Commentary

Afro-Cuban Ritual Use of Human Remains: Medicolegal Considerations

Introduction

Medicolegal professionals occasionally encounter human remains that have been used for ritual purposes. In the state of Florida, practitioners of the Afro-Cuban religious system of Palo (a Kongo-inspired religion frequently referred to as Palo Mayombe) use human skulls and crania in religious rituals [1–3]. Recent research by forensic anthropologists from the University of Florida’s C.A. Pound Human Identification Laboratory (CAPHIL) has identified biocultural and taphonomic signatures left by Palo practices on human remains [3]. Some of the traits included in the biocultural and taphonomic signatures are shared by other Afro-Cuban religious systems—most notably, Ocha (often called Santeria), Palo’s Yoruba-inspired cousin religion [3–6]. However, other traits constitute unique elements of Palo ritual [4, 5], enabling anthropologists to identify the religious affiliation of these assemblages with confidence [3].

We begin this paper with a literature review describing the religious systems of Ocha and Palo, the major components of Afro-Cuban ritual assemblages, and the history of medicolegal interactions with these assemblages. We then enhance existing Afro-Cuban biocultural and taphonomic signatures [3] with new observational data and present a synthesis of material cultural and biological data to enable further specificity in identifying Palo assemblages. Finally, we outline medicolegal considerations for the identification and handling of these ritual assemblages of human remains and material culture. We provide background on the legal and illegal sourcing of ritual human remains, recommendations for criminal investigations, and guidelines for the safe and ethical handling of these unique assemblages—including cases in which they have been contaminated with elemental mercury.
Afro-Cuban Religious Practices and Ritual Assemblages

Ocha and Palo: Similarities and Differences

The Afro-Cuban belief systems of Ocha and Palo developed from the religious practices of West African Yoruba and Central African Kongo peoples displaced from their homelands by the slave trade [5, 7]. These practices were as distinct from each other as they were internally diverse [4–6]. Imported into Cuba in large numbers in the 19th century, Yoruba captives brought to the island a complex tradition of multi-deity worship [4–6]. Imported diffusely but continuously beginning in the 16th century, enslaved Kongo peoples often practiced religious traditions honoring spirits rather than deities—despite the fact that many had practiced a form of Christianity long before their capture and forced diaspora [5, 7]. In late-19th-century Cuba, these enslaved West and Central Africans comprised a large proportion of the island’s population. Although the majority lived and worked in rural, agricultural settings, approximately one quarter of these enslaved Africans lived in Cuba’s urban centers [8]. Many participated in Church-sponsored African social clubs and other multi-ethnic African urban organizations, and new religious systems developed in these dynamic and diverse urban contexts [9–11].

Thus, though developing from distinct African traditions, Ocha and Palo crystallized into stridently pluralistic, uniquely Afro-Cuban forms [5]. For more than one hundred years, the religions have maintained “clear-cut distinctions” [5] in spite of their concurrent evolution, frequent confusion, and the fact that the same individuals can and often do practice both [4, 10, 12]. Certainly, the two belief systems share similarities. Both traditions share certain ritual paraphernalia—including beads; candles; statues; figurines; and the machetes, knives, and metal objects sacred to the spiritual agents honored as warriors [9]. Practitioners of both Ocha and Palo use elemental mercury, or azogue, in their religious and folk practices [4, 13, 14]. Both traditions involve animal sacrifice, leading to the deposition of faunal bones, blood, feathers, and other remains in religious assemblages [4, 6, 15, 16]. Both religious systems rely on fundamental laws of association in determining their requisite material culture. The Law of Similarity (like produces like) dictates that items containing photographs, names, and personal-identification information can appear in ritual assemblages intended to produce an effect on a specific target. The Law of Contact dictates that items that have been in contact with a designated target (e.g., clothing) can be incorporated into ritual assemblages. Some of the deities honored
in Ocha practices have equivalents among the Palo spirit-archetypes [2, 17], sharing similar attributes, attitudes, and requisite ritual material culture. For example, the Ocha deities Elegguá and Ogún are often associated with the Palo spirits Lucero Mundo and Zarabanda, respectively. The rituals of both traditions focus on enacting spiritual works of healing and protection; Palo works can also enact harm on an intended target. Practitioners of both religious traditions rely on dance, song, drumming, and trance in order to engage with the spiritual world.

However, the nature of that spiritual world—and the character of practitioners’ engagement with it—differs between the two belief systems. Ocha centers on the worship of the orishas, West African deities often recast in the guise of the Spanish santos who inspired the religion’s popular name: Santería, the way of the saints [16, 18, 19]. Ocha practitioners—santeros—can ascertain the will of the orishas via divination, or even channel their life force through dancing and trance. However, santeros cannot coerce the orishas, because these deities make decisions independent of human influence [5]. In contrast, Palo practitioners—paleros—engage in active, even abusive forms of interaction with the spirits of the dead around whom their religious practice centers and whom they coerce to enact their works [5].

