# Early occupation at Ille Cave, New Ibajay, El Nido, Palawan, Philippines: report on the 2005 excavation season

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## Contents

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# Abstract

Excavations were carried out at the East and West Mouths of the rockshelter at Ille Cave, New Ibajay, Palawan, a site comprising a later prehistoric/palaeohistoric cemetery overlying a midden of shell and animal bones, and lower levels with Palaeolithic occupation materials. The 2005 project extended the previously investigated trenches (Szabó et al. 2004; Paz & Ronquillo 2004; Paz 2004), with the aims of: 1) exploring the extent and nature of the later prehistoric cemetery and underlying shell midden horizons, 2) exposing deep burning deposits discovered during 2004 recording of a looter's pit, and 3) collecting further samples for dating and palaeoenvironmental analyses from all horizons to characterise use of the cave and the nature of the surrounding landscape from historic times back into the early Holocene. Additional test trenches were investigated to the south of the cave platform and within the East Mouth chamber, to explore platform history and a gradient exposed in rock shelter deposits during the 2004 excavations. The East Mouth chamber trench also provided an 'in-cave' setting, which was anticipated to reveal different remains and/or preservation environments to the rock shelter area.

All cave trenches produced numerous burials, which appear to date from historic times into the Metal Age, and potentially beyond to the Neolithic. Burials were difficult to phase in the rock shelter trenches due to the nature of the sediment and disturbance from bioturbation as well as repetitive grave digging. In the East Mouth chamber trench, however, clear grave cuts were revealed from near surface layers; this area shows great potential for clarifying the stratigraphy of the cemetery, and for better studying relationships between graves and between grave goods and individuals. Overall, the burials show the Ille cemetery to be both extensive and intensively utilised in the past, with dozens of skeletons revealed within the upper 60cm of both the West and East Mouths. Of particular note was one grave from the East Mouth, in which lain slabs of limestone covered a body with large shell disc beads, a conch, and pig incisor grave goods. This was the lowermost grave of the main cemetery found, and it is possible that it dates into the Neolithic. In the West Mouth, graves with a conch and a stone adze were found that may also date to an early phase, and a dog burial was found associated with a human grave.

The East Mouth trench was excavated beneath the cemetery, down through a series of important shell midden deposits with burnt and unburnt animal bones, oriented on a steep gradient downwards from the cave to the outside. Preliminary study suggests that most of the remains show terrestrial and estuarine resource concentration, and the intensity of deposition suggests repeated and/or long-term use of the rock shelter. The shell midden deposits overlie around 60cm of burning deposits with both intact and disturbed hearth features, zones with chert and obsidian flakes, numerous animal bones (including turtle carapace) and shells, and one cremated human burial, apparently originally in a small container. Radiocarbon dates from the upper parts of this phase range around 9400-11,000 yr. B.P. At the base of these deposits is a thin layer of possibly waterlain mixed gravels with no animal or cultural remains; this layer is similar to a series of thin layers exposed in the off-platform test trench, suggesting some fluvial activity in the front area of the cave. The final layer uncovered in 2005 underneath this 'sterile' layer included animal bones, chert flakes, a possible chert core and a possible carved antler. Given the dating sequence known from the deposits thus far, it is anticipated that this and any lower occupation layers will reveal early Holocene and possibly Pleistocene cultural activities and landscape history.

