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Identifying the Universals of Death: An Interpretive Analysis of Mortuary Ritual in Ancient Egypt and Modern America

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By

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TABLE OF CONTENTS

Thesis Summary

This project compares mortuary practices in ancient Egypt and modern America in an effort to identify cross-cultural consistencies in the treatment of the dead. An analysis of the meaning and motivations behind these rituals reveals that they serve similar functions in both societies. Death provokes intense emotions of grief and long periods of mourning, which can debilitate the people who knew the deceased and even the society itself. Therefore, to promote survival of individuals and the community, mortuary rituals must address these disturbances. Focusing on ancient Egypt and modern America, this study finds that mortuary practices function to restabilize society by emphasizing national morals to create a sense of community, adjusting social organization to accommodate the loss of a member, and easing the grief of loved ones by enabling a final goodbye. Although these two civilizations are extremely separated in time and space, their comparison provides a foundation for identifying universal commonalities in the human response to death that persist across temporal or geographical distance.

Introduction

Americans have always marveled over Ancient Egypt. They wonder at King Tut, pyramids, and the removal of the brain through the nose. Ancient Egypt is fascinating, yet bizarre and extreme in comparison to their own society, especially when it comes to the culture of death. Vargas and Hernandez (2018) refer to this as American Egyptomania – an obsession with the "grandeur and exoticism" of the ancient civilization. Upon bystander observation of the two cultures, Egypt's mortuary rituals do seem to contrast greatly with those of America. After all, modern embalmers do not harbor organs in canopic jars or encase bodies in golden sarcophagi.

Looking beyond these external disparities, the Egyptians' approach to death is actually not so different from America's. Across all cultures, humans mourn the loss of the dead, although the manifestations of grief may not look the same (Cacciatore & DeFrain, 2015). Bereavement is not just a disturbed emotional state – it also produces a harmful physiological response. Grief-induced stress suppresses the immune system, leaving the bereaved at higher risk for infection and death themselves (Fredrick, 1971). A single death threatens the health of the surviving community, and mortuary ritual, in both ancient Egypt and modern America, must counteract these risks. In this way, the universal trends of death culture begin to emerge.

Among other social scientists – namely psychologists and sociologists – anthropologists were late to publish on the topic of death (Palgi & Abramovitch, 1984). However, since the 1960s, this field has developed strong opinions on the core functions of funerary ritual, which provide a good foundation for discussing the universals of the human response to death. Engelke (2019) suggests two main anthropological interests within mortuary practices to include the cultural persistence of life after death as well as the corpse and its various symbolic forms. Both

of these themes give rise to the field-wide emphasis on the "socially restorative functions of funeral rites," described by Palgi & Abramovitch (1984, p. 386). These authors review the findings of many others. They discuss Bendann's (1930) idea of "the universal pandemonium which centers around the dead body" (p. 388). Death disrupts the equilibrium of the community, leading to a period of social chaos. The subsequent mortuary rituals exist as "a ceremonial process whereby the dead person becomes an ancestor" (De Coppet, 1981, as cited in Palgi & Abromovitch, 1984, p. 388).

These ideas exhibit the interests Engelke outlined. It is important to understand how a culture views and represents a corpse because this reveals the initial measures taken to quiet the "pandemonium" triggered by the body. White et al.'s (2017) findings also support this function. Their cross-cultural study of corpse interactions revealed that 93% of rituals involved visual exposure to the body and 89.5% included physical contact (p. 153). Although this calms the chaos, society remains out of equilibrium. The transition of the deceased to ancestor status – a persistence of spiritual life – allows the community to return to its normal functions. Likewise, this is a vital aspect of mortuary studies because it allows us to understand how these rituals prevent the disintegration of society upon a death.

Palgi & Abramovitch (1984) also discuss the prevalence of symbolism throughout mortuary culture. They cite Lifton's (1979) claim that humans "require symbolization of continuity [of life]… in order to confront genuinely the fact that we die" (p. 392). Huntington & Metcalf (1979, as cited in Palgi & Abramovitch, 1984, p. 411) build upon this idea, describing the "symbolic importance of the corpse and revalidation of key cultural values throughout the funeral process." Cultural symbolism is perhaps at its peak during mortuary ritual, which explains why these practices look so different across the globe. No matter how they appear to

outsiders, however, these rituals consistently function to address grief and restore societal equilibrium as quickly as possible and in a way that will be well-received by members of that culture.

It may seem strange to compare ancient Egypt and modern America, as they are separated by upwards of 5000 years and 7000 miles. This extreme divergence of time and space, however, serves to illustrate the tenacity of these mortuary universals throughout history and the world. Moreover, by creating a link between Egypt and America, this research helps to decrease the western perception of ancient death culture as strange and exotic. By identifying similarities in motivation and meaning in ancient mortuary practice, Americans can relate to the human emotion in Egyptian actions, making them seem more rational or familiar. Contrastingly, a deep analysis of U.S. funerary procedures reveals practices that many Americans are likely not aware of. They may seem just as strange and exotic as those of ancient Egypt did.

I utilized the interpretive framework to examine the treatment of the dead in Ancient Egypt and America because it facilitates a deeper understanding of the contexts that guided these processes. As illustrated in the above literature review, much of the existing research on the anthropology of death assumes this lens, making it a natural approach to use for this project. In line with Clifford Geertz's synthetic conception of human nature, I examined the religious, social, and scientific meaning placed on the body and death in each of these cultures. With anecdote and experience at the heart of this method, it allows the researcher to gather detailed qualitative data that is helpful in making sense of mortuary practices that may seem unusual. As Geertz (1973) says: it "exposes their normalness without reducing their peculiarity" (p. 14).

Casual discussion of mortuary practice makes people uncomfortable and is often seen as taboo, causing a society's death culture to seem strange and foreign even to its own members. An

interpretive approach is the ideal method to study mortuary procedures because it focuses on uncovering cultural beliefs and ideas behind these activities that may otherwise remain unspoken. Mortuary ritual is itself an expression of human experience, during which Bruner (1986) says symbolic nature is most heightened. Additionally, the highly emotional stakes of the practices likely further increase the symbolism present. Combining the interpretive framework with relational content analysis, I was able to look more deeply into the guiding principles of Egyptian and American mortuary culture to identify the universals of human nature in regard to death.

This paper presents in-depth case studies of mortuary rituals – including body preparation, funerary rites, cultural traditions, legal regulations, and corpse disposal – in both ancient Egypt and the modern United States of America. Each case study examines areas of religious, social, and scientific influence within these procedures to identify cultural meaning. These examples revealed functional similarity of death ritual at three societal levels: national/cultural, regional/community, and local/familial. Thus, an interpretive analysis of mortuary practices in ancient Egypt and modern American illustrates the universals of the human response to death to include the reinforcement of key cultural values, the facilitation of social restoration, and the enablement of corpse intimacy.

Case Study #1: Ancient Egypt

As the end of life is a prominent event in any culture, it is no surprise that Egyptian beliefs about the body and death – including those within religious, social, and scientific realms – guided the formation and progression of their mortuary practices. In an attempt to understand these cultural influences, three major themes emerge within ancient Egyptian thought that appear

to govern their treatment of the dead: the Osiris myth, social connectivity, and analytical observation.

Body preservation in ancient Egypt dates back to the predynastic period (see Table 1 for a timeline of Egypt's historical periods) when it was discovered by accident (Sandison, 1963). The arid climate and hot desert sand provided the perfect conditions to produce natural mummies. Previously buried bodies were uncovered by wind or animals to reveal lifelike forms, inspiring the Egyptians to mimic this natural preservation through artificial means. The Middle Kingdom gave rise to the iconic pyramids and elaborate tombs that Egypt is famous for, but towards the end of this period, monumental mortuary architecture declined in importance and mummification became the primary focus (Baines & Lacovara, 2002). "The best-preserved bodies date from times when evisceration took place and a desiccant was applied" (Barnes et al., 2019, p. 602), as "conservation of the corpse" rose to "its fullest in the Third Intermediate Period" (Baines & Lacovara, 2002, p. 11). European influence brought the end of traditional Egyptian mummification, as the Ptolemaic and Roman periods saw a "decline in technical skill and slipshod methods" (Sandison, 1963, p. 259). Because the Egyptians did not explicitly record

Table 1

"Chronological Table for Historical Periods in Ancient Egypt" (Baines and Lacovara, 2002, p. 7)

Predynastic period	4800–2950 BCE
Early Dynastic Period (Dynasties 1–3)	2950–2575
Old Kingdom (Dynasties 4–8)	2575–2150
First Intermediate Period (Dynasties 9–11)	2150–1975
Middle Kingdom (Dynasties 11–13)	1975–1640
Second Intermediate Period (Dynasties 14–17)	1640–1525
New Kingdom (Dynasties 18–20)	1525–1075
Third Intermediate Period (Dynasties 21–25)	1075–656
Late Period (Dynasties 26–31)	664–332
Ptolemaic period	332–30
Roman period	30 BCE–395 CE
Christian period	3rd–10th century
Muslim conquest	641

their embalming and mummification procedures, modern scholars largely rely on indirect sources, such as Egyptian medical papyri, secondary accounts from the Greeks, and physical examinations of recovered mummies (Barnes et al., 2019). Consequently, there are many contradictory claims throughout Egyptology's books and journals, making it necessary to carry scrutiny when researching within this field.