**Material Culture Associations**

These differences in approaches to worship translate to different material cultural signatures [4]. The godlike orishas of the Ocha tradition are honored with European-inspired creole assemblages consisting of ornate thrones and baroque sopera vessels [9, 20]. In contrast, mpungu, the spirit-archetypes of the Palo cosmos, are summoned to action with the quintessential Palo assemblage: the fierce and potent nganga [9, 13, 20]. Called “the essence of Palo”, the nganga (or prenda) is a ritual assemblage typically contained in a cauldron or pot [17]. Each nganga consists of an assemblage of symbolic items of material culture, all working with the palero to become an active agent of healing, harming, or protective magic [5, 21, 22]. These items of material culture can include palos (sticks), bilongos (magical works), soil, azogue, and the animal blood and remains deposited during offerings to the mpungu (Figure 1). Chains are frequently present, symbolizing the binding of the nganga’s spiritual forces to the palero. Associated firmas, Kongo-inspired linear designs, represent spiritual caminos (paths) on which the mpungu travel to enact their works (Figure 2 [also see images in 3, 17, 23]).
Figure 1
Palo nganga assemblage dedicated to the mpungu Zarabanda.

Figure 2
Firma (Kongo-inspired linear design) recovered during medicolegal analysis of an nganga dedicated to Zarabanda.
The most important element of the nganga, however, is the nfumbe—the dead one, or the force of the dead—represented by human remains [4]. These human remains animate the nganga with their associated spiritual presence, galvanizing the other spiritual and natural forces within the cauldron [4]. The powerful nfumbe are incited to even greater potency when their host remains are acquired by grave robbery—an act that paleros believe involves stealing souls as well as bones [5, 13]. From the medicolegal perspective, this may be the key difference between Ocha and Palo assemblages. Ocha thrones, altars, and other orisha assemblages rarely include human remains, but Palo ngangas almost always do [2, 4, 11, 22].

Further, individuals practicing both Ocha and Palo tend to segregate their religions’ respective material culture assemblages into separate ritual spheres [5]. The spatial arrangement of nganga assemblages within a palero’s ritual sphere also has the potential to aid in differentiating their intention. Single paleros can create distinct types of nganga. Prendas cristianas (Christian or baptized ngangas) are ritual assemblages containing crucifixes or holy water [17]. These relatively benign ngangas can perform healing and harming works, but they are prevented by a governing Christian doctrine from killing the target of their magic [4, 17]. In contrast, prendas judias (Jewish or unbaptized ngangas) are capable of killing a specified target [4]. Within the Palo ritual sphere, the more benevolent prendas cristianas may be more prominently displayed, while the potent and malevolent prendas judias may be hidden from sight [4]. Finally, prendas cristianas frequently contain concealed nfumbe, while prendas judias may showcase human remains prominently [4].

Medicolegal Interpretations

Cuban emigration has brought the practice of these religious traditions to the United States—beginning with the post-Revolution arrival of an estimated 430,000 Cubans in Miami-Dade County alone, and continuing through the introduction of more than 120,000 additional Cuban refugees in the Mariel Boatlifts of 1980 [6, 24]. Many of these émigrés practiced Ocha and Palo, and subsequent migrations have introduced more practitioners. Non-Cuban Americans, including many non-Latino African Americans, now practice these religions [6, 10, 25]. A recent American Religious Identification Survey estimates the number of practicing United States santeros at 22,000 [26]. However, the true number is likely far higher—particularly in light of 1990s-
era sources estimating numbers of santeros at 70,000 in South Florida [27] and 300,000 in New York City [28]. No United States survey to date provides Palo-specific statistics.

The United States medicolegal community has long been aware of the use of human remains in Afro-Cuban ritual practices [1–3, 23, 29–36]. Beginning with the publications of Wetli and Martinez [1, 2], forensic anthropologists and medical examiners have described individual cases of human remains in Afro-Cuban ritual contexts [31, 35], small samples of ritual assemblages [1, 2, 23, 29, 32], and larger-scale surveys of medicolegal cases involving ritual remains [3, 36]. Yet, although forensic anthropologists and pathologists have developed a strong tradition of identifying the indicators of broadly defined Afro-Cuban rituals, even the most nuanced of medicolegal publications (for example, Wetli and Martinez [1]) can gloss over the subtleties differentiating Ocha from Palo practices. Some medicolegal professionals still casually refer to the human remains within nganga assemblages as “Santería skulls”—a contradictory term that ignores the fact that skulls are not actually used in Ocha ritual [3]. This lumping of Ocha and Palo may reflect a desire by medicolegal professionals for the broad Afro-Cuban ritual context of the remains to be understood by the lay public. It may represent an attempt to communicate to the medicolegal community that these remains are not forensically, but rather culturally, significant. It could also reflect the fact that, rather than relying on ethnographic or other academic sources, medicolegal researchers tend to cite more general sources that do not adequately or accurately depict Ocha and Palo practices (for example, Perlmutter [33], Perlmutter [34], González-Wippler [37])

1 In one such source [38], the author apologizes for the “sketchy... tales and anecdotes”, “inaccuracies”, and outright “misinformation” included in a previous edition—a source cited in multiple seminal medicolegal publications (for example, Wetli and Martinez [1], and Wetli and Martinez [2]).