## Introduction and previous excavations

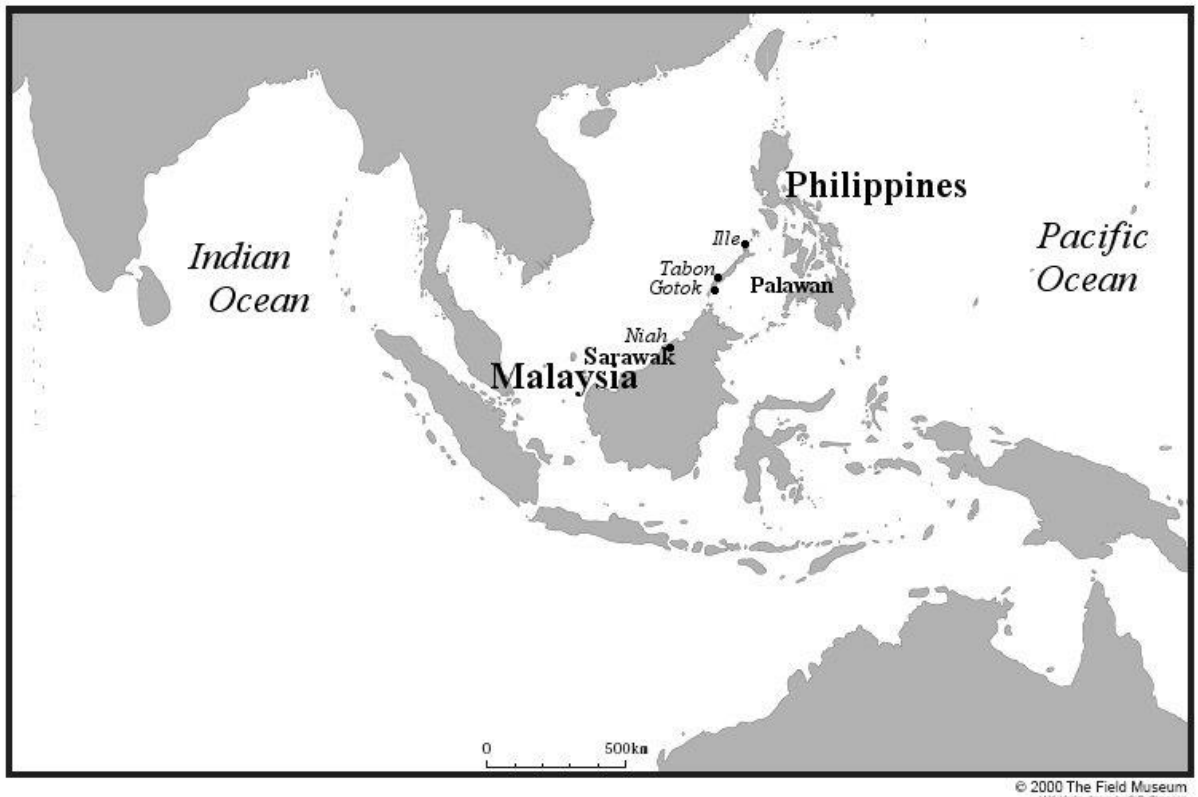
This report describes fieldwork in 2005 at Ille Cave in the Dewil Valley, New Ibajay, El Nido, northern Palawan, Philippines (Figure 1). The cave was recorded as an ancient site by the National Museum of the Philippines in the late 1960s, but saw no investigations until those started in 1998 under the direction of Solheim, focused on the rock shelter at the front of the cave (Hara & Cayron 2001; SEAICE 1999 & 2000; Szabó et al. 2004; Szabó & Swete Kelly 2002; de la Torre 1999; Kress 2002 & 2004; Jago-on 2000). Previous excavations were small-scale, but revealed historic to later prehistoric burials and artefacts (Metal Age to possible Neolithic), underlain by a shell midden and earlier burning and food refuse remains, dating from the earlier to middle Holocene (Szabó et al. 2004). Excavations at the time were stopped at an apparent rock floor located at c. 125-150cm depth, with the earliest dated charcoal producing a *c.*10,500 yr. B.P. date (ibid.). These excavations showed that Ille Cave was an important site, in particular showing post-Neolithic shell bead production and shell working to be a significant activity at the site, and that shell beads continued to be important in the region in later prehistoric periods (Szabó et al. 2004; Szabó 2004).

In 2004 members of the current team, led by Paz and Solheim, returned to the site upon hearing of a treasure hunters' excavation which required archaeological recording, as well as to further sample for environmental analyses from the previous excavations for comparison to ongoing investigations in the region by the Palawan Island Palaeohistory/Prehistory Project (Paz 2004; Paz & Ronquillo 2004; Lewis et al. 2005). The previously identified rock floor of the East Mouth trench was seen to be a rockfall, as it had been broken through by treasure hunters, and further archaeological layers of burning were seen underneath the limestone boulders; these layers were thought to have the potential to take the site further back in time, possibly into the Pleistocene. Palawan Island has several cave sites of great potential significance for archaeological studies of early human occupation in Island Southeast Asia, including Tabon Cave, which has produced the earliest modern human remains in the Philippines (c. 33,000-47,000 yr. B.P. - Dizon et al. 2002; Dizon 2003). With the finding of deeper burning deposits under layers dating to the earlier Holocene, which could potentially mark the upper part of a long occupation sequence, it was decided to pay further attention to Ille Cave, and the present project was established jointly by Paz, Lewis, Solheim and Ronquillo to carry out further investigations. Other results of 2004 surface excavations in the cave are reported by Paz & Ronquillo (2004); in general, those investigations confirmed that the cemetery is extensive, with skeletal remains discovered in trenches immediately adjacent to the 2002 excavations. These trenches formed the basis for the 2005 excavations (Figure 2).

