n = 3), the Apache (n = 1), and the Northern Cheyenne (n = 1). The remaining two necklaces are made of finger bones. One was produced by the Apsáalooke (Crow); the other was created by either the Cheyenne or the Sioux. The fingers were incorporated into the desiccated finger necklaces in such a way that the finger bones were not drilled (e.g., the preserved palmar tissue was pierced and hide cord was passed through it). In contrast, the phalanges incorporated into the finger bone necklaces were drilled mediolaterally at their proximal ends to enable them to be strung.

Owsley et al. (2007) argue on morphological grounds that three of the seven finger necklaces involved the fingers of single individuals, while three others were made from the fingers of multiple individuals (two from fingers of adult males and one from fingers of adults whose sex could not be determined). The number of individuals whose fingers were involved in the production of the one remaining finger necklace is not known (Owsley et al. 2007).

Archaeological Evidence Suggestive of Finger Amputation Customs

The archaeological evidence suggestive of FA customs is associated with ninety-seven archaeological sites (Figure 25.3). The sites occur on all the inhabited continents except South America (Table 25.4).

The archaeological evidence that is suggestive of FA can be grouped into six types: (1) clusters of perforated finger bones; (2) skeletons with missing phalanges and/or other signs of FA; (3) isolated phalanges that appear to have been deliberately deposited; (4) Ancient Maya finger bowls; (5) hand impressions with incomplete
p. 963 fingers; and (6) hand images with incomplete fingers. ↳

p. 964 ↳

Figure 25.2. Northern Cheyenne necklace made from desiccated fingers. According to Owsley et al. (2007), the necklace was made by a Northern Cheyenne warrior named High Wolf in or shortly before 1876 CE. High Wolf had removed the fingers from the corpses of recently slain enemies. Each finger was incorporated into the necklace by passing hide cord through holes pierced in its palmar and dorsal surfaces.

Source: Photo credit: © US National Archives and Records Administration, 2011; public domain.

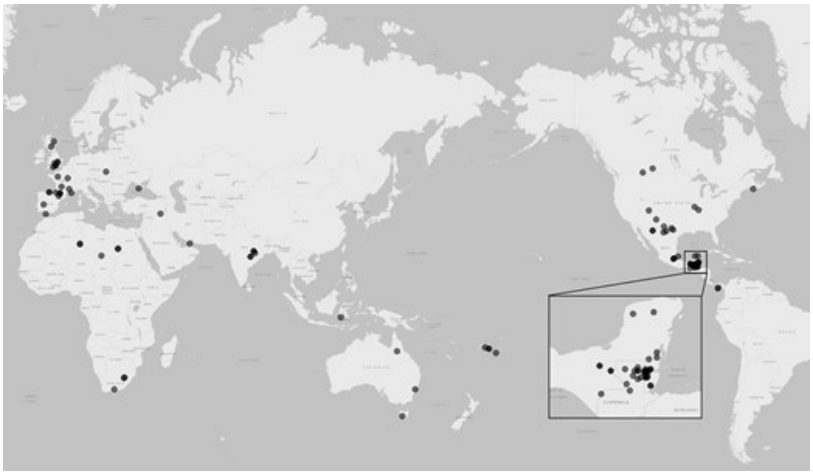

Figure 25.3. Approximate locations of archaeological sites with evidence that is suggestive of FA. All points are light grey; the darker grey ones indicate an overlap of points. Information about the sites is provided in the OSM.

Clusters of Perforated Finger Bones

We identified four clusters of perforated phalanges in our searches of the archaeological literature (Table 25.4). These are thought to be the remains of finger bone necklaces like the ones discussed in the preceding section (e.g., Ravesloot 1988; Palomero Sánchez 1989).

One cluster of perforated phalanges was excavated at Cahokia, USA (ca. 600–1400 CE; Perino 1994). Another was unearthed at Oxkintok, Mexico (250–800 CE; Palomero Sánchez 1989). The other two were recovered during excavations at Casas Grandes, Mexico (1200–1425 CE; Di Peso 1974; Ravesloot 1988).

Interestingly, at least some of the perforated finger bones from the archaeological sites were treated differently from those incorporated into the ethnographic-period examples of finger bone necklaces. Whereas the latter were pierced mediolaterally at their proximal ends, some of the perforated finger bones from Casa Grandes were drilled front to back, and others were drilled end to end. End to end was also how the perforated finger bones at Cahokia were drilled. At Oxkintok, the perforated finger bones were pierced mediolaterally at the distal end.

It is possible that the perforated finger bones from archaeological sites were obtained from skeletons; but it is also possible that they were removed from recently deceased or living individuals. As such, we consider them to
p. 965 represent potential evidence of FA customs. ↳

p. 966 ↳

Table 25.4. Spatial Distribution of 97 Archaeological Sites with Evidence Suggestive of FA. Perforated = clusters of perforated phalanges.*

Region	Subregion	Perforated phalanges	Skeletons	Isolated phalanges	Finger bowls	Hand impressions	HIIFs	All
Americas	Caribbean	-	-	-	-	-	-	-
	Central America	2	2	18	24	-	-	46
	Northern America	1	2	1	-	-	8	12
	Southern America	-	-	-	-	-	-	-
	Combined	3	4	19	24	-	8	58 (56%)
Europe	Eastern Europe	-	1	1	-	-	-	-
	Northern Europe	-	8	-	-	-	-	8
	Southern Europe	-	-	-	-	-	5	5
	Western Europe	-	-	-	-	2	7	9
	Combined	-	9	1	-	2	12	24 (23%)
Asia	Central Asia	-	-	-	-	-	-	-
	Eastern Asia	-	-	-	-	-	-	-
	Southeastern Asia	-	-	-	-	-	1	1
	Southern Asia	-	-	-	-	-	5	5
	Western Asia	-	-	2	-	-	-	2
	Combined	-	-	2	-	-	6	8 (8%)
Africa	Central Africa	-	-	-	-	-	1	1
	Eastern Africa	-	-	-	-	-	-	-
	Northern Africa	-	-	-	-	-	3	3
	Southern Africa	-	1	2	-	-	-	3
	Western Africa	-	-	-	-	-	-	-
	Combined	-	1	2	-	-	4	7 (7%)