Before beginning an analysis of Egyptian beliefs and mortuary practices, a brief overview of the mummification process is required. The most extensive embalming procedures, usually reserved for royalty and the wealthy, lasted for 70 days (Abdel-Maksoud & El-Amin, 2011; Dawson, 1927; Meskell, 2002; Relke & Ernest, 2002). It often took place on a designated embalming couch, the most impressive of which originates from Madinet Habu – the tomb of 20th Dynasty Pharaoh Ramsesses III – with a sloping angle and a hole to drain fluids (Leca, 1981). The process began with the removal of the brain, which frequently occurred through the left nasal canal (Dawson 1927; Leca, 1981; Raven, 2005). Embalmers removed the remaining organs through an incision in the left abdomen, excising the intestines, stomach, and liver before progressing to the thoracic cavity (Dawson, 1927; Leca, 1981); however, the heart always remained in its anatomical position (Dawson, 1927; Leca, 1981; Loukas et al., 2011). Occasionally, embalmers left the bladder (Leca, 1981) and kidneys (Dawson, 1927; Leca 1981) in place as well. Treatments for the removed viscera included washing with palm wine (Baumann, 1960), drying with natron (Sandison 1963), and wrapping into "packets" with resin-soaked linen (Leca, 1981). Consistently referred to as the most important stage of the embalming process (Abdel-Maksoud & El-Amin, 2011; Leca, 1981; Sandison, 1963), body dehydration comprised a majority of the 70 days. Natron – likely in a dry, crystalline form (Sandison, 1963) – was the primary desiccant. Embalmers then stuffed the dried body cavity with sawdust, resin-

soaked cloth, and even embalmed onions (Abdel-Maksoud & El-Amin, 2011; Baumann, 1960; Leca, 1981). The final stage involved wrapping the body with several layers of linen bandages, often "impregnated with resin" (Leca, 1981, pp. 168-169) and later beeswax (Abdel-Maksoud & El-Amin, 2011; Buckley & Evershed, 2001). For the lower classes, embalmers offered progressively simpler (and cheaper) forms of mummification. Before dehydration, mid-level procedures typically involved injecting cedar oil to dissolve and drain the viscera through the anus (Leca, 1981). The poorest clients received a purgative to clear out the abdomen (Leca, 1981) or, in some cases, no evisceration at all (Dawson, 1927).

Religious Beliefs: The Osiris Myth

As a prominent figure in ancient Egyptian culture, Osiris, the god of the dead, is mentioned in countless ancient texts, influencing the mortuary practices of body dismemberment, canopic jars, and the special treatment of the heart. In life, Osiris ruled as the king of Egypt. His brother, Seth, murdered him out of jealousy, cut his body into pieces, and scattered him throughout the Nile Valley (Leca, 1981). Isis, Osiris's sister and wife, traveled throughout Egypt in search of his body parts. She recovered all the pieces excepting the penis, which some say was consumed by a fish (Haimov-Kochman et al., 2005; Leca, 1981) or a crab (Pendleton, 1972). With the help of Anubis, her nephew and the Egyptian embalming god, Isis reassembled and wrapped her brother's body, which "enabled Osiris to reach the afterlife" (Bommas & Drinkwater, 2011, p. 163). As his body was incomplete without the phallus, Isis manufactured an "artificial one that she was able to make into the instrument of a posthumous insemination," and later gave birth to Osiris's son, Horus (Assmann, 2005, p. 25). Assuming a likewise important role in the myth, Horus reconstructed his father's authority, dignity, and

status, constructing temples in his honor and waging war on his enemies (Assmann, 2005; Pendleton, 1972).

Osiris's story continued into the underworld, where he defended his morality to Ma'at, the goddess of truth and justice. In this judgment, which all deceased Egyptians must endure, the heart was placed on a scale opposite Ma'at's magical feather, while its owner proclaimed the innocence of his sins to a panel of 42 judges (Assmann, 2005; Pendleton 1972). A perfectly balanced scale would permit the defender into the afterlife. A heavy heart, however, would signal moral impurity, allowing Ammut, a monstrous part-crocodile-part-lion-part-hippopotamus, to devour the organ (Pendleton, 1972). Anubis and Horus often appear in judgment scenes as well, with the former operating the balance and the latter escorting the acquitted into Osiris's kingdom.

This myth set the stage for a key belief in Egyptian mortuary practice – what Jan Assmann (2005) refers to as "death as dismemberment" (p. 23). All forms of mummification, no matter the financial tier, included dismemberment via removal of internal organs, with careful evisceration for the wealthy and drainage of liquified entrails for the lower classes (Abdel-Maksoud & El-Amin, 2011). Interestingly, embalmers would often display wooden models for families to choose from different grades of procedures (Leca, 1981). Evisceration was clearly intended to mimic Osiris's mutilation, as the meticulous organ removal resembled the scattered pieces of the god's body.

The Egyptians learned what practices to avoid from the myth as well. While the female reproductive system was routinely excised, male genital organs were nearly always left in place (Leca, 1981). Mythic superstition likely influenced this practice, as Isis never recovered Osiris's removed penis. Ancient Egyptians may have feared that phallic excision would doom the

deceased with a similar fate, whether the organ loss occurred physically, with misplacement by the embalmer, or spiritually, with compromised sexuality in the afterlife.

While deconstruction was a vital stage of mummification, it merely existed to allow for the more important step of reassembling the body. What enabled Osiris to reach the afterlife was the restoration of a complete corporeal form, facilitated by Isis and Anubis. Therefore, the eternal existence of each Egyptian depended on this procedure as well. To ensure the afterlife, dismemberment and reconstruction were essential aspects of mortuary practice, "thus following the model of the mythical antecedent Osiris" (Bommas & Drinkwater, 2011, p. 163).

The importance of bodily completeness exists for living individuals as well as the deceased. A mummy of the Third Intermediate Period exhibited amputation of the right hallux and subsequent attachment of a wooden prosthesis. Reports state that the artificial digit was "perfectly shaped like a big toe, even including the nail" (Nerlich et al., 2000, p. 2176). Although performed on a living patient, this procedure, too, holds a connection to the Osiris myth. The manufacture of a synthetic replacement for a lost body part highly resembles the actions Isis took when a piece of her brother was lost. The realism and mere existence of this prosthesis demonstrate the importance of corporeal unity as well as the embodiment of the Osiris myth among the living community.

For the deceased Egyptian, however, this complete form often did not look like modern anatomical diagrams, but rather more of a cultural ideal based on religious ideas. As mentioned above, in an important phase of body restoration, the embalmers assembled the organs into four "packets," which they then placed into canopic jars. Beginning in the Middle Kingdom, the heads of the Sons of Horus appeared upon the jar lids, serving as protectors of the viscera and "[ensuring] integrity and intact condition of the body" (Raven, 2005). Hapy, an ape, guarded the

lungs; Duamutef, a jackal, watched over the stomach; a falcon, Qebehsenuef, defended the intestines; and an anthropoid Imsety, or Amset, stood atop the liver (Raven, 2005; Robinson, 2012). Relationships between these deities and organs are inconsistent across sources, but the listed affiliations were most common. These discrepancies likely appear because of variation in embalmers' practices, out of either difference in beliefs or perhaps mere carelessness.

Figure 1

Artistic rendering of Duamutef canopic jar, created by Jodi Snare (2020)

In addition to identifying with specific viscera, each deity also associated with a cardinal direction: Hapy, the north; Duamutef, the east; Qebehsenuef, the west, and Imsety the south (Robinson, 2012). Some authors suggest that Egyptians chose these four organs because they represented the four cardinal directions within the body. Dutch Egyptologist and archaeologist, Maarten J. Raven (2005), provided a unique interpretation:

> By moving his arm in the direction of the four corners of the universe, the priest anchored the corpse to the macrocosmos, and by collecting organs from all points of the compass he ensured that the mummy would be magically restored to completeness. (p. 48)

At the beginning of the Third Intermediate, the containment of organs in canopic jars declined; however, the empty urns often still appeared in the mortuary cache (Klein, 2016). While embalmers continued to wrap viscera packets, they now replaced them within the body cavity, accompanied by four wax figurines of the same deities. These figures took over the responsibility of protecting the

organs, while the canopic jars transformed into "embodiments of the Sons of Horus" (Klein, 2016, p. 99). Klein (2016) argues that this shift allowed the funerary urns to "manifest their role as protective deities who watch over the deceased's – assimilated to Osiris – corpse" (p. 99). No matter if they existed as jars or figurines, however, the Sons of Horus were an essential presence in Egyptian mortuary practice. They not only provided the deceased with a point of connection to Osiris but also to the greater universe, with the incorporation of the cardinal directions. These four deities guarded the excised organs as well as the body itself, ensuring that the individual could depart for the afterlife.

Although these divine protectors may have facilitated the journey to the underworld, the deceased's arrival and eternal life were contingent on a successful judgment, just as Osiris had experienced. During the New Kingdom, the Judgement of the Dead "became the decisive center of Egyptian mortuary religion" (Assmann, 2005, pp. 59-60). As previously discussed, mummification of this period was undergoing rapid development and increasing in importance. Therefore, it is not shocking that the judgment highly influenced embalming practices as well. The event held immense spiritual importance, as it "determined the transition into that other realm in which [the dead] regained his integrity, identity and personality" (Assmann, 2005, p. 75). Failure at this ceremony, which resulted in the destruction of the heart, would cause the deceased to "vanish from the created cosmos," therefore losing his afterlife status forever in a dreaded "second death" (Assmann, 2005, p. 76).

The prominence of the Judgement of the Dead in this time led embalmers to take immense care of the heart. Considered the "center of all consciousness and knowledge," the heart was the most strictly preserved part of an Egyptian's body (Saba et al., 2006, p. 418). Without a heart, there could be no judgment, and without judgment, there was no chance at eternal life.

Therefore, embalmers nearly always kept the heart in situ or at least replaced it in anatomical position after preservation (Assmann, 2005; Loukas et al., 2011). Embalmers also included ancillary objects to magically protect the deceased and his spirit. The heart scarab was a beetle-shaped amulet carved out of green stone, with the color symbolizing vegetation and rebirth (Leca, 1981). Essential to the mummy, this artifact typically resided within the chest bandages, preventing the heart from revealing the deceased's sins during the judgment (Leca, 1981; Robinson, 2012). To the Egyptians, "death was the ultimate dissociation of the heart and self" (Assmann, 2005, pp. 103-104). Their mortuary practices served to prevent this form of eternal damnation by "[removing] the traces of moral and physical pollution, both sins and rotting discharges" (Assmann, 2005, pp. 307).

There is no doubt that the Osiris myth, with its increasing influence during the New Kingdom, guided the development of Egyptian mortuary ritual, establishing a large focus on the sanctity and integrity of the heart. Thousands of years later, this emphasis seems to be one of the most well-known aspects of Egyptian embalming, as it appears in a majority of modern texts regarding medicine and mummification in this civilization.