Ille Cave is a solution cave located at the southern side of the base of a c. 25m high karst tower near the village of New Ibajay (119°30´19´´E; 11°11´46´´N). Its main entrance comprises a rockshelter with two cave openings, joining together into a chamber that leads into the tower (Figure 2) (Paz & Ronquillo 2004). Outside the rockshelter is a relatively flat platform extending between 3 and 15m to the south along the southern face of the tower; this is protected from sunshine and rain by an overhang of around 10m (Szabó et al. 2004), making it a relatively comfortable place to be in all seasons. A topographic study of the platform outside the cave mouth in 2000 measured over 450 square meters of 'usable' space, and suggested that a long north-south running trench should be excavated in order to determine the sedimentary history, stratigraphy and depth of cultural materials in the platform (Pawlik 2004). The platform ends with a sharp, but short gradient onto very gradually sloping ground covered with old cashew nut trees and some secondary forest. Other entrances to the cave complex are located higher up the karst tower, including one that leads to a

route to the summit of the tower. From the summit, other karst towers are visible in the immediate area, including the nearby Makangit and Sinalakan outcrops, which are known to possess cultural remains (Teodosio 2004; Cayron 2004), and have been studied for palaeoenvironmental information from guano deposits (Bird et al. forthcoming). The local area is dominated by the floodplain of the Dewil River and its tributaries, and is currently covered by rice paddy fields, tree and vegetable crops and secondary rain forest. The sea is visible in Sibaltan Bay from the top of the karst tower, lying some 4km to the east (Paz & Ronquillo 2004).

**Figure 1 The location of Ille Cave and other caves mentioned in the text**




## Aims of the new investigations

The 2005 excavations mark the beginning of a 3-year phase of new work at Ille Cave, aiming to explore a series of questions raised by the previous investigations, as well as issues arising from new research in other parts of the region. With the discovery of deep in situ hearth deposits in 2004 (Paz & Ronquillo 2004) it became an urgent matter to protect the site from further treasure hunting, and to investigate these Palaeolithic occupation remains in light of earlier findings from Tabon and other caves in Palawan (Fox 1970; Dizon et al. 2002), as well as ongoing work focused on early foraging communities at Niah Cave in neighbouring Borneo (Barker et al. 2002). As such, the first aim of the new investigations was to determine the extent, character and age of these early occupation levels primarily by expanding the excavated areas, characterising their cultural deposits, and carrying out a dating programme. These levels are very exciting for understanding how people lived in the landscape, and how, when and why they utilised cave sites during the later Palaeolithic, as well as how major global and regional changes (e.g. climate change associated with the end of the

Pleistocene; sea level rise in the mid-Holocene) influenced life in the region. Since Palawan is known for early human remains, as mentioned above from Tabon Cave, we are also interested in going deeper at Ille Cave, although our first season focused on expanding the excavation areas down to the level at which the pre-rockfall burning deposits were identified.

Since a relatively deep sequence was now expected, a second goal was to arrange for further dating, and to bring in additional approaches being applied to other sites in the region. These include approaches to ancient environment, diet and technology, such as pollen, soil micromorphology, starch, phytolith and specialist faunal remains analysis, as well as additional specialist human remains studies to better understand the cemetery and the people who created it. Full collection of the shells from the site was arranged to begin to develop a good database for interpretation of the shell midden, palaeoenvironment and human diet and mobility in the past. An ongoing third aim of the new excavations was to better understand the later material culture, in particular the pottery and bead typologies and the relationship of this site and Palawan Island to the rest of Island Southeast Asia in later prehistoric and historic periods. As such, we were very interested in fully excavating a representative area of the cemetery and the underlying shell midden, and in exploring any variation between the two mouths, and dedicated the 2005 season to recovering as much information about these layers as we could within our remit. Finally, we also aimed to begin to address issues regarding the physical landscape and sedimentary history of the cave, including beginning the work to put a transect through the entire platform and into the cave, exploring the land immediately off the platform, and developing some of the comparative collections needed for palaeoenvironmental and sedimentary analyses.