Oceania	Australia and NZ	-	-	-	-	-	3	3
	Melanesia	-	2	1	-	-	-	3
	Micronesia	-	-	-	-	-	-	-
	Polynesia	-	-	1	-	-	-	-

*Skeletons = skeletons with missing phalanges and/or other signs of finger amputation. Isolated = isolated finger bones that appear to have been deliberately deposited. Finger bowls = Ancient Maya finger bowls. Hand impressions = hand impressions with incomplete fingers; HIIFs = hand images with incomplete fingers. All = all types of evidence. The regions and subregions are based on the UN geoscheme. The regions and subregions are ranked according to the number of sites with evidence suggestive of FA. Details of the relevant publications are given in the OSM.

Figure 25.4. Two phalanges from skeletons that were excavated at Lankhills Cemetery, England, and date to the Romano-British period. The phalanx on the left-hand side of the image is an undamaged one from the little finger of a left hand. The one on the right-hand side is a phalanx from the little finger of a left hand that Booth et al. (2010) contend was subjected to amputation. As can be seen, it is much shorter than the undamaged one and has a roughened mass of sclerotic bone at its distal end, which is consistent with postamputation healing. The box shows the area of amputation and subsequent healing.

Source: Photo: Modified from fig. 5.30 in Booth et al. (2010); © Oxford Archaeology, 2010; reproduced with permission.

Skeletons with Missing Phalanges and/or Other Signs of Finger Amputation

The second type of archaeological evidence comprises human skeletons with missing phalanges and/or other signs of finger amputation, such as phalanges with cut marks or shortened phalanges with indications of healing after removal of the missing portion (Figure 25.4).

A total of twenty-two skeletons from sixteen sites were found to have this type of evidence (Table 25.4).

There is considerable temporal variability among the skeletal individuals in question. The oldest case, which is from the Mesolithic site of Murzak-Koba in Ukraine's Crimean Peninsula, is estimated to have died sometime between 10,000 and 7,000 years ago (Husar 1993, 384; Mednikova, Moiseyev, and Khartanovich 2015). The most recent case is from Scotland and is estimated to have died sometime between 1100 and 1500 CE (Duffy, Arabaolaza, and Kilpatrick 2008).

The main uncertainty in relation to the skeletons with signs of FA is whether the removals were accidental, surgical, or cultural. Although we can make judgments based on the context of the remains, it is not possible to be entirely confident on this issue. Hence, we consider the skeletal individuals in question to be evidence of FA,
p. 967 but of unknown motivation. ↳

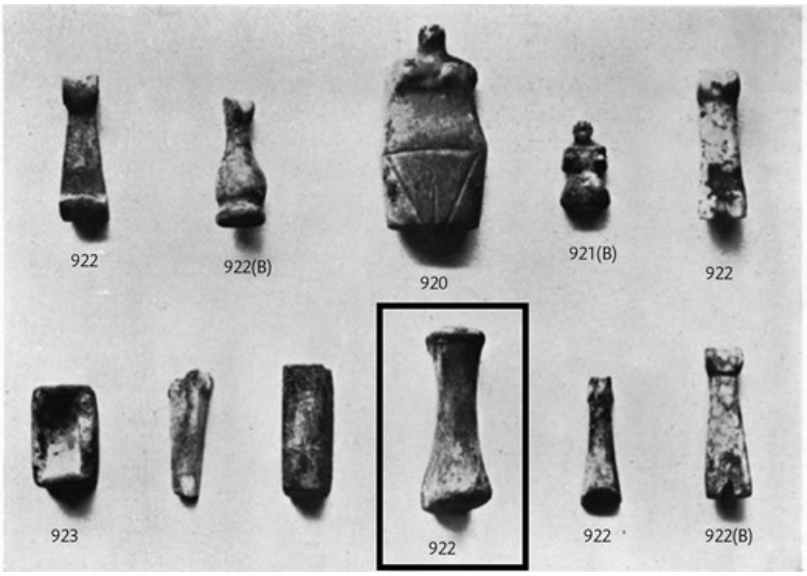

Figure 25.5. Objects associated with a shrine at Tell Arpachiyah, Iraq. Mallowan and Rose (1935) reported that the objects included a human finger bone and several stone sculptures in the shape of human finger bones but, unfortunately, did not include a scale in the photograph they provided. Equally unfortunately, they also did not indicate the location of the real finger bone in the photograph. We believe the objects are as follows: *Top row*, *left to right*: first object (labeled '922') = a stone sculpture of a finger bone; second object (labeled '922(B)') = a stone sculpture of a finger bone; third object (labeled '920') = a mother goddess figurine; fourth object (labeled '921(B)') = a male figure made of stone; fifth object (labeled '922') = a stone sculpture of a finger bone. *Bottom row*, *left to right*: first object (labeled '923') = a miniature steatite trough bowl; second object = uncertain; third object = uncertain; fourth object (labeled '922') = most likely a real finger bone (box added by us for emphasis); fifth object (labeled '922') = a stone sculpture of a finger bone; sixth object (labeled '922(B)') = a stone sculpture of a finger bone.

Source: Photo: Modified from Plate X in Mallowan and Rose (1935); © Cambridge University Press, 2016; reproduced with permission.

Isolated Finger Bones That Appear to Have Been Deliberately Deposited

The third type of archaeological evidence that may reflect FA customs is isolated phalanges that appear to have been deliberately deposited. The phalanges were found in contexts such as shrines or graves or had been placed under a building during construction (see the OSM).