The Osiris myth is a major piece of Egyptian mortuary religion, so, naturally, many mummification practices arose from it. Many authors have explored the relationship between the ancient story and postmortem procedures. Jan Assmann (2005) summarized it well:

> [These texts] speak of searching and finding, of gathering and putting together, of joining the head to the bones, of reinserting the heart, of replacing discharged fluids, of mourning Osiris, transfiguring him, and breathing life into him, in short, of a host of activities, all of them related to the body of the dismembered god, in which we can easily recognize the mythic counterpart to the embalming ritual. (p. 25)

Social Beliefs: Connectivity

Similar to the modern world, isolation from society was practically equivalent to death for ancient Egyptians. Lack of social connections meant no access to religious, economic, or political domains and therefore no chance for upward movement. Although their previously known life on Earth was no longer, interaction with the living was still a vital aspect of the deceased's continued existence. Ancient Egyptians believed the living and the dead coexisted in one community (Bommas & Drinkwater, 2011), making the social sphere equally, if not more, important for those who had died. Maintaining social connectivity became a major concern of mortuary custom, as it "[endowed] the individual with life by integrating him into the community" (Assmann, 2005, p. 41). Most notably, these beliefs influenced the development of practices such as the counteraction of decay, the restoration of cosmetic appearance, and the performance of the Opening of the Mouth ritual.

Just as social isolation was undesirable for the living, this state was another route to the aforementioned "second death" for the deceased. For those wealthy enough to have a sarcophagus, two painted eyes on the outer lid permitted the mummy to maintain contact with the outside world (Leca, 1981). Tomb inscriptions and spell-filled papyri also speak to Egyptian efforts to preserve a living-dead relationship. Visitors recited these so-called mortuary formulae to implore the deceased to "intercede in the divine world on [their] behalf" (Baines & Lacovara, 2002, p. 22). The Egyptians believed that the departed served to mediate between the deities and humanity, perhaps indicating that this practice existed to keep "the living in line and [encourage] them to respect the gods" (Baines & Lacovara, 2002, p. 10). Nevertheless, these recitations "[reinforced] the position of the recently dead in the human community" (Baines & Lacovara, 2002, p. 12), facilitating their continued existence in the afterlife.

The Egyptians maintained that a deceased individual had three parts: the body, the *ka*, and the *ba*, which corresponded to the corpse itself, the social soul, and the physical soul, respectively (Assmann, 2005). The *ba* left the body daily to gather food offerings or visit the dead's favorite places – even just to enjoy the light of day – and returned to the body each night (Morkot, 2010). The *ka*, on the other hand, upheld the deceased's social life, serving as "a vessel for restoring the individual's 'status, honour, and dignity'" (Stewart, 2011 p. 121). If the body perished, the *ba* and *ka* also ceased to exist, thereby destroying any connection with the living world.

From these beliefs arose the Egyptians' persistent combat against decomposition. Ritual texts from as early as the Old Kingdom exhibit their opposition to the natural process: "O you N (the name of the deceased), raise yourself on your copper bones and your golden members. Your body is that of a god. It cannot moulder, it cannot be destroyed, it cannot putrefy!" (Faulkner, 1969, as cited in Nyord, 2013, p. 196). Here, we see the value of preservation to the Egyptians. They depict a transformation of the deceased to a divine metal form, saving the body from decay. Everything perishable was a threat to the afterlife. Therefore, embalmers practiced countless measures to keep the corpus intact and prevent the putrefaction of the body or its parts.

Efforts to combat decomposition included a variety of natural compounds, including natron, palm wine, and coniferous resin. Following evisceration, embalmers covered the body with natron, a naturally occurring mixture of sodium compounds. This material would soak up any liquid retained in the tissue, as it was essential for the body to be completely dry before wrapping to ensure preservation (Sandison, 1963). Natron appears in vases, on embalming tables, and within mummies from the Old Kingdom through the Roman Period, indicating that this drying process existed throughout Egyptian history (Sandison, 1963). Both before and after

desiccation, embalmers washed the body cavity, as well as the organs, with palm wine. This solution served as an antiseptic, decreasing the bacterial load and thus delaying putrefaction during the mummification process (Barnes et. al., 2019). Lastly, resin from coniferous trees seemed to serve as a sealant, locking out moisture as it dried within and around the body. Bandages soaked with coniferous resin filled the mouths (Dawson, 1927; Leca, 1981), crania (Abdel-Maksoud & El-Amin, 2011; Baumann, 1960), and abdomens (Baumann, 1960) of many mummies and wrapped both the organs and the body (Baumann, 1960; Leca, 1981). In some cases, embalmers poured resin over the face to preserve its form or around the bandaged body "to 'glue' the mummy firmly in its coffin" (Baumann, 1960, p. 88). Furthermore, there were strong efforts to keep the deceased intact, in the sense that no part of him could be thrown away. Preservation procedures sometimes extended to anything that had touched the body, including cloth scraps or natron – even the dust and debris on the floor of the embalming chamber – "so as not to lose even the tiniest particle of the dead person" (Leca, 1981, p. 173).

Not every piece of the body was preservable, however. Modern experiments (Leek, 1969) have shown that ancient embalming agents could not save the brain from decomposition. Egyptians likely noticed this dilemma and decided to remove the organ, as its decay presented a risk to eternal life. The same investigations revealed that the likely tool for this procedure was a straight rod, rather than a hook – a common misconception today. Embalmers pushed this instrument through the left nostril, breaking through the ethmoid's cribriform place and into the cranial cavity. The tool would break up the brain matter into a liquid state, allowing it to drain through the nose.

While to modern Westerners this may seem the strangest practice of all, brain removal derives heavily from Egyptian social beliefs and holds extreme significance within mortuary

practices. Unified with the *ba* and *ka*, the body was a commodity to the deceased's physical and social souls. Any decay threatened ruin to the ancestor spirit and its place in the afterlife. As the dead coexisted with the living, this would affect the deceased's earthly community as well, stripping them of their divine connections and perhaps even provoking negative relationships with the gods. Brain removal, as well as all other preservation procedures, ultimately represented "attempts to immortalize the human body in order to ensure survival of the soul" (Leca, 1981, p. 143).

Prevention of decomposition later escalated to retaining a realistic image, as "individual immortality was considered to be dependent in part on the preservation of the body in as lifelike a form as possible" (Abdel-Maksoud & El-Amin, 2011, p. 130). Following dehydration, embalmers massaged oils and fats into the body to make it "perfectly soft and pliable" (Sandison, 1963, p. 264), likely endeavoring to mimic the appearance of living skin. Much like the brain, the preservation of the eyes was not possible, as they began to wither mere hours after death. Therefore, embalmers replaced them with balls of cloth, stones, or small onions (Dawson, 1927; Leca, 1981). They filled the abdomen with cloth and resin to restore the corporeal shape and later began replacing the visceral packets within the body to "produce a less emaciated appearance" (Klein, 2016, p. 89). They dyed the hair and nails with henna (Abdel-Maksoud & El-Amin, 2011; Baumann, 1960) and performed "cosmetic surgery" by inserting mud, sawdust, and sand to restore volume to the cheeks, thighs, back, and buttocks (Leca, 1981, pp. 160-161).

Egyptians performed bodily rituals as an additional attempt to restore the deceased's social connections. The Opening of the Mouth ritual affected statues, coffins, and mummies themselves (Finnestad, 1978) and "sought to reanimate the bodily functions" (Meskell, 2002, p. 183). Contemporary analysis of mummies' dental trauma revealed that embalmers forced the

deceased's mouth open to invoke this transformation (Seiler & Rühli, 2015). This ritual was a critical aspect of mortuary practices, as the "body was rendered capable of receiving offerings and functioning in the next world" (Baines & Lacovara, 2002, p. 11). It restored the ability to speak, eat, and drink – all important activities for maintaining social connections and therefore for eternal life. The Opening of the Mouth also allowed the dead to breathe, mimicking the Egyptian practice of opening a newborn child's mouth to facilitate respiration (Meskell, 2002). Thus, the ceremony also symbolized a moment of rebirth for the deceased.

The preservation of social connections in mortuary practice even extended to the embalmer himself. As previously stated, evisceration procedures, including brain removal and abdominal incisions, typically occurred on the body's left side. Raven (2005) suggested that this orientation had symbolic significance, as working on the right side of the body would have been more practical and provided greater "accessibility of the organs" (p. 47). Citing Egyptologist Jean-Claude Goyon, Raven connected this practice to the Egyptian belief that honored the right side and assigned inferiority to the left, allowing for its destruction. Raven also proposed a link to 19th-century Egyptian tradition, which stated that the left hand performed unfavorable tasks while the right "should be kept clean for eating and social contacts" (p. 47). Working through an incision on the left-side of the abdomen would provide the embalmer with unimpeded access to the organs if he was only using his left hand.

This reinforces not only the Egyptian value of social connectivity both before and after death but also the interconnectedness of the living and dead. Many of these practices represent a dual interest, protecting the social integrity of members in both spheres: the deceased and his surviving descendants as well as the living embalmer. Procedures to prevent decomposition, uphold a lifelike form, and restore oral abilities may aid the dead in achieving eternal life, but

they also serve the living. Supposedly providing them with divine communication, ancestor preservation directly benefited the Egyptians, perhaps indicating that mortuary practices commenced to attend to the needs of the living rather than the dead.

Scientific Beliefs: Analytical Observation

While religious and social beliefs guided death practice in many early societies, a more unique aspect of ancient Egyptian civilization is their value of scientific observation. As the ancient Edwin-Smith and Ebers papyri showcase, "the Egyptian physician's observation skills and systemic analysis were impressive as they documented the anatomy associated with neurological deficits and musculoskeletal injuries" (Loukas et al., 2011, p. 411). Sacred worldviews influenced the ancient medical world as well, but often only after all logical approaches had failed (Haimov-Kochman et al., 2005). Egyptians noticed numerous connections between nature and the human body. Their inclination to record these observations, along with their descriptive tendencies, allowed these ideas to endure to modern-day. These surviving texts are a "very early illustration of the process by which a more scientific approach to biology and medicine could arise from one which was thoroughly mixed with magic" (Schwabe et al., 1982). The Egyptians' inquisitive spirit and attention to detail do well to explain their approach to mortuary science, too, as various embalming practices seem to have roots in ancient observations of astronomy, botany, and anatomy.

Like many cultures, ancient and modern, the Egyptians admired the night sky. To understand the extent of their astronomical knowledge, contemporary scholars utilize written records and diagrams from the period. One major source of this information is on tomb ceilings and inside coffin lids, where Egyptians painted the northern and southern skies on their respective sides of these surfaces (Relke & Ernest, 2002). This not only reveals what they knew

about the stars but also demonstrates the mortuary connections that astronomy held. For example, the 70-day mummification period likely derives from the movement of the star Sopdet. As a celestial depiction of Isis, Sopdet disappeared each summer for 70 days, bringing a period of drought (Neugebauer and Parker, 1960, as cited in Relke & Ernest, 2002). These waterless months and the succeeding agricultural flourish corresponded to the time the deceased spent on the embalming table before experiencing rebirth (Relke & Ernest, 2002).