In a recent article, University of Florida researchers present a series of Afro-Cuban ritual cases analyzed at Florida’s CAPHIL forensic anthropology laboratory, identifying biocultural and taphonomic signatures shared by human remains used in Florida Palo ritual practices [3]. The signatures include taphonomic modifications evidenced on the remains themselves (e.g., soil staining; postmortem sharp-force and handling damage; and
adherent soil, blood, feathers, hair, and mercury) as well as material culture associated with the remains (e.g., faunal bones, cauldrons, beads, and sticks [3]). Contextual data form another component of the biocultural and taphonomic signatures: the majority of these assemblages of human remains and material culture are found as primary deposits in situ religious contexts, typically outside or within the home [3]. Others are encountered as secondary deposits (often near water) or confiscated during airport screenings [3]. Finally, the estimated biological characteristics of the ritual remains indicate that they tend to be adult males, primarily of non-European ancestry [3]. Informed by the largest sample of Afro-Cuban ritual remains analyzed to date (n=42 cases), this study [3] confirms that some of the traits included in the Florida taphonomic and biocultural signatures are also utilized in Ocha rituals (e.g., beads, candles, mercury, blood, feathers, faunal remains), whereas other traits are unique elements of Palo ritual (e.g., cauldrons, sticks, human remains).

Guidelines for Medicolegal Analyses of Afro-Cuban Ritual Assemblages

Our combined decades of Florida medicolegal casework have included skeletal analysis of Afro-Cuban ritual human remains, ritual scene investigation, participation in ritual practices, and informal conversation with practitioners. In the following sections, we present observations that further enable a differentiation between Ocha and Palo and an accurate medicolegal interpretation of ritual assemblages. Unless otherwise cited, these observations and opinions are informed by our own professional experiences.

Differentiating and Interpreting Afro-Cuban Ritual Assemblages

Importantly, elements of the Florida Palo biocultural and taphonomic signatures warrant a caveat in light of our observations. In particular, the claim that human remains only appear in Palo assemblages [3] requires revision. Skulls, crania, and long bones indeed number among the items of material culture exclusive to Palo ritual. This likely reflects the belief by paleros that their n'numbe require both intelligence (represented by the skull) and mobility (represented by the long bones of the limbs). Yet, although the fact remains that these larger skeletal elements are not used in Ocha rituals, conversations with practitioners reveal that Miami santeros occasionally incorporate smaller skeletal
elements into their Ocha assemblages. For example, in certain ramas (branches) of Ocha, followers of the orisha Babalú Ayé use phalanges in their ritual practices. Though little acknowledged, this practice is not altogether surprising considering that one camino (facet or avatar) of this santo muerto is believed to operate the hearse used to transport the dead to the gravesite. Practitioners dedicating a ritual assemblage to this camino of Babalú Ayé may place phalanges within the orisha’s ceramic sopera.

Second, contrary to the claim that the presence of a cauldron definitively indicates a Palo ritual assemblage [3], Florida followers of the orisha Ogún sometimes include iron pots in their Ocha assemblages (Figure 3). However, although these pots can resemble smaller-scale versions of the ngangas dedicated to the mpungu Zarabanda (Figure 1), they do not include human remains, and they are frequently associated with material culture exclusive to Ocha (Figure 3). Finally, in contrast with the portrayal of skull-centered nganga assemblages [3], on rare occasions, Florida paleros procure nfumbe-spirits without the acquisition of their physical remains. In these cases, paleros honor and maintain prendas espirituales (spiritual ngangas), as opposed to typical ngangas centered on human remains.

Rather than indicating that medicolegal analysts should be less specific in their interpretations of Afro-Cuban ritual, however, we propose that even greater specificity may be possible. Medicolegal professionals can still use the patterns summarized in previous research to distinguish the signatures of Palo from those of Ocha [3], as long as they bear in mind the above caveats regarding the occasional use of phalanges in Babalú Ayé ritual, the possible presence of small pots in Ogún ritual assemblages, and the infrequent occurrence of prendas espirituales.
Figure 3