Isolated phalanges have been recovered from forty deposits at twenty-six archaeological sites (Table 25.4). The number of phalanges per site ranged between one and fifty-two, with an average of six. A deposit from the site of Tell Arpachiyah in Iraq exemplifies this type (Figure 25.5). The deposit was interpreted to be a shrine and dates to the fourth ↳ century BCE. It contains an isolated human phalanx and five stone sculptures that are
p. 968 shaped like phalanges (Mallowan and Rose 1935).

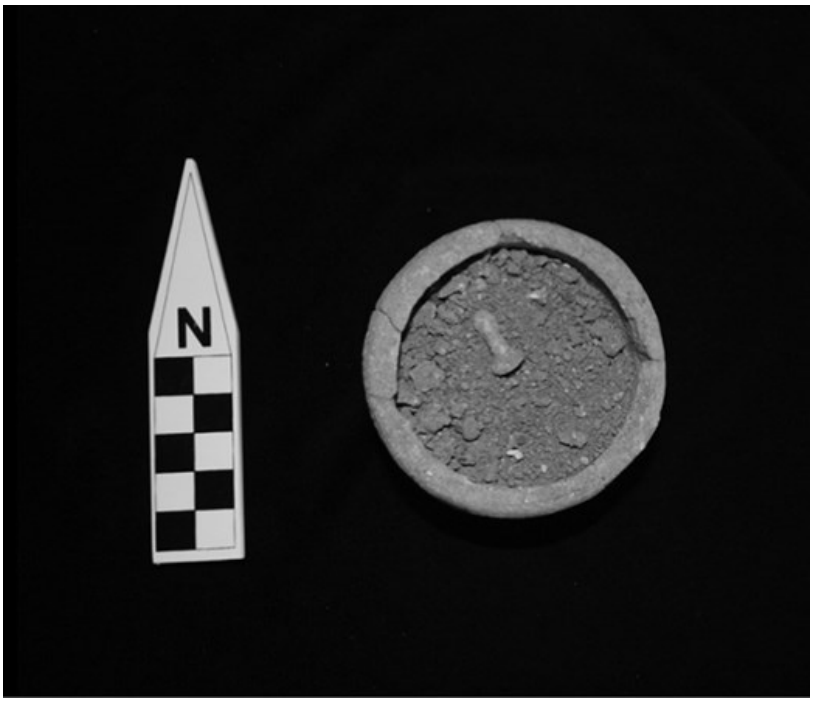

Figure 25.6. Superior view of a finger bowl containing a distal phalanx, from Actuncan, Belize. It is from Burial 13 in Group 1, which is associated with a commoner patio.

Source: Photo: fig. 4.9 in LeCount (2013). © Lisa LeCount, 2013; reproduced with permission.

As with the groups of perforated finger bones, it is possible that the isolated phalanges were obtained from skeletons, but it is also possible that they were removed from recently deceased or living individuals. Given this, we consider them to be potential evidence of FA.

Ancient Maya Finger Bowls

Ancient Maya finger bowls are small, unslipped plainware ceramic bowls that contain one or more finger bones (Figure 25.6; Chase and Chase 1994, 1998). Finger bowls have been found at twenty-four sites in the Maya region (Table 25.4). The deposits that contain finger bowls range in date from the Late Preclassic (500 BCE–250 CE) to the Epiclassic/Late Classic (600–900 CE) periods.

Unfortunately, the total number of finger bowls and the total number of phalanges found among the finger bowls are not available for every site (OSM). Nevertheless, we can say that across the twenty-four sites, the number of finger bowls exceeds 390 and that those bowls have more than 530 phalanges distributed among them. For the sites for which data are available, the number of bowls per site ranges from 1 to 200, with a median of 2, and the number of phalanges per finger bowl ranges from 1 to 206, with a median of 3.5.

Cahal Pech, in Belize, provides a particularly interesting example of the occurrence of finger bowls in an
p. 969 Ancient Maya site (Awe, Grube, and Cheetham 2009; Cheetham et al. ↳ 1994a, 1994b). In the penultimate phase of the site's Building Str. 1, the excavators found a tomb with the remains of three or four children just below its capstone. The children were surrounded by what were interpreted as ritual artifacts, including smashed pottery vessels and obsidian blades. Beneath the children's remains there was a stela that had been deliberately broken, and associated with the pieces of the stela was a cache of forty-five lower incisors and 200 finger bowls. The finger bowls contained 206 phalanges, which correspond to the finger segments of between 20 and 206 individuals. The excavators interpreted the tomb, stela, finger bowls, and other items as elements of a ritual that was carried out to mark the end of the life of the building.

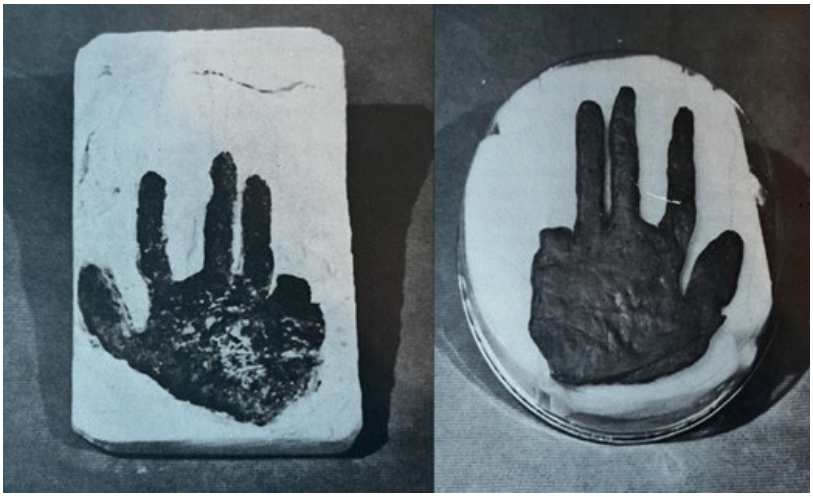

Figure 25.7. Photographs of a cast of a hand impression in clay at Grotte de Gargas, France. It is of a right hand and is missing the final two segments of the little finger. No scale was used in the original photographs, but the hand is believed to be that of a boy aged 10 to 11 or a girl aged 12 to 13 (Sahly 1966).