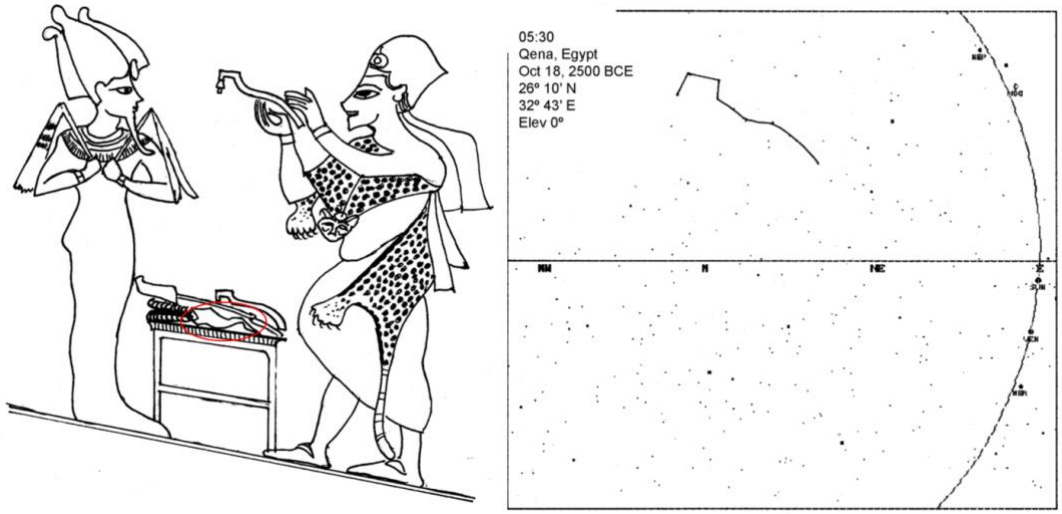
The Ursa Major constellation holds significance in mortuary rituals as well. Egyptians revered the bull as a food source and a divine symbol (Relke & Ernest, 2002). The animals were often sacrificed to provide sustenance for deceased kings. Interestingly, their word for bull was "ka" (Relke & Ernest, 2002), perhaps indicating a direct connection to the dead's social soul. Although known contemporarily as "The Great Bear," this constellation could easily depict a bull as well, thus drawing Egyptian attention. More specifically, they saw a bull's front leg in these eight stars. Ancient tomb paintings of the Opening of the Mouth ritual include a bull's foreleg that aligns perfectly with the placement of Ursa Major during the same period (Figure 2).

According to ancient texts, the foreleg served as the actual tool for opening the dead's mouth, as well as "the first nourishment taken by the deceased, enabling the *ka* to awaken and survive" (Relke & Ernest, 2002, p. 72). This example showcases Egyptians' observations of astronomy and how they incorporated these findings into mortuary practice.

Scientific reflections were not limited to the sky, however, as botanical life played an even larger role in mummification. Possessing unique preservative abilities, plant oils were key ingredients in the embalming ritual. Organic chemists Buckley and Evershed (2001) explored the properties of coniferous resin and beeswax, which filled bodily cavities and secured bandages. Both of these compounds hinder bacterial growth, creating a "physico-chemical barrier that

Figure 2

Foreleg in Tomb Painting vs. Placement of Ursa Major (Relke & Ernest, 2002, p. 73)



Note. This painting (left) from King Tutankhamen's tomb depicts a foreleg offering at an Opening of the Mouth Ritual, with similar shape and position to Ursa Major (left) during ancient times.

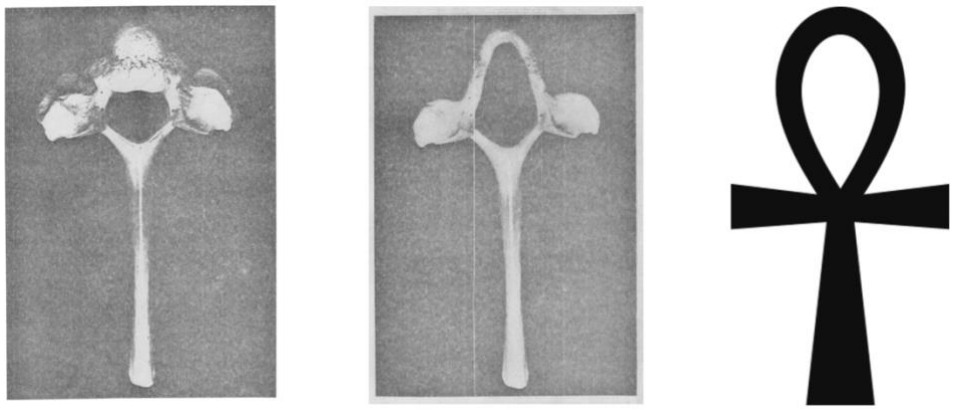
impedes the activity of microorganisms" and thereby halting decay (p. 839). The latter material, which arose in the Third Intermediate Period, also has hydrophobic qualities, making it a perfect sealant to keep mummies moisture- and decay-free.

Embalmers' use of these products "points to their recognition of antibacterial properties of these substances" (Buckley & Evershed, 2001, p. 840). Further research (Abdel-Maksoud & El-Amin, 2011) has found that cedar oil, which washes bodies and dissolves viscera, has antifungal and insecticidal abilities, further fending off decomposition. It is no accident that Egyptians chose these materials for mummification. They observed the decrease in bacteria, fungi, and insects in the presence of these compounds and included them for that reason. This also shows that the Egyptians were somewhat aware of putrefaction's causes. They had likely seen flies and maggots congregate on unburied animals and humans, leading them to seek out plants that prevented entomological activity.

Animals likewise brought scientific revelations. In the dissection of bulls, the Egyptians observed that the penis muscles attached to the coccygeal vertebrae. From this, they concluded that the organ was an extension of the spine and that semen was produced in vertebral bone marrow (Schwabe et al., 1982). Haimov-Kochman et al. (2005) suggest that the large size of the sacrum, in particular, made it seem able "to protect the fluid that holds the spirit of life" (p. 4). Extending their zoological knowledge to humans, Egyptians admired the spine as the center of life and reproduction. The ankh symbol, which greatly resembles a bull's thoracic vertebra (Figure 3), often appears with the deceased to further promote rebirth (Schwabe et al., 1982).

Figure 3

Bull's Thoracic Vertebrae vs. Ankh Symbol (Schwabe et al., 1982, pp. 466-467



Note. The left image depicts a virgin vertebra. The middle image shows a vertebra with canal enlarged, possibly to eat the marrow or make the object easier to hold (Schwabe et al., 1982).

This may also provide a secondary explanation for the in-situ preservation of the penis. While the Osiris myth provides religious rationale, these ideas offer a justification that is possibly more relevant to the average ancient citizen. This account shows that Egyptians recognized the significance of the genitalia in producing life. Shokeir and Huessein (2004) discussed the importance of sexuality after death as well, making preservation of the male

mummy's "sexual power" essential (p. 385). Perhaps the ancients thought that cutting off the phallus would obstruct the semen's path out of the spine, eliminating the chance for reproduction in the afterlife.

Ibises also gave rise to important zoological observations, as Egyptians considered them sacred and commonly mummified them (Wade et al., 2012). Although it was rare, a few early ibis mummies exhibited evisceration similar to preserved humans. Wade et al. (2012) believed that this revealed Egyptian views of the organs as essential for a "functional and enjoyable afterlife" (p. 1646). They likely recognized the roles of the removed viscera – stomach, liver, intestines, and lungs – in digestion and respiration. Organ preservation allowed these functions to continue in the afterlife (Ikram and Dodson, 1998, as cited in Wade et al. 2012).

Their study of the human body provoked similar analytical reflections. As the Edwin-Smith papyrus outlines, Egyptian physicians mapped the skull as a part of head injury treatments (Loukas et al., 2011). This knowledge likely guided their methods for brain removal, allowing them to complete the procedure with minimal facial disfigurement. Moving to the thoracic cavity, Egyptians saw the heart not only as the "seat of intelligence, emotions, and desire" (Loukas et al., 2011, p. 414), but also as the "center of an elaborate network of undistinguished vessels comprising veins, arteries, and ligaments" (Ritner, 2006, p. 100). Further, they believed that the heart did not transport blood but rather the components of each organ, such as semen to the testicles (Loukas et al., 2011) and urine to the bladder (Ritner, 2006). Nevertheless, Egyptians recognized the anatomical importance of the heart, which explains why embalmers always left it in place when preparing a body. The abdomen occasionally retained viscera as well, including the bladder (Leca, 1981) and the kidneys (Dawson, 1927; Leca, 1981). Perhaps this is another practice derived from the bull's dissection. As both structures are connected to the

penis, the protection of life and reproduction may have sometimes extended to these organs as well.

Although not always completely accurate, these scientific ideas are striking, originating in analytical observations and critical thinking. The ancient Egyptians recognized the need for a methodical approach to preservation and applied nature's teachings to their mortuary rituals.

Conclusions about Ancient Egyptian Mortuary Ritual

Ancient Egyptian mortuary practices have clear connections to a variety of cultural beliefs, including those arising from Osirian religion, social connection, and scientific analysis. Each realm, representing a distinct aspect of Egyptian society, presents an important takeaway about the treatment of the deceased. The god of the dead's story provided a mythical example on which the Egyptians based their embalming rituals, showing that the practices didn't appear out of nowhere. The influences of social connectivity reveal that mortuary customs did not exist solely for the dead, but relieved grief and preserved divine relationships for the living as well. The methodical observations that drove the development of mummification speak to the Egyptians' attempts to make sense of their surroundings outside of spiritual explanations. These religious, social, and scientific views put extensive meaning behind ancient Egyptian mortuary practices, hopefully lessening their peculiarity and providing a basis for identifying mortuary universals.

Case Study #2: Modern America

In the United States, innovation characterizes death culture. From the rise of the funeral industry to the alternative disposal methods of modern-day, America continues to improve upon mortuary science. Contemporary embalming methods originated in the 19th century with French chemist and inventor Jean-Nicolas Gannal (Fernandez, 2013). Patenting his methods in 1837, the

scientist aimed to commercialize dead body preparation by providing preservation and cosmetic procedures to the average citizen (Trompette, 2009). He also proposed a three-tiered pricing menu of treatments to appeal to all social classes, echoing Egyptian embalmers' hierarchy of mummification procedures. Previously, the French had utilized embalming solely for preserving anatomical specimens, and most of the country's medical professionals rejected Gannal's suggestion to expand the practice to the funeral industry (Fernandez 2013).