Small cauldron assemblage dedicated to the orisha Ogún. Note associated material culture exclusive to Ocha ritual, including European-inspired ceramics.
Further, medicolegal professionals can use material cultural and biological data to distinguish between the types of nganga represented by Palo assemblages (Table 1). According to Palo tradition, ngangas cannot share nfumbe, and each type of nganga requires a different type of animating spirit. Each of these mpungu is associated with a requisite body of material culture and biological characteristics (Table 1). Because an nganga dedicated to the youthful, capricious trickster, Lucero Mundo, requires a juvenile nfumbe [4], the presence of juvenile remains in an nganga assemblage may indicate its dedication to this particular mpungu (Table 1). For an nganga dedicated to the feminine Ma’ Kalunga, spirit of the sea, items associated with seafaring might be contained within a white-and-blue clay vessel (Table 1). For an nganga dedicated to Zarabanda, the lord of metals, paleros might fill an iron cauldron with metal objects including horseshoes, magnets, nails, pliers, scissors, razor blades, machetes, and other knives [4, 39]. Metal chains are sometimes ornamented with agricultural tools and other implements associated with this mpungu [2, 3]. Additionally, Palo mythology connects Zarabanda with the railroad—possibly emblematic of the Afro-Cubans who constructed Cuba’s rail system [17, 40]. The presence of metallic objects and railroad spikes in a Palo assemblage, or its deposition near railroad tracks, may denote a dedication to Zarabanda (Table 1, Figure 1).
<table>
<thead>
<tr>
<th>Mpungu</th>
<th>Orisha; Santo(s)</th>
<th>Material Culture Associations</th>
<th>Biological Characteristics of Nfumbe*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lucero Mundo/ Nkuyu</td>
<td>Eleggú; Christ Child, Holy Guardian Angel, St. Anthony of Padua</td>
<td>Red-and-black beads; clay images with cowry-shell facial features; conch shells; coins; mirrors; particular association with metallic mercury, gates, and crossroads</td>
<td>Juvenile remains</td>
</tr>
<tr>
<td>Siete Rayos/ Nsasi</td>
<td>Changó; St. Barbara</td>
<td>Red-and-white beads; swords and axes; particular association with thunder, lightning, and fire</td>
<td></td>
</tr>
<tr>
<td>Cobayende/ Tata Funde</td>
<td>Babalú-Ayé; St. Lazarus</td>
<td>White-and-purple beads; purple objects; cigars; coins; glasses of water; particular association with healing and the sick</td>
<td></td>
</tr>
<tr>
<td>Tiembla Tierra/ Ma Kengue</td>
<td>Obatalá; Our Lady of Mercy, Holy Eucharist, the Resurrected Christ</td>
<td>White beads (occasionally red beads); pearls; white objects and garments; particular association with wisdom and purity</td>
<td></td>
</tr>
<tr>
<td>Zarabanda</td>
<td>Ogún; St. Peter, St. Santiago</td>
<td>Iron nganga vessel; black-and-green beads; red ribbons; canine bones; reptile remains and eggs; metallic items (including horseshoes and weapons); chains adorned with agricultural implements; particular association with iron, the railroad, and railroad spikes</td>
<td>Male remains</td>
</tr>
<tr>
<td>Mama Chola</td>
<td>Oshún; Our Lady of Charity</td>
<td>Clay nganga vessel; yellow or white-and-yellow beads; mirrors; shells; copper and gold; particular association with rivers, love, and money</td>
<td>Female remains</td>
</tr>
<tr>
<td>Ma’ Kalunga/ Madre Agua</td>
<td>Yemayá; Our Lady of Regla</td>
<td>Clay nganga vessel; white-and-blue beads; particular association with fertility, the sea, and seafaring</td>
<td></td>
</tr>
<tr>
<td>Centella Ndoki</td>
<td>Oyá; Our Lady of Candelaria</td>
<td>Gourd or clay nganga vessel; particular association with death and the cemetery</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Additional material culture associated with multiple mpungu</td>
<td></td>
</tr>
</tbody>
</table>

* Blank cells indicate no data found in the literature. However, biological sex of associated nfumbe may be expected to follow the gender of the mpungu.

Table 1

Major Palo spirits: associated Ocha orishas and Spanish-Catholic santos; requisite items of material culture for nganga assemblages; and biological characteristics of associated human remains [2, 3, 4, 6, 13, 16, 17, 21, 40, 62].
Thus, although allowance must be made for the individual preferences of practitioners, as well as the differential accessibility of various materials included in the assemblages, determining the spiritual affiliation of an nganga may be possible in the medicolegal context. For example, one nganga assemblage analyzed at Florida’s CAPHIL [3] consists of an iron cauldron containing human remains; railroad spikes; a metal chain decorated with agricultural implements; and multiple knives, tools, and other metal objects. A dedication to the mpungu Zarabanda is likely. Iron cauldrons associated with human and faunal remains; palos; and metallic chains, knives, and railroad spikes observed in New York [23] and Massachusetts [35] also constitute possible Zarabanda ngangas. Another Florida CAPHIL case details the recovery of a ritual assemblage from a body of water: in contrast with the iron cauldron and metallic items typically associated with a Zarabanda assemblage, the blue-and-white ceramic vase filled with seashells and nautical-themed objects is likely a Ma’ Kalunga nganga [3].

**Understanding the Sourcing of Ritual Remains**

Determining the source of human remains used in Palo ritual is a paramount issue in the medicolegal setting, with the potential to implicate practitioners in grave robbery, or exonerate them of such charges. In the CAPHIL sample of Florida Palo assemblages \((n=42)\), approximately 11% of ritual human remains are anatomical specimens [3]. Some of these remains may have been legally sourced, for example, from online vendors [41]. It is interesting to note that between the dates of this commentary’s submission and acceptance, the popular online auction house eBay changed its policy on the sale of human remains: at the time of submission, the policy stated that sellers were permitted to list human skulls and skeletons intended for medical use [41]; as of this writing, the site prohibits the listing of human remains other than scalp hair [42]. This action may constitute a response to a recent publication highlighting sourcing ambiguities and legal repercussions of online remains trafficking [43]. Cases of the illegal online sale of human remains have been reported previously [44]. The eBay policy change affects paleros’ (and other human-remains traders’) online access to anatomical specimens, and may well result in changes to their nfumbe-sourcing practices.
However, one fact that likely will not change is that the majority of Palo remains seem to originate from cemetery contexts. In the CAPHIL Florida Palo sample, approximately 47% of cases represent instances of grave robbery [3]: the looting of either modern cemetery (36.2%) or historic or archaeological remains (10.6%). Even in nonritual cases, forensic anthropologists sometimes encounter remains unearthed from historic contexts (between 5% and 8% of forensic anthropology cases [45, 46]) or cemeteries (approximately 7% of forensic anthropology cases [46]). These cemetery remains are typically identified on the basis of extensive soil staining, warping, root damage, artifact staining, and the posterior cortical flaking characteristic of coffin burial [45–49].