Source: Photo: Modified from figs. 68 and 69 in Sahly (1966), held by the library of the University of Toulouse. © Ali Sahly, 1966. We believe our use of the photographs constitutes a fair use of copyrighted material in connection with teaching, scholarship, and research, as provided for in section 107 of the US Copyright Law.

Once more, it is possible that the phalanges included in the finger bowls were obtained from skeletons; but it is also possible that they were removed from recently deceased or living individuals. As such, we consider the finger bowls to be potential evidence of FA.

Hand Impressions with Incomplete Fingers

The fifth type of archaeological evidence suggestive of FA comprises hand impressions with incomplete fingers that were found in two caves in southwest France containing Upper Paleolithic rock art (Figure 25.7).

The first cave is Grotte de Gargas. At Gargas, two hand impressions were found in clay in a chamber known as
p. 970 the Chinese Pavilion. One impression is of a right hand with a ↳ truncated little finger (Sahly 1966, 123–128; Barrière 1976, 81). The other is of fingertips with what Sahly (1966, 124) interpreted as signs of scarring caused by amputation. The hand impressions have not been directly dated, but they are generally assumed to between 27,000 and 22,000 years old (e.g., Barrière 1976).

Figure 25.8. Photograph of hand images at Cosquer Cave, France. Note the hand images with incomplete fingers. The images are thought to be associated with the Upper Paleolithic Gravettian archaeological culture (27,000–22,000 BP; Jaubert 2008).

Source: Photo: Clottes (2008, 98). © Jean Clottes, 2008; reproduced with permission.

The second cave is Lascaux. There are also multiple hand impressions in clay at this site. Sahly (1966, 124–126) reported that two of the hands that created the impressions had undergone amputations of the index, middle, ring, and little fingers. He also reported another hand impression at the site that was made by an adolescent who was missing the little finger on their right hand. As with the hand impressions at Grotte de Gargas, the Lascaux hand impressions have not been directly dated. However, Sahly (1966) assumed that they are the same age as the rock art at the site, which recent work has suggested is from 21,000 to 17,000 years old (Glory 2008; Ducasse and Langlais 2019).

There is no way to know whether the missing finger segments were removed in an accident, for medical reasons, or for cultural ones. Therefore, we consider the hand impressions with incomplete fingers to be potential evidence of FA.

Hand Images with Incomplete Fingers at Rock Art Sites

The sixth and last type of archaeological evidence suggestive of FA consists of hand images with incomplete fingers (HIIFs) at rock art sites (Figure 25.8).

The term "hand image" refers to both handprints and hand stencils, which can be thought of as positive and
p. 971 negative hand images, respectively (Snow 2006). To produce ↳ a positive hand image, the front of the hand is covered with pigment and pressed on a surface. A negative hand image is created by pressing the hand against a surface and applying pigment around it. We were able to identify HIIFs at a total of thirty-three rock art sites worldwide (Table 25.4).

The HIIFs vary considerably in terms of age. The oldest is at Leang Lompoa, Indonesia. The art at this site has been dated to between 27,400 and 26,000 BP (Aubert et al. 2014). The youngest HIIF may be from Southern Asia. So far, none of the Southern Asian HIIFs has been dated. However, the creation of hand images is a part of some contemporary religious rituals in the region (Dubey-Pathak and Clottes 2020), so the Southern Asian HIIFs may have been created in the historic period.

A total of 2,801 hand images have been recorded at the thirty-three sites (OSM). Of these hand images, 1,496 are complete; 287 have incomplete fingers; and 127 are not preserved enough to determine whether the fingers were originally complete. A few sites do not have data on the number of complete or ambiguous hand images. The site with the greatest number of HIIFs is Grotte de Gargas in France. It has ninety-three, which is 32% of the sample. Several other sites have tens of HIIFs, but most have fewer than ten.

The HIIFs differ in the number of incomplete fingers present (Figure 25.9). Some have a single incomplete finger; others have up to four incomplete fingers. Furthermore, there is variability in how much of a finger appears to be incomplete in the images. Often the incomplete finger appears to be missing one or two segments, and thus presents as a stump. In other cases, the entire finger is incomplete and therefore none of it can be seen in the image.

The HIIFs represent evidence that is considered suggestive for FA rather than convincing because there is an ongoing debate regarding the nature of the HIIFs in Europe. We and several other authors have argued that these HIIFs were created by the hands of individuals who had gone through a FA either for surgical or ritual purposes (Baudouin 1927; Casteret 1951; Breuil 1952; Janssens 1957; Nougier 1963; Narr 1966; Gilligan 2010; Lundborg 2014; McCauley, Maxwell, and Collard 2018). Other researchers have proposed that the individuals who produced the images possessed all of their fingers and that they simply manipulated their hands so that one or more finger segments were not visible. The most popular hypothesis among these researchers is that the European HIIFs reflect the use of a sign language (Patte 1960; Leroi-Gourhan 1967; Leroi-Gourhan and Michelson 1986; Barrière and Suères 1993; Delluc and Delluc 1993; Clottes and Courtin 1994; Etxepare and Irurtzun 2021). Rouillon (2006) and Overmann (2014) have proposed another explanation; according to these researchers, the European HIIFs represent a counting system. A third possibility was put forward by Van den Broeck (1950), who proposed that the European HIIFs were created as "visiting cards." Obviously, the debate about the significance of the European HIIFs can be extended to the HIIFs in other regions.

