

Infant Death and Burial Practices in Late Prehistoric Kiyangan Village, Kiangang, Ifugao

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Abstract The excavation of the Old Kiyangan Village site, an early Ifugao community in the Philippine Cordilleras, has helped identify changes in the landscape, subsistence base, and cultural practices that coincide with the construction and expansion of the Ifugao Rice Terraces. The human skeletal remains excavated from the site has the potential to supplement the ethnographic record of mortuary practice of the Ifugao by adding both time depth and fetal and infant mortuary practices to the record. A minimum number of eighteen individuals were excavated from below six house foundations. Fifteen of the skeletons were in the age range of 24 weeks *in utero* to 1.5 years old. Most fetal skeletons were buried in jars while most infant skeletons were buried in a supine position. However, some overlap of these burial types exist, specifically in the burials of several individuals who died around the time of birth, suggesting burial type may depend on live status at birth. Other burial patterns include multiple burials sharing a burial location and the reuse of burial locations. These practices suggest neonates and infants, regardless of their status at birth, fully participate in the religious traditions and mortuary practices of the community.

Keywords Ifugao; infant burial; mortuary practices

Archaeological excavations in the Old Kiyangan Village, an early Ifugao community, have uncovered a number of prehistoric house foundations and associated human skeletons. These investigations have given archaeologists an opportunity to address a variety of questions involving the formation of the village and changes in subsistence patterns and landscape as they coincide with the construction of rice terraces. This study will focus on the human skeletal remains excavated from the site, the only prehistoric skeletal sample excavated from primary context in Ifugao. It will provide the first information on a prehistoric human skeletal assemblage from the Ifugao area.

Descriptions of Ifugao mortuary practices use modern ethnographic accounts to examine death and the beliefs, rituals, and practices surrounding death. A study of human skeletal remains from sites associated with early Ifugao communities will augment these ethnographic accounts with the physical record of individual, community, and ritualistic beliefs regarding the treatment and care of the dead in the past.

Information on burial practices is found from recording information on the sex and age-at-death of an individual, the treatment of the body immediately after death and through time prior to burial, choice in style of burial (inhumation, cremation, etc.), location of burial, and method of interment.

This information can then be used to provide insight into the rituals, beliefs, and practices surrounding death in the past. If information on the life of an individual can be collected, including health and disease status, stress, trauma, activity, diet, and the demographic history of a population, it is possible to link mortuary practices with the life histories of prehistoric peoples.

The major objective of this paper is to describe the mortuary treatment of human skeletal remains at the Old Kiyangan Village site from Kiangang, Ifugao. Although the sample size is small, this paper provides one of the first descriptions of prehistoric Ifugao burial practices and mortuary treatment.

The Ifugao Archaeological Project (IAP) conducted two excavations, in 2012 and 2013, of an early Ifugao village located at the Baguilat Property, Old Kiyangan Village, Kiangang, Ifugao, Philippines (Acabado, this volume:iv, Figure 2). This resulted in the recovery of a minimum of eighteen burials. Fifteen of these were inhumation burials and three were secondary burials or isolated elements representing individuals. The site has been dated from approximately 700 B.P. to 170 B.P. when it was abandoned after the arrival of Spanish colonial expeditions in the Cordillera region (Acabado 2013, 2015a).

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The Old Kiyangan Village site is important in the Ifugao myth as the birthplace of the first Ifugaos, an early rice-producing area, and a significant area in the colonial history of the region (Barton 1955). Kiyangan is one of the villages mentioned in the earliest myths of the Ifugaos (Acabado 2012). The village was abandoned and subsequently destroyed by Lt. Col. Galvey of the Spanish expeditionary force in A.D. 1832 (Jenista 1987). Records from this period indicate the village had 183 houses which was large by Ifugao standards. Archaeological investigations have found the earliest villagers utilized taro. Rice was introduced in the village roughly 600 years ago (Acabado 2012). Foraging for foodstuffs and hunting for meat was common as revealed in the archaeological record. Elite families likely maintained their status and relative levels of social differentiation through time as evidenced by the presence of exotic trade goods from the lowlands (Acabado 2012). Seven of the eleven trenches excavated were *bale* (house) foundations. Human skeletal remains were found beneath six of these house foundations.