Gannal's ideas saw quick success in the U.S., however. In 1840, an American anatomist translated the Frenchman's *A History of Embalming* into English "for the purpose of sanitary science in the context of epidemic control" (Trompette, 2009, p. 14). America fully embraced embalming during the Civil War, when Dr. Thomas Holmes adapted the procedure to preserve soldiers' bodies for transport and home burial. These innovations "quickly gave way to the invention of a new funeral model, which included the transportation and exhibition of the embalmed corpse" (Trompette, 2009, p. 15). The United States Chemical Company arose as the main supplier of embalming supplies and founded a chain of embalming schools in major cities throughout the nation (Podgorny, 2011). The U.S. considered embalming a customary practice by 1890, and in 1908 physician Carl Barnes received an American patent for the process (Podgorny, 2011). Although the cremation rate surpassed that of burial in 2015 (NFDA, n.d.), a traditional American funeral often still includes an embalmed body, as many facilities require chemical treatment for open-casket ceremonies (Montell, 2009).

American mortuary schools outline specific embalming procedures for a variety of body conditions, whether freshly dead, autopsied, traumatized, or slightly decomposed. It is important to note that while the American and Egyptian body preservation practices are both referred to as embalming, they are entirely different procedures that were developed separately. Focusing on

the undisturbed, recently deceased corpse, the following steps are the most basic of American embalming procedures, taken from Robert Mayer's textbook *Embalming: History, Theory, and Practice* (2012). First, the embalmer sanitizes the clothed body, documents and stores valuables, and removes clothing. They then sponge the body with disinfectant and pack all orifices to prevent the purge of bodily fluids. The embalmer must position the body before injecting preservatives, as formaldehyde stiffens the tissues. This includes major positioning, like crossing the hands over the lap, and minor positioning, such as inserting cotton to straighten the nostrils. Massaging the muscles and elevating the head and shoulders help to address rigor mortis[1] and livor mortis,[2] respectively. At this point, the embalmer selects an artery[3] for chemical injection and a nearby vein for fluid drainage. The most common embalming method is arterial injection, in which the preservative flows through the circulatory system, replacing all blood in the body. Other procedures include cavity embalming, which addresses the internal organs, and hypodermal embalming, which uses a needle to preserve small areas. Restorative and cosmetic treatments follow the completion of embalming. The former repairs any bodily trauma, while the latter focuses on restoring a lifelike appearance. Lastly, the embalmer dresses the body in an outfit – often formal – with plastic garments underneath to protect the clothing from any leaking fluids.

Although medical science unmistakably contributed to the development of American mortuary practices, numerous authors downplay its importance. Fernandez (2013) describes embalming as an "aesthetic practice with moral value rather than a purely scientific or medical one" (p. 351). His words perfectly describe the intersection of religious, social, and scientific

[1] Stiffening of the body that occurs 2-4 hours after death and subsides 36-72 hours after death
[2] Discoloration of the body after death due to gravitational settling of blood
[3] Usually the femoral, brachial, or carotid artery

ideas that continue to shape this nation's funeral industry. By examining specific cases, public policies, and cultural traditions, the attitudes that guide American death treatments become clear. Mortuary practices in the United States arose from beliefs grounded in the Christian origins of America, continued personhood after death, and protection of the health of the living.

Religious Beliefs: Christian Origins of America

America ascended from the value of religious freedom. Amidst the anti-Catholic sentiments of the Protestant Reformation, settlers left Europe to establish colonies. Plymouth, MA surfaced as a Protestant Christian community, a faith that dominated the subsequent colonies as well (Webb, n.d.). Although Christianity, and religion in general, continues to decline in the United States, a 2019 survey showed that 65% of American adults still identify as Christians and 43% as Protestant (Pew Research Center, 2019). With such a consistent presence throughout U.S. history, there is no doubt that religious ideas hold influence in innumerable aspects of the nation's culture, including those of the funeral industry. American mortuary science shows clear connections to the Christian origins of the country. This is seen in the field's founding ideas of corpse rights and bodily integrity, as well as the recent popularity of "commodity relics."

Religious reasoning has led to the establishment of numerous policies and traditions protecting the cadaver's interests, beginning as early as the pronouncement of death. The widespread acceptance of brain death within the medical community came with the 1981 passage of the Uniform Determination of Death Act. This statute defines death as either "(1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including the brain stem." However, many religions only accept the former, adamantly rejecting brain death. Take the case of Jahi McGrath (see Friedrich, 2019), whom in 2013 doctors pronounced brain-dead after surgery complications. When the medical staff moved

to withdraw Jahi's life support, her family objected. As "devout Christians," the McGrath parents alleged their daughter was still alive, citing their belief that death occurs only at the cessation of the heartbeat (Friedrich, 2019, p. 490). They pursued legal action when the hospital attempted to issue a death certificate. The courts allowed the McGraths to transfer Jahi to a New Jersey facility, where she remained on life support until her liver failed in 2018. New Jersey, along with New York, has enacted "reasonable accommodation policies" to address religious and moral concerns related to brain-death declarations. These guidelines "allow families to reject the neurological determination of death based on religious objections" (Friedrich, 2019, pp. 491-492), leaving cardio-respiratory function as the sole criteria.

Religion also heavily influences the treatment of the deceased body. American tradition provides each corpse the right to a "decent Christian burial." This declares that the dead deserve "to be returned to parent earth for dissolutions, and to be carried thither in a decent and inoffensive manner" (Cantor, 2010, pp. 60-61). In short, all bodies have the right to a respectful burial. The thoughts behind this custom were largely religious, as a decent burial signifies respect and facilitates spirit survival (Cantor, 2010). When left to the family, death arrangements frequently include a viewing. Due to reasons of sanitation, this often requires prior embalming treatments. In line with the "decent Christian burial," the succeeding funeral often has a religious connotation. These ceremonies customarily occur in places of worship that align with the deceased's beliefs. In cases of estrangement or lack of surviving family, however, these entitlements still stand, becoming the responsibility of the local government. In Richland County, SC, for example, the coroner's office takes responsibility for the unclaimed. The county pays for cremation and holds regular potter's field ceremonies, to which they welcome any available family members.

Corpse rights do not stop with burial, though, as American law also defends the "quiet repose" of the resting body. Legal protections include allowing emotional trauma lawsuits for improper body handling, prohibiting exhumation except for significant reasons, and enforcing sanctions for grave desecration (Cantor, 2010). Furthermore, both civil trespass and criminal offense charges can follow cases of unauthorized disinterment. This corpse-right also originates in religious logic, as a peaceful rest "protects the symbolic presence of the deceased, an undisturbed haven for the soul or other spiritual presence, and peace of mind for the survivors" (Cantor, 2010, p. 239). In defense of quiet repose, U.S. custom typically rejects the inclusion of valuables with the body to prevent grave robbing (Cantor, 2010).

While corpse rights focus on respect for the deceased and his spirit, the protection of bodily integrity highlights the afterlife beliefs that permeate into American mortuary science. Christians believe in bodily resurrection as well as the everlasting life of the spirit. This belief is conditional on the body's careful respect and preservation (Harper, 2010), an idea that resonates with Egyptian practices as well. These attitudes allowed for embalming's rise in popularity, as the practice originally "presented as a method connected with the understanding of the physics and dynamics of the afterlife" (Podgorny, 2011). These ideas fueled embalmers' support among religious Americans who wanted to ensure eternal life for their deceased relatives.

This belief system also inhibits scientific uses of the cadaver, such as organ or whole-body donation. Refusal to donate is "due primarily to religious beliefs or feeling that the corpse retains symbolic value in death and that experimentation is a defilement of the body and/or spirit" (Christensen, 2006, p. 140). This position is not unique to Christianity, as Orthodox Jews and Hindus strongly oppose all forms of postmortem mutilation (Cantor, 2010). Technology advancements and public education have amplified organ donation rates in America. The sense

of altruism associated with the practice likely also increased appeal to religious populations. The Vatican has expressed encouragement for organ donation numerous times, most recently in 2019 when Pope Francis said it "is not only an act of social responsibility but also an expression of the universal fraternity which binds all men and women together" ("Pope: Organ Donation Manifestation of Solidarity, No to Commercialisation," 2019).

Despite this encouragement from religious authority, spiritual ideas continue to limit organ donation. Many correlate the heart, brain, and face with the "soul or essence" of its owner, often leading to the individual's or family's refusal to donate (Cantor, 2010, p. 175). Values of bodily integrity prevent the disturbance of these soul-containing organs because such action could prevent the continued existence of the spirit. This phenomenon is similar to the value and preservation of the heart in Egyptian mortuary ritual, as the organ is likewise thought to contain the soul.

Religious ideals have shaped the history of cremation as well, a debate argued "largely in Christian terms" (Prothero, 2001, p. 495). Just before the turn of the century, both conservative Christians and Catholics still held firmly against cremation, as it presented a threat to bodily integrity and the afterlife. (Prothero, 2001). The funeral industry capitalized on this anxiety to maintain embalming business, "[branding] cremation as a heathen practice contravening the Christian vision of resurrection" (Cantor, 2010, p. 107). However, the public fear of AIDS in the 1960s led to funeral directors' endorsement of cremation (Cantor, 2010). As of 2019, over half of Americans choose cremation, "a rate projected to reach 70% by 2030" (Dawdy, 2019b, p. 210). Christianity has greatly affected what Americans consider acceptable treatment of the dead. As the country increasingly moves towards alternative disposal methods, religious families likely represent a majority of modern burials, claiming desire to preserve bodily integrity.

Although not specific to Christianity, the rise of "commodity relics" has clear connections to American spirituality. While the U.S. religious population continues to decline, spirituality remains steady, as 27% (and rising) of U.S. adults identify as "spiritual but not religious" (Pew Research Center, 2017). This coincides with a movement of unique body disposal methods that don't follow religious tradition but still honor the deceased's soul. Anthropologist Shannon Lee Dawdy (2019b) coined the term "commodity relics" to address the sacred, but "not exactly religious," items that survivors create to memorialize loved ones. She highlights various companies that make novel use of cremated remains. This includes LifeGem, Memory Glass, and Cremation Portraits, which produce diamonds, glass orbs, and paintings, respectively, from cremains. She briefly mentions a few other disposition methods, such as constructing artificial reefs, crafting vinyl records, and planting trees. Bioethics professor Norman Cantor (2010) also explores this movement, describing the inclusion of human remains in fireworks, fishing worms, poker chips, and bowling balls. He cites one company that "offers to send one gram of cremains within a lipstick-sized container into Earth's orbit" (p. 117). All of these relics, Dawdy explained, contain the spirit of the deceased, as understood by these companies' clients. These unique, everlasting artifacts are "a form of afterlife in the here and now" (Dawdy, 2019b, p. 209), allowing the deceased's spirit to remain nearby their living kin.