Results of Bioarchaeological Analyses of Human Remains

Some of the human remains discussed in this section have been subjected to bioarchaeological analyses. We
p. 972 have extracted information regarding the age and ↳ sex of the individuals represented by the remains from the relevant publications and summarized it in Table 25.5. We have done the same for information pertaining to the fingers and finger segments that appear to have been targeted for amputation (Table 25.5).

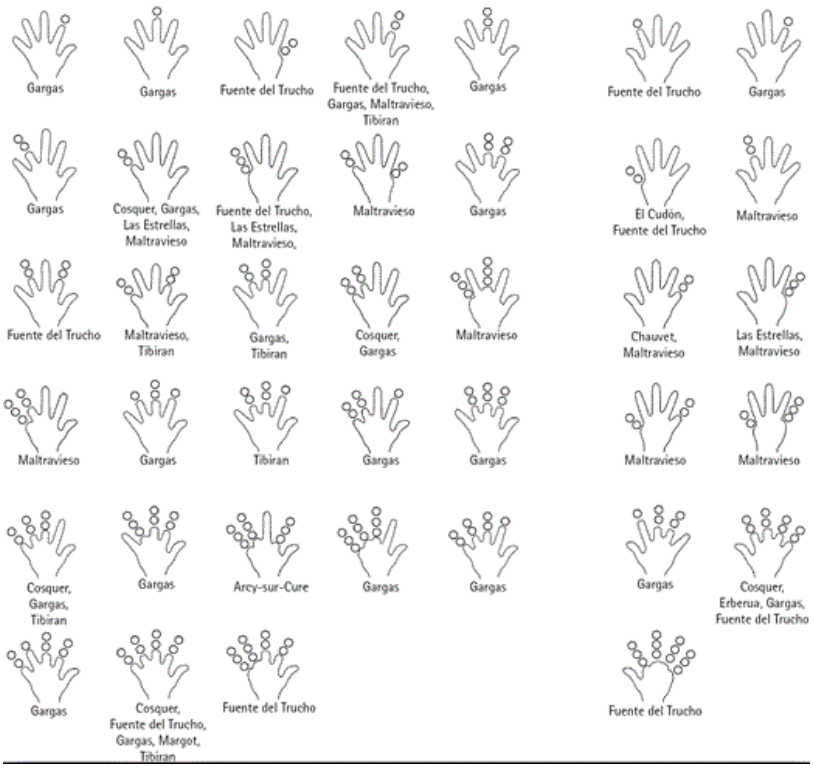

Figure 25.9. Drawings of HIIFs from 12 Upper Paleolithic rock art sites in Europe illustrating the variability in missing finger segments. The HIIFs were redrawn from Sahly (1966); Leroi-Gourhan (1967); Baffier and Girard (1998); Clottes (2001); Clottes, Courtin, Luc Vanrell (2005); Pigeaud et al. (2006); Larribau (2013); Groenen (2016); Collado Giraldo (2018); and Collado Giraldo et al. (2019). The leftmost five columns are images made with left hands. The rightmost two columns are images made with right hands. The dots indicate the number of finger segments that are missing in an image.

The analyses indicate that the remains are not limited to a single age group. The skeletons include those of adults and subadults, and so are the unassociated phalanges. Similarly, both males and females are represented
p. 973 among the skeletons and the unassociated phalanges. ↳

Table 25.5. Summary of Results of Published Bioarchaeological Analyses ofArchaeological Human Remains That Are Suggestive of FA.*

	Skeletons	Unassociated phalanges
Age		
Adult	17 (94%)	510 (95%)
Subadult	1 (6%)	29 (5%)
Total	18	539
Sex		
Male	12 (71%)	6 (25%)
Female	5 (29%)	9 (75%)
Total	17	12
Hand		
Left	6 (55%)	67 (68%)
Right	3 (27%)	31 (32%)
Both	2 (18%)	-
Total	11	98
Finger targeted		
Little	3 (11%)	20 (48%)
Ring	-	11 (26%)
Middle	-	10 (24%)
Index	-	8 (19%)
Thumb	1 (4%)	3 (7%)
Both little fingers	2 (7%)	-
Index and ring	1 (4%)	-
Index and little	1 (4%)	-
Total	28	42
Number of fingers targeted		
One	11 (73%)	-
Two	4 (27%)	-
Total	15	-
Phalanx targeted		

Distal	3 (50%)	231 (57%)
Middle	-	134 (33%)
Proximal	-	41 (10%)
Middle and distal	2 (33%)	-
Proximal, middle, and distal	1 (17%)	-
Total	6	406

*In compiling this table, we drew on analyses of skeletons with missing phalanges and other signs of amputation ("Skeletons"). We also consulted analyses of phalanges included in probable finger necklaces, phalanges that appear to have been deliberately deposited, and phalanges included in Ancient Maya finger bowls ("Unassociated phalanges"). Please note that the cases enumerated under "Skeletons" are not also tallied under "Unassociated phalanges." Details of the relevant publications are given in the OSM.

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The analyses also indicate that the targeted fingers were not limited to a single hand. Some of the skeletons show signs of having fingers of both hands amputated, and both hands are represented among the unassociated phalanges.

Regarding the finger segment(s) targeted, the distal segment of the little finger was the most common, but other segments were also removed.

These results are strikingly like those we obtained in our analysis of ethnohistorically documented FA customs. Males and females are represented in both samples, and so are adults and subadults. Similarly, amputation most frequently targeted the distal phalanges and little fingers in both samples, although it was not uncommon for more proximal phalanges and other fingers to be removed.