Ethnographic accounts of Ifugao mortuary rituals tell of multi-day funeral ceremonies where the body is displayed and sometimes manipulated by the community (Beyer and Barton 1911). During this time decomposition is occurring and is expected as part of the rituals. After the funeral rites the body is buried in a tomb previously dug into a hillside. After an extended period of time, the skeleton is cleaned and returned to the household (Beyer and Barton 1911). No ethnographic depictions of child or infant burials were reported.

Methods

Archaeological recovery took place with hand excavations of 2x2 meter units using trowels and shovels. All excavated soils were screened through one-eighth-inch mesh. The units were placed across the area of the site to provide maximum coverage. All units were excavated to culturally sterile layers. Burials were mapped and photographed in place.

Methods used to determine age, sex, and stature were from Buikstra and Ubelaker (1994) for adults and Sherwood et al. (2000), Scheuer et al. (2008) and Scheuer and Black (2000) for sub-adults following Halcrow et al. (2008). Age estimations on fetal and infant bones were based on long bones measurements. This method was supplemented by age estimations based on dental formation or skeletal element formation and fusion when a complete set of long bone measurements were not available. This combination of methods was used because there are no population specific stature or age formulae for the Ifugao. The relationship of long bones to chronological age in infants is more variable than dental formation but allows for more precise age categories (Halcrow et al. 2008). Dental age estimations cannot be used to estimate fetal age because available standards using dental formation do not start until roughly 5 months *in utero* and require nearly complete sets of identifiable teeth (Buikstra and Ubelaker 1994).

Long bone lengths were measured in millimeters following Buikstra and Ubelaker (1994) with Mitutoyo digital calipers rounded to the nearest tenth millimeter. When possible, eleven regression formulas from Sherwood

et al. (2000), Scheuer et al. (2008) and Scheuer and Black (2000) were combined to estimate gestational age following the recommendations of Tocheri et al. (2005). The arithmetic mean of these age estimates was calculated to provide an age estimate for each individual. This method approximates that of Halcrow et al. (2008). Where long bones were not available, more general age estimations were made on skeletal element fusion. Following the World Health Organization's definitions of perinatal status, pre-term is defined as under 37 weeks gestational age, 37 to 41.99 weeks is considered full term, and those 42 weeks and older are post-term (Barfield 2011).

Old Kiyangan Skeletal Series

A minimum number of eighteen individuals have been identified from the skeletal remains recovered at the Old Kiyangan site (Table 1). The majority of these remains are sub-adults (at least fifteen individuals) whose ages range from 24 weeks *in utero* to 1.5 years. Nine of these were *in utero* or perinatal, four were between birth and 1 year, and one was aged between 1 and 2 years (Figure 1). Three of the skeletons were determined to be adults. The adults were highly fragmentary and were individuated based upon location and context. Age and sex determinations for the adults are not possible beyond the general adult age determination.

The completeness of these human remains ranges from a single bone to nearly complete skeletons. Several burials are commingled and all, even those contained in ceramic pots, lack clear grave features. The incomplete and commingled remains are largely due to the post-mortem treatment of the dead where individuals are placed in jars or are secondary burials. Other causes of disturbance include past disturbances of the deposits, including contemporaneous and more recent disturbance that have resulted in subsequent interments in the same location. Archaeological recovery techniques have also impacted skeletal completeness. Skeletal elements had to be removed before they were completely dry, due to issues with flooding, causing fragmentation of those elements and reducing the probability of reconstruction. Overall, the Old Kiyangan skeletal remains were poorly preserved. Only a few burials can be characterized as moderately to well-preserved (Figure 2).

MORTUARY TREATMENT

Mortuary treatment includes both the type or manner of interment and the process of burial. The post-mortem treatment of human remains from the Old Kiyangan site fall into three broad categories: (1) "jar burials," or interment in ceramic vessels; (2) supine burial with the arms and legs extended; and, (3) "disturbed" burials, a broad category that includes all primary interments that have been impacted by later activities, as well as secondary and incidental inhumations (Figure 3).