In 2005, the previously opened small excavation and treasure hunters' pits in the East and West Mouths of the rockshelter were expanded, one trench within the cave entrance was further examined for cultural remains, and a new trench was begun inside the cave chamber (Figure 2). Other work carried out included the excavation of a new trench outside to the south of the platform, sampling for starch remains from a nearby rice paddy field trench excavated in 2004 (Figure 3), and preliminary post-excavation analysis of faunal and human skeletal remains, as well as artefacts found at the site during 2004 and 2005. This season's work has gone a short way to addressing Pawlik's (2005) call for more extensive excavations targeted at specific research questions; we aim to address his concerns further in the next two seasons. Excavation was carried out using trowels in twenty centimetre spits per square, until a feature or new layer was encountered, upon which time excavation was carried out by context. The only exception to this was the new southern trench off the platform, which was excavated by digging stick and trowel in twenty centimetre spits.

Twelve East Mouth squares (W2N1-N2-N3-N4(ThPit), W3N1-N2-N3-N4(ThPit), and W4N1-N2-N3-N4) saw continued excavation, carrying on from the 2004 season. In 2004, burials were seen in these squares from 10-40cm depth below datum, agreeing with the 2002 findings of Szabó et al. (2004), and it appeared that this area could have been part of an extensive ancient cemetery that may have been in use for some time. In the 2005 excavations this series of burials was still encountered, down to the level of 60-80cm below datum (see Lewis et al. and Lara below). At the West Mouth eight new squares were opened adjacent to the west side of those dug during 2004 (Figure 2) (see Kress and Medrana below).

# The East Mouth excavations 2005

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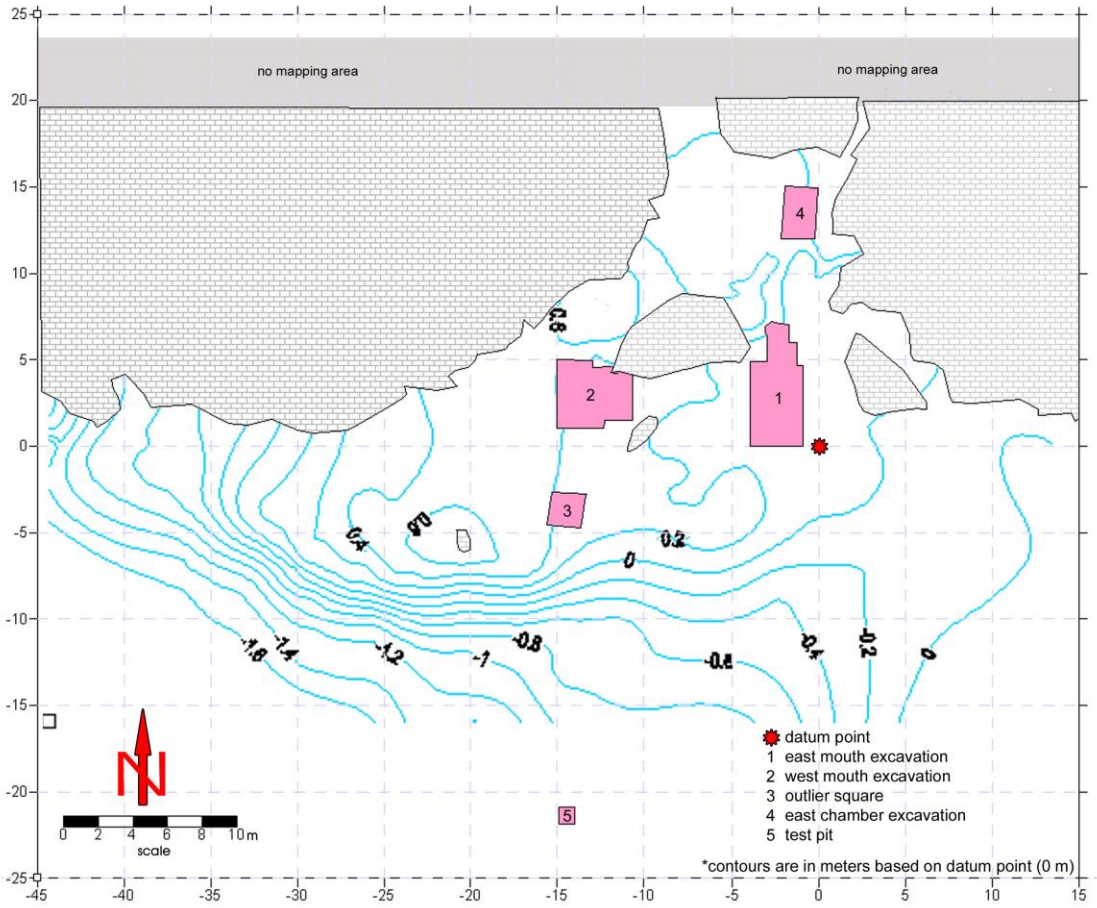
The East Mouth trench extends to the south from the previous excavation (Szabó et al. 2004) and the Treasure Hunters' Pit (Paz & Ronquillo 2004) (Figures 2 & 3). The trench was excavated to a level of 200cm below datum, and comprises squares W2-4/N1-4. Burrows, usually of termites, were observed in the first 60 cm below datum throughout the East Mouth, becoming rare with depth, although even in the 140-160cm level of W2N4, burrows were still observed. Roots from a nearby Ficus tree were also intruding into the squares excavated. Untransformed roots with a thickness of around 2cm were still found in the 140-160 level of W2N3 (Carlos 2005).