Although some attribute these relics to American individuality, these objects plainly point to continued spiritual belief. Memory Glass founders shared a striking story. In a rare occurrence, an orb shattered five or six times during its crafting. The funeral home indicated that the individual had died after a car accident due to glass lacerations, leading the glassblowers to conclude that "this man's spirit did not want to be encased in glass" (Dawdy, 2019b, p. 217). These alternative disposal methods are perhaps the best example of the current religious

landscape in American mortuary practice. No matter if you are religious, spiritual, or none of the above, nobody knows what happens after death. This uncertainty leads to respect for the dead among all populations, out of fear that the spirit may seek retribution if not treated properly. Again, this constant presence of respect in mortuary practice is mirrored in Egyptian society, as they feared angering their ancestors would lead to negative relationships with the gods and therefore undesirable consequences for the living.

Social Beliefs: Continued Personhood

The United States greatly values personhood, a term most simply defined as the status of being a person. Philosopher Charles Taylor (1985) explores the concept in-depth, describing a person as a "being who has a sense of self, has a notion of the future and the past, can hold values, make choices." The idea that every human possesses personhood is the foundation for the American values of liberty, life, and citizenship, as well as debates of civil rights and women's suffrage. While, officially, personhood refers only to conscious beings, American mortuary custom symbolically applies the concept to deceased citizens as well. A corpse cannot have feelings or make choices, but grieving family members often project onto the body the values that the deceased held in life. Growing into an integral part of the mourning process, these practices now appear in U.S. policy and funeral tradition. Routinely included in American death-care, the autonomy, living connections, and cosmetic appearance of the deceased exhibit the continued personhood that the dead hold in their survivors' communities.

The wish for autonomy is a natural desire – one that American law protects for the living and, increasingly, the dead. In contrast to the religious origins of decent burial and quiet repose, the cadaver's right to autonomy arises from the social values of personhood. Allowing personal wishes to persist after death, all U.S. states and districts provide legal protection for one's

decisions regarding postmortem disposal (Christensen, 2006). Numerous authors (e.g. Cantor, 2010; Christensen, 2006) cite resemblance to estate law, which regularly enforces the deceased's hopes for their property and wealth. Postmortem autonomy most often faces opposition in cases of unconventional disposal requests, especially those that violate bodily integrity. Many times, these highly contested requests include body donation for scientific research. These are arguably the most important wishes to fulfill, as they not only honor the desires of the dead but also improve the living world.

Organ donation, although largely inclined by science and altruism, first and foremost requires patient autonomy. Despite America's major organ deficit, opposition from the deceased always prevails. The Uniform Anatomical Gift Act preserves body integrity "even in the face of strong justifications for invasion, such as saving an organ donee's life" (Cantor, 2010, p. 210). While one body could benefit nearly 100 people (Cantor, 2010, p. 144), America values the dead's autonomy above all else. For willing donors that die under the right conditions, doctors remove the organs within hours after death. In cases of brain-death, the operation occurs while the patient's heart continues to beat on life-support (Siminoff et al., 2004). Although its rates fall significantly lower than those of organ donation, gifting the whole body to science is increasing in popularity. One man willed his corpse to Harvard medical school because he "couldn't make it to Harvard as a youngster" (Cantor, 2010, p. 183), illustrating that body donation is largely a movement of exercising autonomy as well.

Another unique disposal decision with rising prevalence is cryonics. Cantor (2010) discusses it thoroughly. This process involves freezing the head in liquid nitrogen immediately after death to preserve the brain, an organ that Americans consider the "locus of personality, memory, and identity" (p. 131). This echoes the Egyptian treatment of the heart as well, as they

carefully preserve this organ due to similar beliefs. With such a short time frame for cryonic preservation, people must sign up well in advance so that the staff is standing by at death. Advocates select cryonics with desires for resurrection when science develops immortality.

Salt Lake City's Summum Corporation recruits clients with similar motivations. This company offers both human and animal mummification, advertising preservation until cloning is available (Cantor, 2010). Highly resembling Egyptian technique, Summum prepares bodies by removing the organs, soaking in preservatives for six months, and wrapping in two dozen layers of gauze. Perhaps justifying the $67,000 to $300,000 price range, layers of resin, polyurethane, plaster cast, and a quarter-inch thick bronze sarcophagus claim to perpetually protect the mummified form. Chosen primarily in hopes of continued life, these procedures both strongly uphold postmortem autonomy.

In addition to protecting the interests of the deceased, American mortuary practice also makes efforts to preserve the dead's connection with the living. A nearly universal feeling, death anxiety is "rooted in our fear of permanent disconnection from a world of others" (Bennett & Huberman, 2015, p. 340). This distress highly influences the treatment of the dead, soothing fears of isolation by maintaining a community with those who have passed. This starts immediately at last breath and continues through the mortuary ritual. The discoloration, bloating, and purging that accompany decomposition are incredibly unsightly to family and friends, and likely would psychologically dismantle the living-dead community. Thus, by hiding the sights and smells of death, the mortician assists the living in forming these connections.

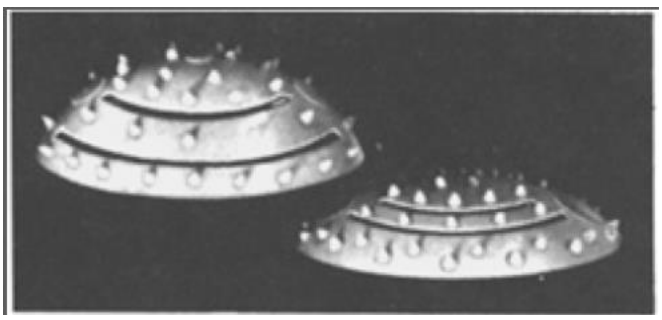
The unnatural colors of death begin with the paleness from blood flow cessation and a bluish tint from oxygen loss. This later progresses to a purplish-red bruising from blood settling and greenish-black staining from bacteria growth (Cantor, 2010). Embalming fluid often

includes a red dye to address the paleness, helping to restore a lifelike complexion (Chiappelli & Chiapelli, 2008). For the more advanced discolorations, morticians use opaque cosmetics and modeling techniques to restore the skin's natural colors and textures (Dawdy, 2019a; Mayer, 2012). These techniques refurbish the dead to a recognizable form, allowing for continued relationships with the living.

Accompanying these color changes are the odors and sights of bodily purge, referring to the "evacuation of gases, liquids, and semisolids from a natural body orifice… caused by the buildup of pressure from gas formed in the abdomen" (Mayer, 2012, p. 427). These gases amount as intestinal and external bacteria break down body tissues. Embalming procedure includes numerous precautions to prevent purge, especially during the funeral viewing. The embalmer packs all orifices with cotton several times, including after the initial cleaning, after chemical injection, and again after cosmetic treatment. The final packings within the oral, anal, and vaginal cavities hold concentrated preservatives to further prevent decay. To keep facial orifices closed, the embalmer places barbed eyecaps (Figure 4) under the eyelids, wires the jaw shut, and superglues the lips. The deceased wears plastic garments beneath their clothing to contain any purge that may bypass these packings. Furthermore, the mortician places wax over any lacerations to prevent the "bleeding" of embalming fluid.

Figure 4

Eyecaps – placed under eyelids to keep deceased's eyes closed (Mayer, 2012, p. 372).



All of these measures serve the living, facilitating mourning rituals of corpse viewing and contact. Embalming procedures create calmness in the deceased, bringing "psychological comfort to families who can see the familiar and peaceful face of their loved one for the last time" (Trompette, 2009, p. 26). This is a major aspect of the American funeral industry, allowing for a positive final interaction to aid mourning.

Organ donation can promote the healing process as well. Siminoff et al.'s study (2004) revealed some "individuals believed that transplanted organs embodied these attributes of the individual donors that would be transferred to the recipient" (p. 2327). Organ transplantation allows the deceased to live on, in a sense. Although merely a psychological phenomenon, this permits the family to maintain a physical connection with their loved one, which perhaps is a more powerful grieving outlet than any funerary ritual.

Complementary to color correction and purge prevention, mortuary cosmetics focuses more heavily on the corpse's appearance. While the previous methods seek merely to restore a lifelike form, this stage of the embalming ritual returns identity to the deceased. This includes not only make-up and hairstyling but also restoration and the embalming itself, which both precede beautification procedures. Chiappelli & Chiappelli (2008) criticize this aspect of American funerals, claiming that "the benefits of embalming are cosmetic or illusory" (p. 27). However, this is precisely the point. Cantor (2010), in contrast, says the corpse "is a vessel that held a unique person and is still the most tangible manifestation of its human predecessor" (pp. 29-30). Therefore, as the only remaining link to a family's late relative, the embalmer's role to create a representative image of the deceased is a vital one.

Although utilized mainly for preservative reasons, embalming has cosmetic effects as well. With precise formulas and techniques, these chemicals can decrease swelling and

discoloration as well as partially restore the natural complexion (Mayer, 2012). Formaldehyde, the main ingredient in most embalming liquids, firms the skin (Podgorny, 2011), perhaps meant to mimic the pressure of blood circulation in living flesh. In cases of autopsy, full preservation requires the embalmer to preserve the viscera with cavity fluid outside of the body and then return them to their respective spaces (Mayer, 2012). The proper injection of embalming fluid is the most important step, as it provides a foundation for later restorative and cosmetic treatments.

Following chemical treatment, the embalmer assesses the need for restoration, typically necessary in cases of pathology, trauma, and decomposition (Mayer, 2012). Embalmers fill gunshot or puncture wounds with wax or cloth, replace missing ears with replicas, and substitute plaster or wire mesh "prostheses" for lost or mangled limbs (Cantor, 2010). In cases of deep wounds, severe burns, or skin slip,[4] embalmers use wax to replace the missing flesh (Mayer, 2012). Wax can also add volume to the lips. With both of these techniques, the mortician must recreate natural textures, such as pores and freckles on the skin and vertical lines and creases on the lips (Figure 5) (Mayer, 2012). The mortician remedies decapitation, as a result of either autopsy or trauma, by reattaching the head with a sharpened stick and stitching around the neck (Cantor, 2012). These procedures exist to restore the identity of the deceased, even in the most extreme cases, so that family members can recognize, celebrate, and grieve their loved ones.