Motivations for Finger Amputation

To reiterate, the second aim of the study reported here was to identify additional motivations for FA recorded in ethnohistoric texts and then revise the taxonomy of FA motivations that we outlined in McCauley, Maxwell, and Collard (2018). We returned to the ethnographic and historic sources used in section "Mentions of Finger Amputation Customs in Ethnohistorical Texts" and identified all mentions of a motivation for FA. We then compared the motivations to the ten reported in McCauley, Maxwell, and Collard (2018). We identified 253 documents in which motivations for FA were discussed. The list of documents that mention motivations for FA can be found in the OSM.

The motivations for FA pertain to 162 of the 181 groups with records of FA. That is, of the 181 groups for which we found mentions of FA in the first part of the study, 162 were also associated with mentions of motivations for FA. The names and locations of the 162 groups are also provided in the OSM, along with the motivation(s) for FA we identified for each of them.

We were able to improve the attribution of motivations to some of the groups we included the analysis of motivations for FA in McCauley, Maxwell, and Collard (2018). In a few instances, we merged groups that we had previously treated as separate because we found that the different names referred to the same group. In other cases, the additional documents we perused enabled us to link a motivation with a subgroup within a broader group, where previously we had only been able to attribute the motivation to the broader group.

Many of the motivations mentioned in the 253 documents were among those we identified in McCauley, Maxwell, and Collard (2018), but a number were not. To account for these, we had to add nine motivations to the taxonomy.

In addition, we dropped one motivation type from the taxonomy, *veneration*, which we had defined as a forced amputation to produce a magical object or worshipping device (McCauley, Maxwell, and Collard 2018, 319). The veneration motivation was originally linked with the Sioux, but the additional sources we consulted for the
p. 975 present study made it clear that the relevant custom involved amputation of the hands rather than the ↳ fingers. Because no other society in the sample engaged in veneration, we decided to remove it from the list of motivations.

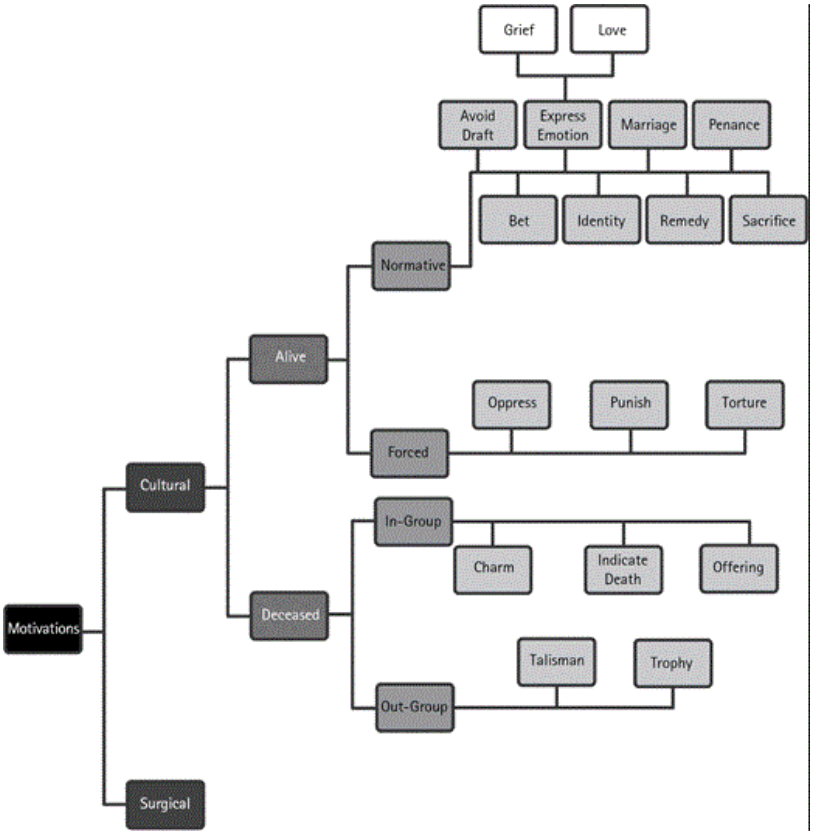

Figure 25.10. Motivations for finger amputation shown as a hierarchical diagram.

In addition, we subdivided the motivation type we had called *medical* into *surgery*, which we define as amputation to try to deal with a medical condition affecting the amputated finger segment(s), such as frostbite-induced gangrene, and *remedy*, which we define as amputation to try to resolve a medical condition that does not directly involve the amputated segment(s), such as bleeding sickness out of the amputee.

These changes resulted in a total of eighteen motivations for engaging in FA. For the purposes of this chapter, we have organized the motivations into a hierarchical diagram in which the highest-level split is between surgical amputation and cultural amputation (Figure 25.10).

p. 976 There are positive reports of nine of the 162 societies engaging in surgical amputation. These societies were/are in Australia and New Zealand (n = 1), Eastern Europe (n = 1), Northern America (n = 3), Southern Africa (n = 2), and Southern Europe (n = 2).

The cultural motivations for engaging in FA can be divided into those related to FA when the participant is alive and those related to FA when the amputee is dead. We will first consider the motivations where the participant is alive.

The cultural motivations related to FA when the participant is alive can be divided into those that are *normative* and those that are *forced*. Here, *normative* means that the amputation was assented to by the participant, or by their parents in the case of a child. In contrast, *forced* means that the amputation was imposed upon the amputee.