**Figure 2 Plan of areas excavated at Ille Cave 2005**




The previously reported sequence in the East Mouth was of silty topsoil containing post-Neolithic artefacts and bone, and a thin layer of burnt shell (Layer 1; 0-<10cm), overlying two burials in a similar deposit (Layer 2; 10-55cm). Artefacts included glass, stone and shell beads, stoneware, Chinese tradeware and earthenware, and several metal rings. The shell working evidence is particularly important, showing the significance of shell beads in post-Neolithic contexts (Szabó et al. 2004; Szabó 2004). These two upper layers were highly disturbed through grave digging activities, as was the upper part of the underlying shell midden and silt layer (Layer 3; 55-85cm) with bone and some earthenware. The midden overlay a yellow-brown silty clay layer (Layer 4; 85-

**Figure 3  Map of the Ille Cave area excavations in 2004, showing elevations and the location of the rice paddy trench**

120cm) with tiny flakes (reported to be possibly chert), shell and bone. The deepest layer excavated was considered to be a 'natural cave deposit', of silty clay with terrestrial snails, bat bones and decomposing limestone cobbles; no cultural remains were found at this level (Layer 5; 120-150cm) (Szabó et al. 2004). The lower three layers produced a decent radiocarbon sequence from these excavations (although with some mixing), running from around 5500 to 10,500 cal. yr. BP (ibid.; see Lewis below).

This upper sequence is similar to that seen in the 2004-5 excavations (Figure 4; Table 1). The upper unit comprises light greyish brown silt which includes surface deposits (<10cm) and then burials, isolated human and animal bones, some shells and potsherds, and is somewhat disturbed by the digging of graves, rooting and faunal turbation, including termite burrowing. This level is the equivalent of Szabó et al's Layer 2. A total of fifteen human burials and some isolated human remains were excavated and retrieved, mostly from a depth between 20 and 40cm below datum point in the East Mouth, with some of these burials, especially at the northernmost portion of the trench, cutting into the shell midden layer (e.g. burial 754). An additional four burials were exposed and left embedded in the trench walls, two at the east wall (northern edge) and two at the west wall (southern edge). All burials found in the East Mouth excavations are listed in Table 2.