Jar Burials

Jar burial was the most common form of interment encountered. Seven burial jars were recovered. Eight of the fifteen infant skeletons were recovered from these jars. The skeletons range from a single element to nearly complete

Table 1. Data from Regression Note: No Gestation ± 1.87 ± 1.24 Sherwood (13.52) Rfb= (

Burial
T4B1 (J)
T6B1 (J1)
T6B1 (J2)
T6B2 (J2)
T8B1 (J)
T8B2
T8B3
T8B4
T9B1
T9B1 (J)
T9B2
T9B3 (J)
T9B4
T9B5
T10B1

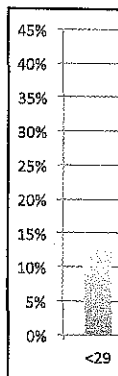


Figure 1. Frequency that the age category. All age categories.

skeletons. Portions of the bone for use as household communicat

Table 1. Diaphyseal lengths from the Old Kiyangan Village Skeletal Sample (n=15) with Single and Mean Gestational Age Estimations from Regression Methods (in weeks) or Element Fusion and Dental Formation Estimations (in months).

Note: No adults are listed on this table. Abbreviations: H=humeral; U=ulna; R=radius; FM=femur; T=tibia; FB=fibula, m=month, J=jar burial. Gestational age estimation methods: Scheuer et al. (2008) and Scheuer and Black (2000). Method R1.02= (0.1984(FM) + 0.2291(T) + 9.3575) ± 1.87, Method R1.04= (0.3303(FM) + 13.5583) ± 2.08, Method R4.01= (0.3922(FM) + 8.83) ± 1.49, Method R4.03= (0.5524(H) + 2.7825) ± 1.24. Sherwood et al. (2000). Method RH= (12.98 + 0.25(H) + 0.0024(H2)) ± 2.12, Method RU= (14.28 + 0.19(U) + 0.0039(U2)) ± 2.08, Method RR= (13.52 + 0.25(R) + 0.0045(R2)) ± 2.14, Method RF= (10.91 + 0.38(FM) ± 2.05, Method RT= (15.13 + 0.19(T) + 0.031(T2)) ± 2.06, Method RFb= (14.72 + 0.21(Fb) + 0.0036(Fb2)) ± 2.19.

Burial	Diaphysis Length (mm)						Perinatal Gestational Age Estimation (in Weeks) and Infant Age Estimation (in Months)										Mean	
	H	U	R	FM	T	FB	R1.02	R1.04	R4.01	R4.03	RH	RU	RR	RF	RT	RFb		Other
T4B1 (J)	54	54	—	65	57	—	35.3	35	34.3	32.5	33.4	35.7	—	35.6	36	—	—	34.7
T6B1 (J1)	—	—	29	—	—	—	—	—	—	—	—	—	24.3	—	—	—	—	24.4
T6B1 (J2)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39 (Petrous)	39
T6B2 (J2)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28 (Teeth)	28
T8B1 (J)	69	—	—	—	68	—	—	—	—	41	41.8	—	—	—	42.5	—	—	41.8
T8B2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18 months (Teeth)	18
T8B3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12 months (Teeth)	12
T8B4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8 months (Teeth)	8
T9B1	—	59	51	75	66	63	39.3	38.3	38.2	—	—	38.9	38.2	39.4	41.2	42.4	—	39.5
T9B1 (J)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40 (Fusion)	40
T9B2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40 (Fusion)	40
T9B3 (J)	—	67	60	91	—	—	—	43.7	44.6	—	—	44.7	44.7	45.5	—	—	—	44.7
T9B4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40 (Teeth)	40
T9B5	—	—	—	—	78	—	—	—	—	48.5	50.1	—	—	—	45.4	—	—	48
T10B1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	38 (Petrous)	38