Because they do not represent the victims of open homicide or human-rights-abuse investigations, these disturbed cemetery remains do not constitute typical forensic anthropology or medical examiner casework. However, in the state of Florida, willfully and knowingly disturbing the contents of a grave constitutes a second-degree felony [50, 51]. Even decades-old cemetery remains become medicolegally significant when they are illegally removed or desecrated. Thus, practicing paleros are faced with the dilemma of whether to source human remains legally, potentially resulting in a less-potent nfumbe, or to follow the tradition of procuring remains from cemeteries, risking legal sanction. Abandoned cemeteries seem to emerge as frequent targets—particularly those with aboveground mausoleums that maximize access to human remains while minimizing risk and effort. Cemeteries may provide the source for the human remains sold in many botánicas—stores supplying a variety of materials for Afro-Cuban, Caribbean, and Latin American religious and folk practices.

Although practitioners sourcing nfumbe from cemeteries may target individuals with specific age, sex, or other biological characteristics (Table 1), they are less likely to target individuals who were known to them during life. This underscores the fact that many nfumbe remain unidentified in the medicolegal context [3]. Pinpointing the country of origin of an nfumbe may be possible, however; characteristic autopsy artifacts, dental restorations, or other surgical implants may indicate a non-United States origin. Isotopic analyses also hold the potential to differentiate between United States and Caribbean or Latin American individuals [52–54]. Although we have not witnessed a thriving remains trade between Cuba and the United States, it is likely that some emigrating Palo practitioners may wish to bring...
their nfumbe with them to their new locations of settlement. Florida forensic anthropology cases in which ritual remains were apprehended during United States customs screenings support this idea [3]; in one such case, the individual transporting the remains alleged that he had exhumed them from the grave of his Cuban mother.

Redressing Medicolegal Misunderstandings of Palo Practices

Although medicolegal professionals have long engaged with the assemblages resulting from Palo rituals, they still confound Palo and Ocha practices. A recent survey of forensic anthropology case files shows that although medicolegal analysts have known the difference between Ocha and Palo for decades, they have often persisted in classifying both as Santería [3]. At times, medicolegal analysts even classify Palo assemblages as the result of religious practices outside the Afro-Cuban tradition. In one Florida CAPHIL case, medical examiner documents state that the owner of a Palo assemblage likely practiced “voodoo” [3]. Likewise, in his foreword to an Ocha volume [55], Dr. Charles Wettli reports that his medical examiner colleagues refer to Afro-Cuban rituals as “Cuban Voodoo”. In another article [2], a series of nganga assemblages bears the erroneous caption, “voodoo paraphernalia”. This misnomer is also applied to custodial staff responsible for disposing of the Ocha and Palo offerings deposited near Miami courthouses; the courthouse custodians are known as the “Voodoo Squad” in local parlance.

Although a connection between grave robbery and the sourcing of Palo ritual remains is undeniable [3, 4], and the commodification of human remains is illegal in some states [43], a mistaken association between Afro-Cuban religious practice and other forms of criminality has also persisted [6, 33, 34, 56, 57]. Perhaps beginning with the alleged ritual murder of children by Palo practitioners in the early 20th century [5], Palo in particular has been misinterpreted as having a criminal connection. This antimony toward Palo was only heightened after a series of ritual, drug-related murders in Mexico during the late 1980s [58], and the Satanic Panic that ensued [59]. Some medicolegal professionals continue to associate Palo with drug trafficking [34]. This is not necessarily a baseless accusation. Individuals involved in the drug trade may indeed be attracted more to Palo than to Ocha, because of the aggressive, eye-for-an-eye nature of Palo’s magic. From the medicolegal perspective, this means that the religious family formed by a circle of practitioners may be a valuable source of criminal information in cases where a palero is involved.
in criminal activities. Cemetery administration or groundskeepers may also serve as reliable medicolegal informants during an investigation of presumed grave-robbing activities. At times, ngangas themselves can act as medicolegal informants, potentially containing names or images of a palero’s associates or enemies that can guide an investigation. For example, in one Florida CAPHIL case, a cranium within an nganga owned by an alleged drug dealer contained slips of paper on which the names of the palero’s enemies were written [3]. For a palero, a potent nganga assemblage may even provide an intuitive deposition location for firearms, knives, and other weapons—particularly when the nganga is dedicated to the warlike Zarabanda.