The normative motivations, ranked according to the number of societies in which they were documented, are as follows:

- **Grief (n = 42).** A finger was removed to mourn a deceased loved one. This was the most common motivation for FA. In some societies, individuals could have multiple finger segments removed during their lifetimes.
- **Sacrifice (n = 33).** Individuals practiced FA to appeal to a deity for assistance.
- **Remedy (n = 19).** Undamaged fingers were amputated to bleed sickness out of the amputee, to heal a sick individual, or to appeal to a deity to heal a sick relative.
- **Identity (n = 16).** Amputation was carried out to mark group membership. In some cases, the practice was carried out to mark membership in a particular occupational group.
- **Avoid draft (n = 5).** Some individuals amputated fingers to avoid being drafted into military service. Adolescent and adult males in five societies are reported to have engaged in FA for this reason.
- **Marriage (n = 4)**. Finger segments were removed to indicate marital status. Three types of marital status were signaled: that an individual was married, was a widow, or that their children were married.
- **Bet (n = 3)**. Participants amputated a finger to pay a lost bet.
- **Love (n = 1)**. A finger was amputated to demonstrate extreme devotion to a lover.
- **Penance (n = 1)**. A finger was amputated to atone for a transgression.

There are three forced motivations in the taxonomy:

- **Punishment (n = 35)**. Amputation was carried out as a punishment.
- **Torture (n = 6)**. Amputation was carried out to inflict pain.
- **Oppress (n = 5)**. This type of FA was used to mark domination over an oppressed group.

Turning now to the postmortem FA customs: it is important to note that the amputee in these cases was newly deceased at the time of amputation.

The postmortem customs can be divided into those in which the amputee was a member of the in-group and those in which the amputee was a member of an out-group.

The motivations pertaining to recently deceased in-group members are as follows:

- **Offering (n = 10)**. A finger was amputated by a relative of the deceased to appeal to a deity for assistance.
- **Charm (n = 4)**. Fingers were removed from a relative to be made into an object for worship or magic.
- **Indicate death (n = 2)**. A finger was amputated from a deceased comrade in warfare. The amputated finger was then used to indicate that the individual had died in combat.

There are two motivations pertaining to recently deceased out-group members:

- **Trophy (n = 23)**. Fingers were amputated from enemy warriors after they had been killed in combat and kept as trophies.
- **Talisman (n = 6)**. Fingers were amputated to produce objects for worship or magic.

There is variability in the geographic distribution of the motivation types (Table 25.6). Two motivation types, punishment and sacrifice, are found in all five geographic regions. Similarly, the motivation of grief is present in all the geographic regions except Europe. The remaining motivation types are less widespread in their geographic distribution. In some cases, the motivations are predominantly found in a single geographic region. This pattern can be found in the motivation types of avoiding a draft and offering. Other motivations, such as trophies, are principally found in a single subregion.

General Discussion

The study reported in this chapter had two aims. The first was to shed further light on the occurrence of cultural FA via a survey of ethnohistorical descriptions and a search for ethnographic and archaeological objects that are at least suggestive of the practice. The second aim was to document motivations for FA through a survey of ethnohistorical descriptions of FA.

Key Findings

The results of our survey of ethnohistorical texts revealed that there is evidence that 181 societies engaged in FA in the recent past. Of these 181 societies, just four were recorded as engaging only in surgical FA. According to the texts we consulted, the other 177 societies either engaged in surgical FA *and* cultural FA or just cultural FA. Our search for FA-related ethnographic and archaeological objects produced at least suggestive evidence that another thirty-four societies or archaeological cultures engaged in FA. In ↳

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some of the archaeological cases, it is impossible to determine whether the amputation was carried out for surgical reasons or cultural ones. But in other cases, it is clear that FA was cultural—the finger necklaces made by the Ute, Apache, Northern Cheyenne, and, possibly, the Sioux, and the finger bowls of the Ancient Maya are perhaps the most obvious examples. In any case, it is very likely that all three figures—that is, 181, 177, and 34—are underestimates given the incompleteness of the ethnographic, historical, and archaeological records. As such, it seems reasonable to conclude that in the past, hundreds of societies engaged in a cultural practice of amputating healthy fingers.

Table 25.6. Regional Distribution of Societies with Motivations for Cultural FA.*

Region	Subregion	Avoid Draft	Bet	Grief	Love	Identity	Marriage	Remedy	Penance	Sacrifice	Oppress	Punishment	Torture
Americas	Caribbean	-	-	-	-	-	-	-	-	-	-	-	-
	Central America	-	-	1	-	-	-	-	-	-	1	-	-
	Northern America	-	1	19	-	3	-	4	-	14	2	1	3
	Southern America	-	-	3	-	-	-	-	-	-	-	-	-
	Combined	-	1	23	-	3	-	4	-	14	3	1	3
Africa	Central Africa	-	-	-	-	-	-	-	-	-	-	3	-
	Eastern Africa	-	-	2	-	-	-	2	-	6	-	11	1
	Northern Africa	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Africa	-	-	3	-	6	1	4	-	6	1	2	-
	Western Africa	-	-	-	-	1	-	2	-	-	-	-	-
	Combined	-	-	5	-	7	1	8	-	12	1	16	1

Asia	Central Asia	-	-	-	-	-	-	-	-	-	-	-	-
	Eastern Asia	-	-	-	1	-	1	2	1	-	1	3	-
	Southeastern Asia	-	-	2	-	-	-	-	-	1	-	4	-
	Southern Asia	-	2	1	-	-	1	-	-	1	-	4	-
	Western Asia	1	-	-	-	-	-	-	-	-	-	2	1
	Combined	1	2	3	1	-	2	2	1	2	1	13	1
Oceania	Australia and NZ	-	-	1	-	5	1	1	-	1	-	-	-
	Melanesia	-	-	8	-	-	-	2	-	-	-	1	-
	Micronesia	-	-	-	-	-	-	-	-	-	-	-	-
	Polynesia	-	-	2	-	-	-	2	-	2	-	-	-
	Combined	-	-	11	-	5	1	5	-	3	-	1	-

Europe	Eastern Europe	1	-	-	-	1	-	-	-	-	-	2	-
	Northern Europe	1	-	-	-	-	-	-	-	1	-	1	1
	Southern Europe	1	-	-	-	-	-	-	-	-	-	1	-
	Western Europe	4	-	-	-	1	-	-	-	1	-	4	1
	Combined												

*The regions and subregions are based on the UN geoscheme. NZ = New Zealand.