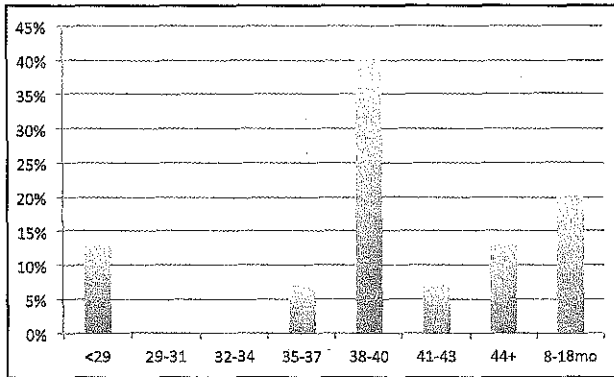


Figure 1. Frequency of sub-adult individuals by age category. Note that the age categories include all sub-adults. Adults are excluded. All age categories are in weeks except the 8-18 mo (month) category.

skeletons. Preservation was poor to moderate. Fragmentation of the bone was common. The earthenware vessels adapted for use as burial jars were utilitarian and represented typical household goods, according to Barretto-Tesoro (personal communication, 2013). The eight individuals excavated from

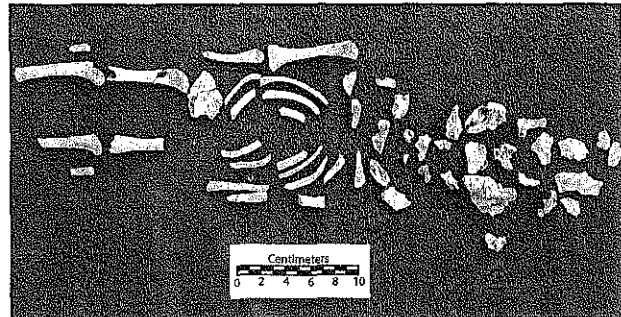


Figure 2. Trench 8, Feature 3 Jar Burial. Note the fragmentation of skeletal elements (A. Lauer, 2013).

burial jars are aged between 24 weeks *in utero* and birth (40 weeks). Every burial jar had earthenware and glass beads.

One burial jar included two individuals, one 28 weeks *in utero* and the other full term (39 weeks). The younger of the two skeletons is represented by a portion of the base of the skull and a portion of the second cervical vertebra. The older individual is represented by a nearly complete skeleton.

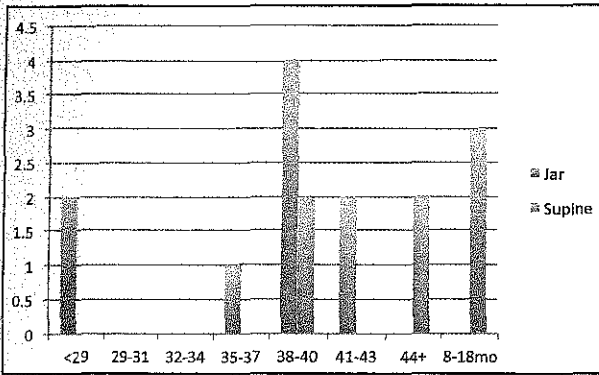


Figure 3. Sub-adult burials by age category and burial style. All categories are in weeks except the 8-18 mo (month) category.

Supine Burials

Three burials were supine interments with arms and legs extended. These burials were of infants aged from birth (perinatal) to 2-3 months. Each of the supine burials had beads at the neck; the beads were made of various materials, including ceramic, glass, and carnelian. The supine burials are moderately, to well-preserved. Burials were situated with the skull to the east with the exception of one chronologically younger burial interred with its skull to the west.

Disturbed Burials

The remaining infant burials are three disturbed primary interments and one isolated portion of a temporal. The three adults identified were all isolated fragments.

The three disturbed primary interments were originally supine extended burials. These burials were all from the same feature. The ages of these burials ranged from 8 months to 1.5 years old. Bead necklaces were found at the base of the skulls indicating the original positions of the skeletons were with the heads to the east. These burials had been disturbed in the prehistoric past to accommodate more burials in the same location.