Palo ngangas are frequently encountered during criminal investigations, and nfumbe may be sourced by illegal grave-robbing activities. However, it is important to specify that the other rituals contributing to these assemblages are not themselves criminal [24]. Animal sacrifice is legal if conducted in accordance with regulations for the humane slaughter of animals [15, 27]. Most of the old and oft-cited allegations of human sacrifice in Palo ritual have been subsequently discredited [9, 57]. Although blood is often found in association with Palo assemblages, it has not been found to be human in origin [3]. Even in the infamous series of murders committed by a palero in the late 1980s [58], the crimes may have had more to do with intimidating the drug-trafficking community and less to do with actual Palo ritual [60]. The marginalization of Palo may be due to its appearance, from the nonpractitioner’s perspective, as representing black magic—what early scholars termed brujería [57]. It is often characterized as the darker side of Ocha [1], a reputation that is due in large part to Ocha’s association with the worship of the saints, contrasted with Palo’s inability to mesh with a Judeo-Christian ethos [4, 5, 12]. Historically misunderstood, Palo rituals have been darkened by the shadow of the more mainstream, Christian-complimentary Ocha [5]. By adjusting their perspectives on Palo’s association with criminality, members of the medicolegal community can play a role in redressing the misconception that Ocha practice is good, while Palo practice is bad.
Safe Handling Procedures for Palo Assemblages

In the 1980s and 1990s, the majority of Florida’s CAPHIL Palo cases (85%) originated from the Miami area [3]. Between the years 2000 and 2014, however, just 27% of the Palo cases analyzed at Florida’s CAPHIL originated from Miami-Dade county, with the majority originating from other locations throughout the state [3]. Medicolegal analysts in New York [23, 31], New Jersey [32], Massachusetts [35], and California [61] have also reported cases of Afro-Cuban ritual use of human remains. We anticipate that medicolegal professionals throughout the United States will increasingly encounter Afro-Cuban ritual cases, and that these practices will disperse further. Thus, the international medicolegal community should be prepared to analyze Afro-Cuban ritual assemblages effectively.

Medicolegal professionals can expect to encounter the majority of Palo nganga assemblages within in situ ritual contexts. Palo practitioners frequently store these ritual assemblages in sheds, yards, and outbuildings [3]. These sheds act as private, spatially delineated temples for Palo nganga ceremonies—separate even from the Ocha ritual sphere, in cases where single individuals practice both Ocha and Palo. Within these temple-outbuildings, nganga assemblages typically rest on bare earth. When found outside the ritual sphere, however, nganga assemblages are commonly secondarily deposited in open locations, often in or near bodies of water [3]. Railroad tracks may represent another likely deposition location, particularly in cases where nganga assemblages are dedicated to the mpungu Zarabanda.

The presence of mercury in association with Palo ritual remains warrants discussion (Figure 4). Paleros add elemental mercury (azogue) to nganga assemblages in order to conjure the mpungu, quickening their works with the fast-moving quicksilver [2, 4, 13, 62, 63]. Approximately 16% of Florida’s CAPHIL Palo cases exhibit adherent elemental mercury [3]. Afro-Cuban ritual cases investigated by the New York City Office of Chief Medical Examiner sometimes include vials of mercury [23]. The substance is not always visible at the outset of medicolegal analysis, because adherent sediments, animal blood, or feathers may obscure mercury adhering to external bone surfaces. Alternately, mercury adhering to endocranial surfaces may only be visible radiographically, where it can form small globules that appear as bright points of radiopacity, easily distinguished from the lead wipe characteristic of a projectile (Figure 4).
Figure 4

Elemental mercury in Palo ritual remains: anterior radiograph of human mandible, with presence of mercury indicated by small, radiopaque densities within the alveoli (circle). Inset photograph shows small globules of mercury removed from the mandible during analysis.
Other Afro-Cuban religious traditions also utilize azogue [64–67], as do the religious and nonreligious practices of other cultural groups [68]. It can be easily procured at botánicas, where it is often sold in small capsules or vials [14, 64, 67–69]. In certain Latin American and Caribbean religious and healing contexts, it is reportedly swallowed, applied to the skin, burned in lamps or candles, carried in amulets and pouches, or sprinkled around a home [14, 64, 65, 67, 70]. In one case reported in the environmental health literature, two Central American individuals received subcutaneous injections of the element in order to ward off evil during foreign travel [71]. In another, nine children suffered mercury poisoning after finding and opening a vial of elemental mercury prepared by an Ocha practitioner [72].

In light of such alarming reports, the passage of legislation limiting the sale of elemental mercury seems inevitable [73]. Some medicolegal sources explicitly warn responders to beware of mercury when entering Palo-related crime scenes [30, 33]. The Miami-Dade County Medical Examiner Department has informed local law enforcement agencies of the danger of unwittingly transporting Palo remains to an office or laboratory, explaining that “this liquid metal presents a potential health hazard for anyone who handles. . .these items” and warning that “All law enforcement agencies should exercise caution when responding to any scene or location where human or other skeletal remains are discovered and may be associated with religious artifacts.” [74] This medical examiner department recommends that law enforcement agencies collaborate with fire-rescue departments’ hazardous materials teams to take readings of potentially contaminated materials before processing a scene [74].

Certainly, medicolegal responders should follow the personal-protection protocols necessary to ensure their own health during scene processing and analysis. However, there is evidence that legal action against the religious use of mercury may not reflect the realities of health risks within the Palo-practitioner community. Although isolated cases of mercury poisoning have been reported [71, 72], larger-scale surveys of mercury exposure in populations using mercury for cultural and religious purposes have either been inconclusive [75] or have shown no overall evidence of elevated mercury levels [68, 73]. The limited use of small amounts of mercury in Latin American and Caribbean religious ritual does not necessarily result in increased exposure, and the frequent Afro-Cuban practice of containing the element within a vessel may actually reduce exposure risk [14, 68, 70].
In fact, the most dangerous use of mercury—sprinkling, which results in mercury inhalation—may originate from a context outside the Afro-Cuban religious tradition, or even from a nonreligious context, possibly constituting personal or cultural superstition [14, 70]. We do not intend to imply that medicolegal responders should not take precautions when dealing with mercury. However, we warn that censure of Palo practitioners’ use of mercury may inadvertently marginalize an already little-understood population, without accurately reflecting the realities of their exposure risk [14].