The ethnohistoric societies and archaeological cultures we have identified indicate that FA was a geographically widespread practice. Multiple societies on every inhabited continent engaged in FA for reasons other than trying to solve a medical problem with the targeted finger.

The societies for which we found reliable evidence of FA customs were variable in their subsistence strategies, degree of mobility, and level of social stratification. So were the archaeological cultures. As a custom, therefore, FA does not appear to have been limited to a particular type of society.

Regarding time depth, the archaeological objects we identified suggest that FA has been a practice in some places for thousands of years. Based on the skeleton with signs of amputation unearthed at the site of Murzak-Koba in Crimea, which we regard as reliable evidence of the practice, humans have engaged in FA for at least the last 7,000 years (Husar 1993, 384; Mednikova, Moiseyev, and Khartanovich 2015). Based on the hand images with incomplete fingers at the site of Leang Lompoa in Indonesia, which represent plausible but not definite evidence of FA, humans may have practiced FA for at least 26,000 years (Aubert et al. 2014).

Turning now to the second aim of this study, our reassessment of our previous taxonomy of motivations to engage in FA (McCauley, Maxwell, and Collard 2018) led us to expand the list of motivations from nine to eighteen. Thus, past societies engaged in FA for many reasons other than resolving a medical problem with the targeted finger.

In sum, the study reported here shows that amputating healthy fingers for cultural reasons was surprisingly common in the past, was not limited to a particular geographic region or type of society, has a time depth of thousands of years, and was carried out for many different reasons.

Future Directions

We end by highlighting some potential avenues for future research. Most obviously, the historical record could be more comprehensively searched for evidence of FA practices. For example, it seems likely that a systematic survey of law codes could provide further accounts of remunerations for amputated fingers or punishments requiring FA.

Another useful undertaking would be to try to estimate the prevalence of FA in the past. This is not a
p. 981 straightforward task because we do not have, and probably never will ↳ have, a reliable estimate of the number of all the ethnolinguistic groups that have existed in one region of the world, let alone worldwide. However, in principle, it should be possible to use the data presented in this chapter to estimate a prevalence rate for FA in the Standard Cross-Cultural Sample (Murdock and White 1969), which is intended to be a representative sample of ethnolinguistic groups.

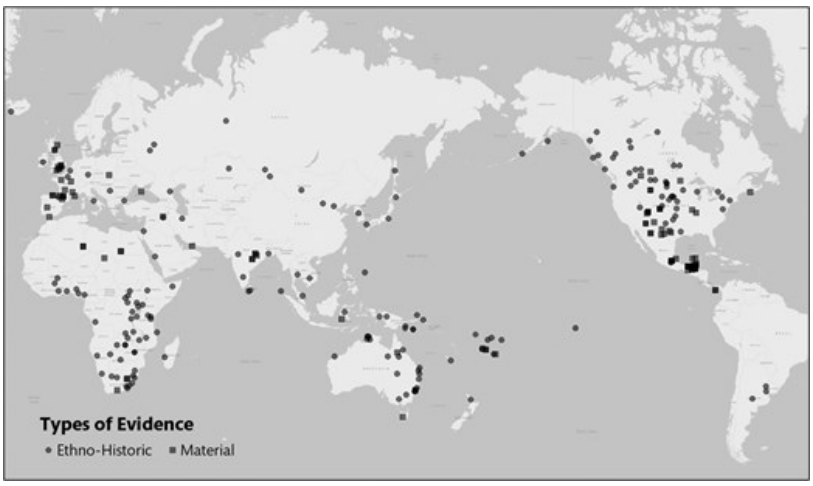

Figure 25.11. Distribution of evidence for FA, divided by type of evidence. All points are light grey; the darker grey ones indicate an overlap of points.

Third, it would be useful to search for archaeological cases of FA that have not been recognized to date. A comparison of the distribution of the ethnohistoric and archaeological evidence for FA reveals that the archaeological evidence clusters in regions where FA practices were particularly well known in the ethnohistoric period (Figure 25.11). This raises the possibility that FA may be underrepresented in the archaeological record. One reason this could be the case is that deposits of isolated phalanges or skeletal individuals with missing phalanges could be attributed to taphonomic processes without considering the possibility of cultural processes such as FA. Because of this, we may be missing the presence of FA in archaeological deposits. The analyses we have reported here imply that archaeologists should consider the possibility that isolated phalanges or missing phalanges may be due to FA instead of taphonomy.

Fourth, it would be fruitful to attempt to find archaeological evidence of FA from South America. We attempted to search for documents in multiple languages, and as a result, our sources are written in seven different languages. However, many of the sources of South American archaeology are written in Spanish, and since neither of us is fluent in this language, it is likely we missed mentions.

Fifth, it would be useful to bring together the FA occurrence and motivation data. In the study reported here, we
p. 982 dealt with FA practices and FA motivations separately. ↳ However, some groups have multiple motivations for engaging in FA, and it is possible that the different motivations are associated with different combinations of the variables discussed in the section “Mentions of Finger Amputation Customs in Ethnohistorical Texts” (e.g., participant demographics, hand targeted, finger targeted, removal method etc.) so that the groups in question effectively have multiple types of FA. It would be worthwhile to establish how many different FA types can be identified when the motivation for FA and the specifics of how FA is carried out are considered together.

Lastly, given the geographic and temporal scope of the evidence for FA and the fact that societies practiced it for multiple cultural reasons, it is unlikely that cultural FA was invented just once. It is much more probable that it was invented multiple times. This raises numerous questions, including, Why did the societies in question begin to deliberately amputate healthy fingers? Which ecological, demographic, and/or social factors led them to adopt this practice? These questions can, in principle, be addressed with cross-cultural analyses. Doing so would be another useful next step.

Acknowledgments

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