The isolated adult elements include teeth and fragments of the occipital, metatarsals, and ribs. These were not in association with identifiable features. A portion of a first rib has a cut mark that may be from post-mortem processing.

Burial Process

Single and multiple burials were found at the site. All burials represented by more than a single skeletal element were fetal or infant skeletons. Every burial and all isolated skeletal elements encountered were located below the stone rubble which is used as foundations of Ifugao houses.

Three patterns of burial processes were identified in the Old Kiyangan village site. The first was of isolated skeletal elements, including teeth, bones of the hands and feet, or fragments of the rib, located at the edge of rubble stone house foundations. These bones were recovered from the space between larger stones making up the edge of house foundations.

The second pattern was single interments, either jar burials or supine burials, placed at random below house foundations. In one case, more than one individual was buried in a jar, but the placement of the jar in relation to the house and to other burials seems to have been random.

The third pattern was the reuse of the same space over time for repeated interments. In Trench 9 (Figure 4) two supine burials were placed in such a way that the legs and feet of the second skeleton were less than 1.5 cm above those of the earlier interment. These two burials were capped by a jar burial that was placed there later.

A second multiple burial location was encountered under a house foundation in Trench 8. This area appears to have been constructed in a more formal manner than the Trench 9 reuse area (Figure 5). Initially a sandstone base was laid down and an infant was interred on the base, likely in a supine position. Later, the original burial was moved and two infants were placed on the sandstone base in a supine position. These skeletons were later disturbed, with the legs placed over the upper body and crania, to clear the sandstone base (Figure 6). A jar burial was then placed on the sandstone base.

Discussion

The adult skeletal remains recovered from the Old Kiyangan Village site were recovered as isolated skeletal elements under and within house foundations. In modern Ifugao mortuary practice, adults are placed in tombs and recovered after a period of time, usually after skeletonization. The skeleton is then returned to the family house and the bones are bundled in cloth. The skeletal elements recovered from the archaeological site include teeth, metatarsals, and fragments of ribs. These are small, easily transportable bones and fragments of bone that could have been swept aside and then were lodged in the stones of house foundations. This could have taken place during bundling or handling of the skeletal remains. This pattern exists throughout the archaeological sequence and throughout the site.

The mortuary sequence illustrated by the perinatal skeletons does not have an ethnographic correlate in modern Ifugao. A variety of factors make finding perinatal skeletons from archaeological contexts difficult. Perinatal skeletal remains are fragile and are often lost due to taphonomic or excavation issues (Scheuer et al. 2008). Despite these challenges, fifteen of eighteen individuals (83%) excavated from the site are sub-adults under 1.5 years old.

The Old Kiyangan sample had a high proportion of deaths occurring at or near full term. The small sample size skews the proportion of deaths to full term but this pattern still reflects those found in prehistoric and modern Thai samples, the nearest correlate in Southeast Asia with good prehistoric and modern data (Halcrow et al. 2008). This suggests that the high frequency of infants and sub-adults encountered at the site are a product of preservation and not the product of unusually high prehistoric mortality rates. Unfortunately the small sample size, lack of direct dates on the deposits, and lack of comparative data do not allow much speculation on the prevalence of disease or frequency of perinatal and

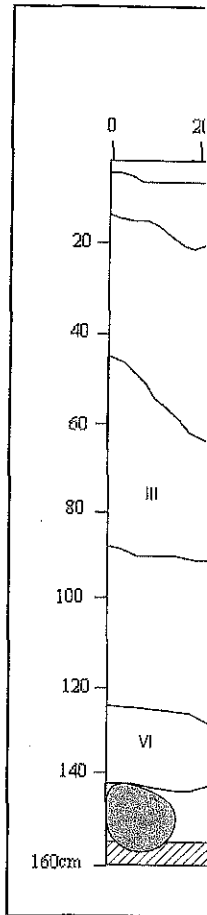


Figure 4. East profile of burials located on the site.

infant mortality in the community. However, despite the small sample size, it shows the prehistoric infant mortality in the community.