Figure 5

Restored lips with reproduced textures on the right side (Mayer, 2012, p. 2050).

[4] Loosening of skin due to decomposition processes

After recovering the body's form, the embalmer employs grooming procedures to "produce a visual representation of the living person which corresponds to a remembered image of the embodied self of the deceased" (Hallem et al., 1999, as cited in Harper, 2010, p. 315). The mortician shampoos and styles the hair, manicures the fingernails, and shaves the face (with the family's permission). Cosmetic creams and powders beautify the face and injectable tissue builder restores volume if needed. The deceased's clothing, typically chosen by the next of kin, often represents their previous identity. For example, Mrs. McGloughlin buried her husband without shoes. She chose to dress his feet only in socks because "that's what he's most comfortable in" (Harper, 2012, p. 48). Similarly, those that wore glasses in life usually sport them in death as well. Because the face and identity are largely interconnected, any "objects permanently associated with the face," such as eyeglasses, are vital to the proper presentation of a body for viewing (Harper, 2012, p. 50). These two examples most clearly show the continued personhood that the corpse holds in American culture. These cosmetic decisions revive the dead by mimicking the personality and values that they had in life. These rituals allow the person and his social image to live on.

Scientific Beliefs: Health of the Living

While religion and society hold more symbolic and inconspicuous influence in American mortuary practice, the impact of science on the field is easily visible. The medicalization of death (see Goh, 2012; Russell, 2019) has caused the public to associate corpses and postmortem care with scientific methodologies. Although the specialty exists chiefly in the private sphere with an aesthetic impetus, this perception is not completely incorrect. As the constant race for technological advancement exemplifies, the United States holds great respect for science. Naturally, these values affect mortuary practice as well. Aligning with existing studies and

aiding future discoveries, America's scientific values led to the health-conscious measures of mortuary standardization, novel body disposal methods, and increased medical use of cadavers.

The modern American funeral industry arose largely out of public health concerns, leading to a variety of sanitary regulations for corpse treatment. Around the turn of the 20th century, urban development surged and fears of pollution from dead bodies followed. Undertakers took advantage of these worries, advertising body removal and sanitary treatment with little public interaction. Decomposition seemingly presented a risk of disease – a belief that is still prevalent today (Carlson 1998, as cited in Kelly, 2012) – and embalmers alluded that they could eliminate this imaginary threat. The idea quickly caught on that a hygienic community required embalming and burial of the dead, "[resonating] in a populace that had recently become aware of germ theory" (Farrell, 1980, as cited in Sanders, 2010, p. 50). Thus, to maintain American appeal, morticians introduced countless standards for disinfecting the body and halting decomposition which remain in the industry today.

Disinfection begins as soon as the body is on the table and continues at regular intervals throughout the embalming process. This not only protects health but also slows the growth of bacteria and therefore the rate of decomposition (Montell, 2009). The initial germicidal wash aims to kill insects and viruses as well (Cantor, 2010). Arterial embalming preserves the body and lessens biohazardous risks. While most preservative fluids contain formaldehyde and methyl alcohol, the remaining ingredients vary greatly, typically subject to the embalmer's preference (Mayer, 2012). These liquids preserve by interacting with proteins, both destroying their ability to hold water and shielding them from enzymatic and bacterial activity (Cantor, 2010; Mayer, 2012). The ability to halt decomposition was – and continues to be – the most important quality in embalming fluids. The U.S. Chemical Company advertised its formula with the slogan

"Bodies embalmed by us never turn black!" (Podgorny, 2011, p. 126). Lastly, the mortician applies embalming powder beneath the plastic garments to inhibit mold and mildew growth (Mayer, 2012). Safety standards exist in crematoria, too, as undertakers must remove pacemakers and mercury tooth fillings to prevent explosions and toxic vapors, respectively (Mayer, 2012).

Although comforting to Americans, these procedures are most likely just for show when it comes to public health. In 2016, the WHO said that dead bodies usually pose no threat of community contagion. However, while it is unlikely for the dead's conditions to threaten the mourning family, funeral professionals often contract ailments from their patients. According to Mayer (2012, p. 179), 17% of morticians have contracted an infectious disease – such as tuberculosis, conjunctivitis, or herpes of the eye – in their career. This is the practical reason for the vast amount of protective measures. Moreover, the EPA (n.d.) recognizes formaldehyde as a toxic and carcinogenic substance. This puts embalmers at an increased risk for eye and skin irritation, chronic bronchitis, brain cancer, and leukemia (Chiappelli & Chiappelli, 2008). It may come to mind: If the typical corpse presents no public health concerns, why jeopardize embalmers' health in the first place? This phenomenon reveals that while America claims funerary work to be a sanitary business, it is almost completely a social and aesthetic one. These examples showcase that embalming does not protect from disease risk but produces its own. The "public health" measures only come into play to protect the industry-created risks to the employees.

While its public health motivations aren't wholly genuine, American mortuary science is actively moving towards an environmentally-conscious approach with the adoption of novel body disposal methods. The modern "Go Green" movement has infiltrated nearly every industry over the past century, and the funeral business is no exception. The environmental effects of

embalming are drastic, with 7 million gallons of formaldehyde landing in the soil each year, along with over 42 other dangerous preservative chemicals and the body fluids that drain directly into the local sewage system (Chiappelli & Chiappelli, 2008). These substances contaminate the groundwater and, with cremation, the air.

In the last two decades, these concerns have given rise to the Green Burial Movement, which supports simple, natural interment with little environmental impact. Key aspects of a green burial include refrigeration in place of embalming, plain wood or a shroud instead of a coffin, a grave depth of three feet rather than six, and flat plaques where gravestones would be to preserve the landscape (Cantor, 2010). In lieu of odor-suppressing chemicals, this method employs oils derived from plant gums and resins, which possess antiseptic and protein-coagulative properties (Mayer, 2012). Perhaps this idea arose from ancient Egyptian knowledge. Environmental scholar Suzanne Kelly (2012) eloquently describes the movement's mentality:

> Green burial respects the impact of rain, wind, and sun in the work of decomposition, as well as the pressure of earth, stone and roots that inevitably bear down on the body. Green burial respects decay, as microbes and insects descend to feed on the dead. (p. 48).

This disposal method is still new and increasing in popularity. In 2019, the National Funeral Directors Association (NFDA) reported on America's shifting funeral preferences, with 51.6% now "interested in exploring 'green' funeral options because of potential environmental and cost-saving benefits." Many of Dawdy's (2019a) acquaintances state that they would love to "become a tree" (p. 23). This author also explained the extremes of the movement in Seattle, WA, where architect Katrina Spade has set up a "giant human compost bin" from which families can take home commemorative and fertile soil to put in their gardens (p. 23). Green burials have

brought rapid change to American mortuary culture, for the good of both environmental and public health.

Alongside green burial is the Natural Deathcare Movement, headed by women who wish to remove the body from hospitals and funeral homes and bring it back into the hands of the family. Philosophy professor Phillip Olson (2018) compares this trend with that of natural childbirth in the 1970s. Natural Deathcare Assistants (NDAs), who commonly refer to themselves as "death doulas" or "death midwives," serve as spiritual support for the dying, advice-givers for postmortem care, and public educators for their cause. Natural deathcare proponents join the movement out of either desire for an eco-friendlier death or dissatisfaction with the current industry, citing the WHO and CDC to deny the corpse's public health risks. Care of the body is minimal and non-invasive, offering less violent alternatives to traditional embalming procedures. Rather than wiring the jaw shut and using eyecaps, NDAs suggest tying a handkerchief around the jaw and using something heavy to hold the eyelids closed until rigor mortis sets in. (Olson, 2018). These changes not only lessen environmental harm but also allow a more personal and emotionally fulfilling final interaction with the deceased.

Whereas the funeral industry's effects on health are more widespread, the use of the dead body in medical education improves the human condition on an individual basis. Dissection, considered a rite of passage for medical students, ideally runs on voluntary body donation.[5] Upon the generosity of whole-body donors, future doctors learn gross anatomy and pathology and gain up-close experience with death, establishing a foundation for how they will practice medicine. Those slated for dissection must be embalmed within 24 hours of death and receive a much more

[5] In some states, unclaimed bodies are still turned over to medical schools for dissection. For example, Ohio Revised Code 1713.34 states that after 36 hours, an unclaimed body shall be turned over to either a medical school professor or an embalmer "for the purpose of medical surgical study or dissection or for the study of embalming."

concentrated preservative – one that will save tissue for several years if the body remains intact (Cantor, 2010). However, students are not the only ones who utilize medical cadavers. Practicing surgeons and pathologists also perform dissections to develop new techniques and procedures. An additional outcome of whole-body donation is the discovery of genetic or infectious diseases that might have otherwise remained unknown (Choi & Gulati, 2017).

Cantor (2010) delves into another unique medical use of bodies: plastination. This process replaces the body's water and fats with polymers, creating "an odorless, flexible, lightweight, indefinitely preservable specimen" (p. 127). Preceding ultraviolet hardening, embalmers peel away skin and muscle to reveal the tendons, ligaments, or organ systems underneath. The bodies often assume an action pose to showcase these mechanisms "in motion." These highly controversial authentic medical models find homes in either universities or public educational displays. Although plastination exhibits originated in Germany, the United States now has its own version called Bodies: The Exhibition, located in Tampa and New York. Donation is the sole supplier of these models, speaking to America's rising values of not only unique body disposal but also the anatomical education of medical professionals and the public.

Conclusions about Modern American Mortuary Ritual

Mortuary science in America greatly derives from social pressures, with the deceased's continued personhood as the driving factor behind many practices. Public perception of the dead is the funeral business's most prominent influence. From postmortem autonomy to cosmetic treatments, these socially inclined procedures soothe the anxieties of the living by perpetuating the dead's existence. Mortuary professionals likely focus on the client's appearance, both physically and socially, in response to the establishment's history of disapproval and disgust. Religion and science, although still important catalysts, arguably played a much smaller role in

the industry's development. American Christianity merely lingers as a mortuary moral compass, and the "science" that facilitated embalmers' initial popularity was largely counterfeit. However, both of these themes, unlike the first, have provoked recent changes in the field. America's prevailing spirituality, a byproduct of its Christian origins, is encouraging unique ways of honoring loved ones, in the form of commodity relics. The U.S. concern with health has brought reforms to address workplace safety, environmental protection, and medical education within mortuary practices. Thus, American funeral science can thank not only societal dynamics for its place in modern communities but also the national religious and scientific values for its continued expansion and improvement.