**The Ethics of Analyzing Palo Assemblages**

In spite of their potential contamination with elemental mercury, nganga assemblages frequently include human remains and weapons, warranting thorough medicolegal investigation. Yet, disassembling an nganga is a destructive activity akin to excavating an archaeological site: the ritual elements contained within an nganga have accumulated in situ like sedimentary layers; once those contents are removed, their context is destroyed, and their spatial relations cannot be reconstructed. Thus, we recommend that ngangas be excavated—photographs, notes, and sketches documenting the in situ arrangement of human remains and material culture as each layer of the ritual deposit is removed. In an approximation of archaeological excavation methodology, medicolegal analysts can first sketch, then photograph, and finally remove and inventory each arbitrary layer of ritual materials before beginning the investigation of the next, successively deeper arbitrary layer of materials. In this manner, analysts can determine the depositional sequence of an nganga’s diverse components [76], revealing the life history of an assemblage that may include multiple episodes of animal sacrifice; the deposition of bilongos tracking a practitioner’s history of magical works; the inclusion of personal-identification media that could guide an investigation; and the placement of nfumbe-remains either within or atop an assemblage, depending on the benevolent or malevolent affinity of the nganga (i.e., prenda cristiana or judia). Medicolegal personnel should also describe the biological, material cultural, and taphonomic characteristics of the contents in detail to enable the identification of the patterns indicative of Palo practice and potentially to allow further specificity regarding nfumbe (Table 1).

These analyses can also enable medicolegal personnel to identify how Palo remains are sourced [3, 32]. In spite of the popularity of cemeteries as sources for nfumbe, a minority of
Palo cases include remains prepared as anatomical specimens; forensic anthropologists are often able to confirm an anatomical origin for these remains based on their biocultural and taphonomic traits [3, 32, 77–79]. In these cases, it is possible that the remains have been sourced legally. This highlights an ethical issue in medicolegal practice. Palo remains are typically confiscated during the investigation of unrelated crimes. They make their way to medical examiners, and ultimately to forensic anthropologists, for analysis. Because the remains used in Palo ritual are nearly always unidentified, and given the diversity of laws prohibiting the sale and personal ownership of human remains in multiple states [43], the remains are typically curated indefinitely at laboratories following analysis, or they are interred as unknowns. However, there may be situations in which the biocultural and taphonomic signatures of the remains indicate an anatomical origin [3, 32, 77–79], and state legislation permits the sale and possession of human remains [43]. On the rare occasions in which both of these conditions are met, returning these ritual objects to their owners may be more ethical than interring them or retaining them at laboratories.

It is perhaps worth restating that the argument for returning Palo ritual assemblages only applies when state law permits ownership of remains and forensic anthropological analysis ensures that they were procured legally as anatomical specimens (approximately 11% of cases [3]). Further, it should be noted that Palo assemblages can only be returned when the respective palero is known and the nganga assemblage is found in an in situ ritual context. For example, in situ nganga contexts represent 34% of Florida’s CAPHIL Palo cases [3]. However, in 25.5% of Florida Palo cases, nganga assemblages are secondarily deposited outside the ritual sphere [3]. These secondary deposits likely constitute intentional and permanent depositional acts, and attempts should not be made to return remains to a practitioner in secondarily deposited cases. In essence, the threat of danger posed by a particularly potent nfumbe may have motivated the palero to remove the nganga assemblage from the ritual space. Bodies of water represent particularly common deactivation zones for such deposits.

In cases where medicolegal personnel cannot ascertain legal procurement of anatomical nfumbe-remains, retention at a medicolegal facility likely represents best practice. This ensures that the remains are available for future analysis and transfer if forensic or archaeological significance is subsequently proven, or if the resolution of grave-robbing investigations allows repatri-
ation of the remains to a disturbed grave. However, museum curation may be considered in those cases where remains appear anatomical but where respective practitioners are unknown, state laws prohibit sale and possession of human remains, or nganga assemblages are secondarily deposited outside the ritual sphere. The collections of the Smithsonian Institution’s National Museum of the American Latino or National Museum of African American History and Culture represent two possibilities for curation. Alternately, medicolegal professionals may find ways to dispose of these assemblages according to state or federal regulations, while preserving the original intention of the ritual deposition of the remains.

We believe that the medicolegal community should not make these decisions on behalf of Palo practitioners, but rather should include them in this decision-making process. We hope that medicolegal analysts begin to work with members of Palo communities to develop culturally appropriate means of determining the fate of legally obtained assemblages. When the owner of a set of ritual anatomical remains is unknown, or even when an owner is known but state legislation prohibits the noninstitutional ownership of human remains, museum curation of legally obtained remains may be preferable to laboratory retention or interment in anonymous graves. In contrast, Palo practitioners may not view museum curation and display as appropriate in cases where nganga assemblages have been secondarily deposited to diffuse the power of particularly dangerous nfumbe. In these cases, burial may be the most culturally appropriate disposal method.