The majority of burials (66.7%) were jar burials. If the total number of burials is considered, only 41.7% of full term burials were jar burials. All of the perinatal burials were jar burials. All of the perinatal burials were jar burials and associated stone beads that were found in jar burials or burials in jars or burials in jars to the size of the individuals would be jar burials. A second possibility is a supine position and burials aged 38-40 weeks while four others aged 8-18 months were jar burials. The similarity in the selection of supine burials and the status of the child at

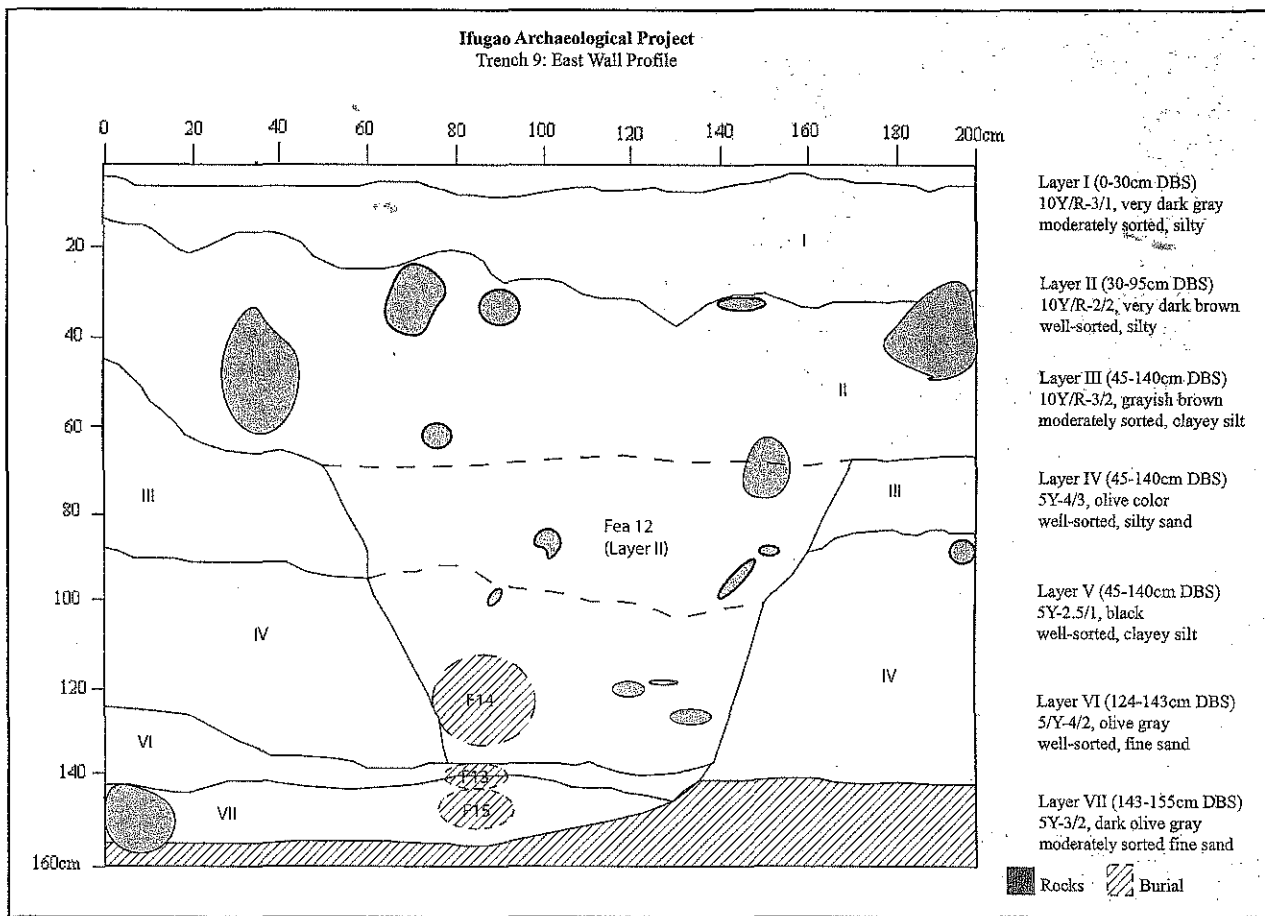


Figure 4. East profile of Trench 9. Note Burial Features 13, 14, and 15 located at the base of the profile. Isolated adult skeletal elements were located on the surface of the unexcavated soil 25 cm south from Feature 15.

infant mortality in the Old Kiyangan village or the Ifugao community. However an examination of mortuary treatment, despite the small sample size, can provide information on how the prehistoric Ifugao conceptualized the place of infants in the community.