**Figure 4 West-facing profile of East Mouth excavations, showing slope of layers associated with the shell midden from north (inside cave) to south (outside cave). This slope reduces with depth. At the southern part of the trench is a series of rockfalls intermixed with shell midden layers**

**Table 1 Main contexts and generalised sequence in the East Mouth**

| | | |
|---|---|---|
| Layers 1-2 As in Szabó et al. (2004), with frequent burials (see Table 2), and the following: | | |
| | 700 Cut of small pit | |
| | 701 Fill of small pit | |
| 727 | Burial with beads, conch, tusks, overlain by stones | **BURIALS** |
| 741 | Shell line bedding east | |
| 732 | East of 727, layer of red silt bedding to east | |
| 733 | West of 727, layer of red silt underlying 732 | |
| 802=803 | Shell layer in west section, bedding south | |
| 731 | Pile of crushed shells, overlying rock fall (physically) | |
| 789 | Crushed shells over rock fall | |
| 745 | Crushed shells bedding south, possibly fallen off 332 | |
| 747 | Layer of red silt, west of rock fall | |
| 746 | Red silt, bedding south | |
| Rock falls (no number) | | |
| 771 | Crushed shells under rock fall, in south end | |
| 332 | Shell midden (main layer); (=390 = Layer 3) | **SHELL MIDDEN LAYERS** |
| 334=718 | Silt under shell midden, organic (=391 = Layer 4) | |
| | 763 Hearth within 718 at 150cm W3N2 | |
| 759-760 | Silt layer with stone layer [760] of small pebbles | |
| 758 | Cremation on top of 336 stone | |

336 Reddish-brown, with melted limestone slabs, hearths & burning deposits (=392=Layer 5)
- 764 Cobbles within 336 140-160cm W2N4
- 778 Dark brown silt with crushed shell
- 771 Dark brown silt, frequent animal bones & turtle shell

769 Layer of melted limestone extending across trench (within 2004 context 336)

784 Similar to 336, but with more intact stone piles, surfaces and hearth remains (= 337)
- 768 Hearth/activity area; stones, frequent charcoal, possible charred seed, burnt bones, chert
- 790, 797, 801 Burning & stone arrangements; 790 had chert flakes
- 850 Similar to 336

338 Clay-rich layer with frequent small limestone boulders

807 Interface between 784 & 806; rock fragments, large animal bones, shells **HEARTHS**

806 Hard, compact orange clay, with fragments of rocks of many colours, no archaeological or faunal remains. Considered to be 'sterile' **WATERLAIN**

866 A layer with animal bones, possible worked deer antler, chert flakes and a possible chert core **LOWEST CULTURE LAYER EXPOSED**

Although no grave cuts were seen for most burials, Carlos (2005) notes that two burials in the west and east corners of square W2N1 (contexts 713 and 710) were lying on top of 6-7cm thick layers of very hard, compact, dark brown clay, in a matrix of orange brown silt. The compact soil did not extend to the sides of the skeletons, only occurring below them. Although the east side of the trench (the N1 strip) was generally more clayey than the rest of the trench, that does not explain these compact lenses, which could relate to grave cuts for the burials, or possibly be an effect related to the decomposition of the bodies. There was, however, one definite grave cut observed, near the skull of context 703. The skull was lying on its left side, and the sediment immediately near the skull was dark brown in colour while the rest of the matrix was orange brown. If this does mark a grave fill, it suggests the grave cuts were small, perhaps exactly to accommodate the bodies; this is similar to what was found in the chamber excavations (Piper & Hernandez, below). In context 711, a juvenile skeleton's head and feet were higher than the rest of the body, suggesting the grave was not long enough for the body to be laid flat. Very few definite grave goods were found, and only rarely in direct association with individuals, but burial 713 did have a copper ring on one finger bone. A second copper ring was similarly recovered in a burial in the West Mouth (see Kress et al. below) (Carlos 2005), and these, along with Szabó et al's findings (2004) confirm a Metal Age or later date for most of the cemetery. The skeletal remains are discussed by Lara below.

**Table 2 Burials in the East Mouth**

| Context | Grid | Depth (cm) | Description |
|---|---|---|---|
| 224 | W4N3 | 24 | Infant burial with heavy commingling of adult bones, cranial bones heavily fragmented. Burial associated with large shell fragment |
| 488 | W2N2 | 40 – 60 | Same as 709 |
| 489 | W2N2 | 40 – 60 | Burial with cranium missing. 488 and 489 are one and the same burial. 488 is the western half of the burial, while 489 is the eastern half. |
| 702 | W4N1 | 15 | Underlies 700 (pit at south end of W4N1) |
| 703 | W4N2 | 30 – 50 | Burial with grave cut around skull at NE section of W4N2. Burial oriented N (feet at N, head at S) |