Discussion

These two case studies illustrate the immense complexity of mortuary practices and the intricate, culturally rooted meanings behind them. The interpretive approach highlights rituals and their foundational values, which allows for the identification of the human motives in performing these symbolic acts. This is where the mortuary universals begin to emerge. Death affects a society at three major hierarchical levels: national/cultural, regional/community, and local/familial. The nation or culture defines the norms for coping with death and attending to the dead. At the regional level, death disrupts the community equilibrium with the loss of a contributing member of society. For the family of the deceased, the effect of death is much more emotional, as they must progress through the stages of grief. At each of these levels, the corresponding groups must respond in a way that counteracts the effects of death. Humans react to death with mortuary ritual, and the purpose of these practices is where we see consistent universals. As seen in ancient Egypt and modern America, mortuary practices serve to counteract

the effects of death at national, regional, and familial levels by reinforcing key cultural values, facilitating social restoration, and enabling corpse intimacy.

Mortuary ritual reflects key cultural values within a society. These practices happen during a time of the highest possible emotional distress, and therefore people are at their least rational. This permits the most foundational and important values to surface. Universally, these key values seem to be what control mortuary ritual throughout a culture. For example, attaining a spot in the afterlife is a goal throughout the life of an ancient Egyptian. This idea is the center of their myths and religion and guides their everyday life. With bodily completeness required for entrance into the afterlife, this value is also the foundation of their mortuary culture. Many of their practices maintain body integrity with this goal in mind, including the use of preservative botanicals, the replacement of organ packets within the abdomen, and the manufacture of fake eyes for the corpse. We also see this value in their practices of restoring functions in the deceased, such as the Opening of the Mouth ritual and the in-situ preservation of the heart. These acts further reinforce the value of the afterlife by empowering the deceased to talk, eat, speak, etc. once they arrive. Lastly, the Egyptians convince Osiris to allow their dead into the underworld with the mimicry of his myth. Incorporated throughout the embalming process, the theme of the Osiris myth reveals the peak of ancient Egypt's cultural values.

Although American mortuary culture may include different practices than that of Egypt, it likewise exhibits the nation's key values. Modern America places emphasis on autonomy and individuality. Both of these principles prevail in the wide array of rights afforded to American citizens, most notably in the First Amendment freedoms. These entitlements extend to the dead as well. Discussed previously, autonomy is rampant in corpse rights; examples include upholding the deceased's desires for the allocation of their estate and the disposal of their body. Americans

also transfer individuality from the previously living person onto their corpse. There are countless options for body disposal, from cremation to donation to becoming a bowling ball. Surviving family members often want the final form of the deceased to reflect their personality. This could be as simple as "he wouldn't want to decompose, let's just cremate him" to utilizing one's ashes to create something that represents their hobbies in life.

Even though these two case studies present vastly different mortuary procedures, each illustratively represents the respective nation's most important values. It is essential that mortuary practices fulfill this role. Key values signify the basic needs of the psyche, just as food, water and shelter are the basic needs of the physiological body. If a practice does not meet these needs – especially in such a raw, emotional state such as grief – then the people will not sustain that act. In this way, mortuary practices are subject to a sort of psychological natural selection. This results in the current procedures being those that represent the most important cultural values. These essential themes resonate throughout the community and family levels as well, as they are vital to the success of any mortuary ritual. Palgi & Abramovitch (1984) discuss this concept and suggest that American practices reveal emphasis on conformity. I disagree with this point, as shown by the above discussion of autonomy and individuality. These two values, evident throughout my analysis of American death culture, are in direct opposition to conformity. Because this is a dated article, perhaps this reflects a shift in national ideals in the past 40 years. This observation may insinuate that mortuary rituals not only reflect current key values, but also can indicate change within national ideals.

Decreasing slightly in scope, the community copes with a member's death through the socially-restorative function of mortuary ritual. Unlike the reinforcement of key values, this purpose seems to look more uniform across cultures. In both Egypt and America, it takes the

form of maintaining a living-dead connection and finding a new purpose for the deceased in the community. Ancient Egypt accomplishes this by assigning the deceased to a role of divine communication for the living. We see this in the recitation of tomb inscriptions and papyri scrolls – which allows the living to speak to the dead – and the Opening of the Mouth ritual, which allows the deceased to interact with the gods. The special care of Egyptians to make sure their ancestors passed the judgement also contributes to this goal. This event determined initiation into the afterlife. If the deceased failed, then the living would not have this divine connection. The counteraction of decomposition functions similarly. Without the body, there can be no afterlife existence and therefore no communication with the gods for the living. In essence, these procedures reflect the key national values at the community level. Much of Egyptian mortuary ritual revolves around making sure that the dead can reach the afterlife so that the living can communicate with the gods through them.

Americans also largely believe in life after death, although the specifics vary with religion. Nevertheless, embalming appealed to this world view, advertising forever preservation of the deceased. The popularity of embalming shows Americans' wishes of eternal life for their perished loved ones. This phenomenon is likely nearly nationwide, encompassing both the religiously affiliated and the spiritual populations. Much like Egyptian practices, American mortuary procedures support the majority desire of eternal life so that the living can uphold a relationship with passed relatives. This is not the only new role that Americans may assign their dead, however. Organ and body donation allow the deceased to assume an altruistic responsibility in their community upon the cessation of their living duties. This often can serve to restore the societal equilibrium. It can bring comfort to both the dying person and their survivors that they will have a continued purpose after death.

Thus, we see that Egyptian and American mortuary practices both facilitate a new community role for the dead, which includes continued communication with the living. This helps to restore the societal equilibrium by assuring survivors that the deceased is still present in spirit and that they are still contributing to society, just in a new way. Like the key cultural values, this utility is vital for the survival of the affected community. If mortuary ritual is unable to overcome the disruption of death to the community, society would cease to function properly. A group needs to be able to adapt to the loss of a contributing member. Socially restorative mortuary practices assist in this transition by decreasing the distance between living and dead. This allows the living to assign a new role to those who have passed and fulfill the empty position with someone new.

At the most microscopic level, mortuary ritual alleviates familial grief by transforming the body into an ideal cultural form which enables corpse intimacy. For White et al. (2017), this "prolonged contact" is the most consistent feature across cultures, with the majority of global mortuary rituals including both visual and physical interaction with the corpse. These practices are vital to the kin's recovery, because they allow for recognition and acceptance of death. In ancient Egypt, this ideal cultural body is embalmed and mummified. This is partially a lifelike form, but also one that resembles the god of the dead. Embalmers attempt to increase a realistic appearance by oiling the skin, stuffing the body cavities, and dying the hair and nails. While this does not produce as lifelike a corpse as American procedures, it does offer a form that is recognizable as human. Seeing this body likely provided confirmation to the family that their loved one was dead. However, it likely also comforted them to see that their ancestor was preserved for eternity in an anthropoid shape. The procedures that emulate Osiris, including dismemberment and reassembly, likely also reassured the family of their relative's eternal life.

The king of the underworld would recognize them in the form and be more likely to permit them into the afterlife. This represents the national key values at an individual level. The Egyptian family's grief is eased knowing that their ancestor will achieve eternal life.

This psychological phenomenon acts similarly in modern America. Today's embalmers also work to create a recognizable form for the sake of the family. From restoration and preservative injection to cosmetic treatments and body posing, all of the embalmer's actions intend to emulate the deceased's appearance in life. At the viewing, the family recognizes the corpse as their lost relative, enabling a final interaction. This process is further facilitated by the incorporation of the deceased's personality into the mortuary arrangements. Cosmetics, eyeglasses, and clothing can restore the identity of the dead. To the family, this makes the deceased appear happy, comfortable, and "at peace." Additionally, the emergence of commodity relics prolongs contact even further. These soul-containing trinkets allow survivors to keep the deceased close by and in a form that represents their personality.

Both case studies reveal that the key cultural values are reinforced at the familial level as well, exemplified in the form that the body takes. The Egyptian mummy reassures its descendants that it will attain a place in the afterlife, while the American corpse reinforces the deceased's individuality and allows for an intimate parting interaction. Like the previous two features, this goal of mortuary ritual is vital to the family's recovery after death. White et al. (2017) shows that a lack of corpse interaction – either visual or tactile – is associated with prolonged grief. This interaction with the body assures the family of their relative's transition from the physical world. Without this reinforcement, people often continue to hope for reunion with the deceased. This is a common problem in cases of kidnapping or missing in action

soldiers where a body is never found. Hence, mortuary ritual must address the familial need for reassurance of death so that grief is overcome in a timely manner.

Final Conclusions

It is often said the goal of anthropology is to "make the familiar strange and the strange familiar," a quote originally stated by T.S. Eliot in reference to good poetry (Myers, 2011). At first glance, mortuary ritual seems incredibly peculiar. The highly emotional stakes of death lead to peak symbolic activity; thus, outsiders often have a hard time comprehending other peoples' mortuary customs. The interpretive approach, however, allows us to uncover the intentions behind these procedures and make sense of foreign practices, such as those of ancient Egypt. Conversely, this approach also provokes a deeper look into the more familiar mortuary customs of modern America. Delving into the details of these rituals reveals aspects that are unknown to the average citizen and that may seem just as strange as canopic jars or brain removal. As shown here, mortuary case studies of ancient Egypt and modern America bare vastly different surface-level observations, but increasingly comparable underlying motives. As a whole, a culture's mortuary ritual can seem isolated and peculiar in comparison to that of others. However, separating these practices into areas of religious, social, and scientific influence assists us in seeing them as deliberate acts with rational meaning. Similarly, examining mortuary procedures as a response to the effects of death at national, regional, and familial levels exposes the societal purpose of these rites. This analysis has revealed the universal goals of mortuary ritual to include reinforcing key national values, restoring social equilibrium, and facilitating corpse intimacy. Although the cultures in these two case studies seem extremely distant in time and space, such a drastic comparison is necessary to show the universality of humans' basic needs in response to

death and the functions of mortuary ritual. The durability of these trends throughout history and across the globe speaks to their collective and lasting importance.

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