The majority of perinatal interments were jar burials (66.7%). All pre-term (<37 weeks) interments were jar burials while roughly half (55.5%) of full term interments were jar burials. If the infants are added to the perinatal totals only 41.7% of full term or later interments were jar burials. All of the perinatal and infant interments encountered were deliberate and associated with groups of ceramic, glass and stone beads that were most likely necklaces. The selection of burial in jars or burial in a supine position may have been due to the size of the individual buried, as older fetal and perinatal individuals would be more difficult to fit in utilitarian jars. A second possibility may be that live births were buried in a supine position and others were buried in jars. Two supine burials aged 38-40 weeks were buried in a supine position while four others aged roughly 38-40 weeks were interred in jars. The similarity in size of these individuals suggests that the selection of supine burial or jar burial was based upon the status of the child at birth.

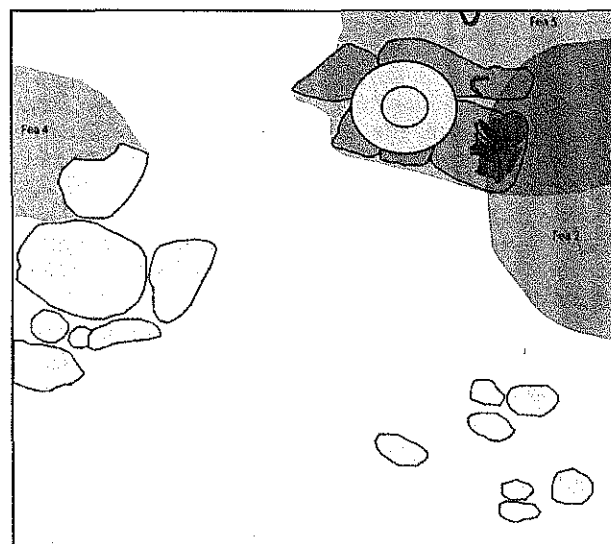


Figure 5. Plan of Trench 8 burial feature (Feature 5). Note the sandstone base with skeletal material relocated to accommodate the burial jar. Feature 2 is a hearth feature superimposed over Feature 5 (adapted from Acabado 2013:183).