Employing paleros as medicolegal consultants is one option that could facilitate disposition practices that are both legally and culturally responsible. It is important to note that appropriately neutral consultants may be difficult to find in jurisdictions where Palo-related grave-robbing activities have occurred; however, as United States Palo-practitioner communities grow, searching outside of one’s local jurisdiction might reveal practitioner consultants who are willing to cooperate with medicolegal personnel. We believe that identifying these willing, neutral, and nonlocal consultants may be worth the effort. Practitioner consultants might consult with their religious communities in order to obtain consensus decisions for nganga disposition (i.e., museum curation, laboratory retention, anonymous interment) that could guide medicolegal practice. These consultants might even conduct divination activities to determine the fate of legally obtained Palo cases in accordance with the will of
the spirits of their pantheon. Fostering goodwill between the medicolegal and Palo-practitioner communities also has the potential to open doors for these practitioner consultants to inform future medicolegal investigations.

In forensic anthropology’s cousin discipline of archaeology, cultural resource management has utilized descendant-community consultation and participation to emphasize the coexistence and validity of both cultural and scientific knowledge [80–84]. We envision medicolegal professionals building bridges with Afro-Cuban communities by applying a similar model of practitioner-community engagement.

### Conclusion

Medicolegal practice has moved beyond a confusion of Palo with Ocha ritual. Medicolegal professionals can use recently published biocultural and taphonomic signatures [3] to differentiate between Palo and Ocha ritual assemblages—and potentially use the material cultural data presented herein (Table 1) to differentiate among the diverse types of Palo nganga assemblages. However, we emphasize several caveats important to a correct classification of Afro-Cuban ritual assemblages: (1) Although skulls, crania, and long bones indicate the presence of a Palo assemblage, phalanges are occasionally used in Ocha Babalú Ayé rituals; (2) Although pots and cauldrons are characteristic of Palo ngangas, small cauldrons may also appear in Ocha Ogún ritual assemblages; (3) Although Palo ngangas typically contain skulls or other nfumbe-remains, infrequently, prendas espirituales do not contain human remains.

The criminal component of certain Palo nganga assemblages can guide medicolegal investigations, and investigators must always consider the possibility that Palo remains are illegally sourced from cemeteries. However, we urge that the medicolegal community refrain from a default association of Palo practices with other criminal activities. Conducting taphonomic studies of Palo remains and engaging in interviews with informants can assist in determining when remains have been legally or illegally sourced. In those rare cases where ritual remains are ascertained to be the legal property of a Palo practitioner, we recommend returning these ritual objects to their owners.

We recommend that medicolegal personnel employ universal personal-protection precautions when processing crime scenes containing Palo nganga assemblages in order to safeguard
themselves from exposure to the elemental mercury frequently present in these assemblages. Law enforcement agencies may find it prudent to collaborate with hazardous materials teams to ensure that readings are taken of potentially contaminated materials before a scene is processed. In the laboratory context, radiography should be routinely used as a tool for identifying the presence of mercury in a ritual assemblage. However, we believe it likely that elemental mercury presents more of a danger to nonpractitioners than to members of the Palo community in light of research highlighting the poorly understood and often-responsible use of mercury by Afro-Cuban religious practitioners [14, 70]. We recommend that medicolegal professionals excavate nganga assemblages responsibly, thoroughly documenting the spatial arrangement, material cultural context, and biological and taphonomic characteristics of their contents. Finally, we hope that the medicolegal community begins to explore nontraditional options for the curation of legally sourced ritual assemblages, potentially guided by consultation with Palo practitioners.

Although the opinions expressed herein reflect medicolegal analyses of Palo cases in the state of Florida, multi-sited, comparative medicolegal studies of Afro-Cuban rituals have also begun [85]. Such studies have the potential to reveal overall patterns and regional differences in Palo practices. If medicolegal professionals consider multiple lines of biological, taphonomic, material cultural, and ethnographic evidence, sensitive study of Afro-Cuban ritual assemblages can become the norm, rather than the exception. Medicolegal personnel can play an important role in the safe, ethical, and accurate classifications of the unique assemblages of human remains and material culture resulting from Palo ritual practices.

Allysha Powanda Winburn  
Department of Anthropology, University of Florida  
Department of Anthropology, University of New Hampshire

Rafael Martinez  
Criminal Justice and Undergraduate Psychology Programs, Carlos Albizu University

Sarah Kiley Schoff  
Department of Anthropology, University of Florida
References


49. Pokines, J. T.; Zinni, D. P.; Crowley, K. Taphonomic Patterning of Cemetery Remains Received at the Office of the Chief Medical Examiner, Boston, Massachusetts. *J. For. Sci.* 2016, 61 (S1), S71–S81.


64. Hispanic Health Council (HHC). Metallic Mercury (Azogue) and your Health. HHC Environmental Health Unit: Hartford, CT, undated; Information Booklet No. 1.


74. Miami-Dade County Medical Examiner Department, Miami, FL. One-page notice sent to law enforcement agencies, undated.