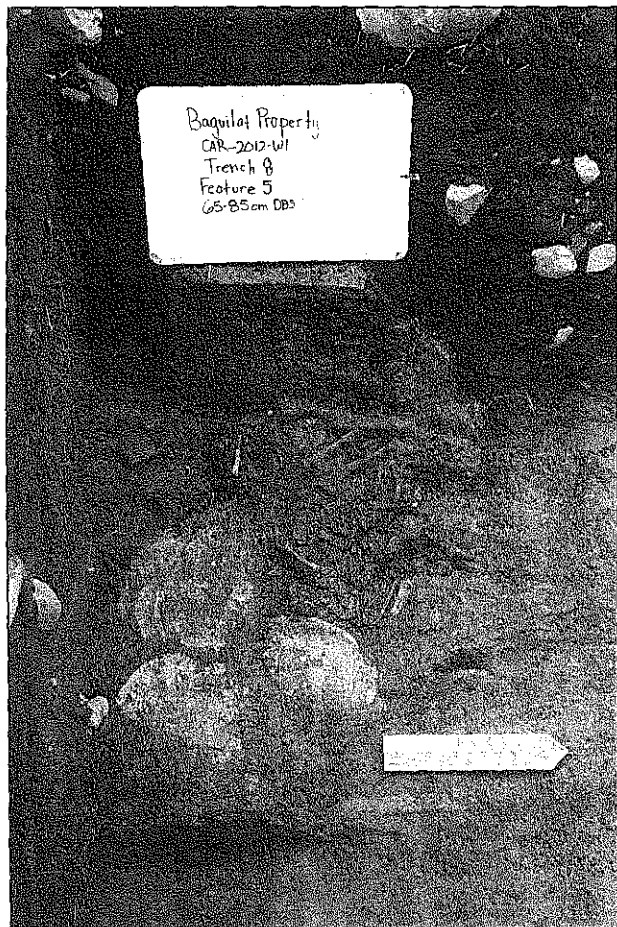


Figure 6. Trench 8 Feature 5, view to the South. The jar burial has been removed. Note the sandstone base and the disturbed burials (Burials T8-1, T8-2, and T8-3) to the west (photo courtesy of IAP 2013).

Both types of interments are used in the two burial patterns found at the site. The most common burial pattern is the random placement of jar burials or supine burials under house foundations. The sample size is small, and because of this, the relationship of the location of the interment to a specific area or side of the house foundation appears to be random. This pattern is found in five of the six trenches where human skeletal remains were interred.

The second burial pattern is one where a single location is reused multiple times, sometimes with the original interments left in place, and other times with earlier interments being relocated to accommodate later ones. This pattern is found in two of the six trenches where human skeletal remains were deposited. The reuse of these burial locations and the preparation of the base of one of those locations suggest a ritualistic use of place. The possible ritual space in Trench 8 shows evidence that the skeletal remains were moved before complete decomposition. The legs of these two individuals were placed on top of the skulls but the bones of the legs were still in their correct sequence after relocation. This may

indicate that once the interment ritual and processes take place the individuals are no longer considered part of the community. This is in contrast to adult community members whose skeletal remains are returned to the community to be actively incorporated back into family and ritual life (Beyer and Barton 1911).

More generally, jar burials and elaborate mortuary processes are common throughout the Philippine archipelago (Barretto-Tesoro 2003; Bellwood and Dizon 2005; Lara et. al 2013; Solheim 1970). This widely shared interment practice combined with evidence of trade goods from lowland areas suggests the Ifugao were integrated into the greater Luzon and Philippine archipelago cultural exchange.

Conclusion

Excavations in the Old Kiyangan Village, an early Ifugao community, have uncovered a number of prehistoric house foundations and associated human skeletal remains. The absence of child burial older than two years of age as well as the absence of adult burials suggest these older individuals were buried outside the village. However the presence of fragmentary portions of adult skeletal remains suggests skeletal processing for secondary burial and the associated rituals take place within the village. These findings corroborate ethnographic information regarding Tuwali Ifugao burial practices.

A newly identified mortuary pattern and burial process for fetal, perinatal, and infant remains has been described. Pre-term and full term perinatal and infant burials were placed in burial jars or buried in a supine position below house foundations. The choice of jar or supine burial may have been due to size or status at birth. Burial processes followed two patterns. One pattern was of random placement below house foundations; the second pattern was the reuse of a specific location for multiple burials. All burials were intentional and associated with necklaces.

This initial study finds new information about Ifugao burial practices. Further analyses of these skeletal remains may allow for a stronger examination of the relationships between health and subsistence change with burial practices, and Ifugao interactions with outside trading and colonizing groups.

Acknowledgments

The authors wish to express their appreciation to the Butic-Baguilat family for providing access to their property and for being stewards of Ifugao heritage. The Save the Ifugao Terraces Movement (SITMo) and the Local Government of Kiangang also provided invaluable support to the project. Thanks are also owed to the SITMo Boys for the fulltime help throughout the duration of the 2012 and 2013 field seasons. Dr. Francisco Datar, Dawn Satumbaga, and Sarah Aguiluz assisted in the preliminary analysis and curation of the Old Kiyangan remains. The National Geographic Society-Committee on Research and Exploration and the National Museum of the Philippines provided financial and logistical assistance to the project.

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