| | | | |
|---|---|---|---|
| 704 | W4N3 | 23 | Adolescent burial long bones fragmented and arms positioned by the pelvic area |
| 706 | EAST MOUTH | NO LOG | Loose light brown matrix of shells, sherds, human and animal bones, and root intrusions |
| 707 | W4N3 | 40 | Burial exposed at the west section of W4N3. Burial oriented N (feet at N, head at S) |
| 708 | W2N2 | 40 | Complete infant burial with arms positioned at the pelvic area at SW wall of W2N2 |
| 709 = 488/9 | W2N2 | 40 – 60 | Burial at the centre of W2N2, underneath 484 ("Queen of Palawan"). Oriented North (feet at N, head at S) |
| 710 | W2N1 | 52 | Infant burial with arms positioned at the pelvic area. Burial is oriented N (feet at N, head at S) |
| 711 | W4N1 | 36 | Juvenile burial with feet and arms higher than torso |
| 712 | W3N3 | 30 – 50 | Body, mandible, incomplete set of teeth, probably fossilized |
| 713 | W2N1 | 55 | Burial with copper ring on finger recovered at the eastern section of W2N1 |
| 722 | W4N1 | 31 | Tibia and fibula (with other heavily fragmented human remains) associated with an iron implement |
| 723 | W2N1 | 60 | Adolescent burial below 710 (burial at eastern section of W2N1) is ~6cm below 710's leg area, and ~9cm below 710's lumbar area |
| 727 | W2N1 to W3N2 | 80 – 90 | Burial (with clear cut) underlies a line of stones and with shells as fill and lining, with 2 shell beads, a conch, and 2 opercula |
| 734 | W2N5 | 39 | Young adult with left hand on lumbar area and right hand on sacral area, oriented N and cuts through shell midden |
| 748 | W2N4 | 26 | Unretrieved burial at NE wall of square where only the left side of the body is exposed |
| 758 | W4N3 | 130 | Human cremation retrieved in circular/conal pit, in "Late Palaeolithic" level |
| 761 | W3N4 | 46 – 47 | Scapula with metal |

However, it is possible that there are Neolithic graves in the cemetery. The lowermost grave in the cemetery unit exposed in the East Mouth was burial 727. This burial was found underlying a line of placed limestone slabs and small boulders at 60-80cm depth below datum in W2-3/N1-2. The burial cut into two silty deposits (contexts 733 & 734), and occurred at the same level as, but stratigraphically later than, the top of a 'pile' of broken shells over a rock fall just to the south. This grave was notably different than most of the others, both in grave furniture (stone covering) and in grave goods. The body was placed with several interesting articles of adornment, including two sets of shell disk beads on the arms (apparently attached to clothing or as bracelets) and further shell beads, a conch, and pig incisors placed near the hands and waist (Figure 5). The arrangement of these articles suggests jewellery/costume and/or 'ritual' placement. Burial under a line of stones is also a rare arrangement in the region. This grave is discussed further below (Lara).

| | |
|---|---|
| **Figure 4 Burial 727 after removal of the stone covering, and some of its grave goods** | |

| | |
|---|---|

The cemetery level is underlain by a layer of shells (Context 332; Figure 4), which is clearly a midden (Szabó et al.'s Layer 3; Context 395 in ThPit 2004), and includes frequent broken bivalve and gastropod shells, frequent animal bones (including burnt animal bones) and rare shell beads. The shell midden is not a flat layer, nor did it include pottery remains, unlike what was exposed in the small area excavated previously (Szabó et al. 2004). Indeed, the midden slopes quite steeply away to the south, going down to 190cm depth at the southernmost exposure, and rising up to less than 30cm below the surface at the northernmost exposure just inside the mouth of the cave. The flat platform existing at the surface today is evidently a product of post-midden sedimentation and additions of human burials. Pottery ends at around 50cm depth, and it seems clear now that the ceramics noted by Szabó et al. (2004) at around 50-60cm depth (in the top of the shell midden just inside the cave mouth) are probably intrusive and related to the burial level, which, with the exception of context 727, ends at around 40-60cm depth, horizontally, across the platform.

Shell midden layers both overlie and underlie a group of fallen rocks. Several large limestone boulders were found, many of which were surrounded by tightly packed finely broken shells, burnt and unburnt animal bones on all sides. At this level the midden interdigitates with and overlies several silt layers (733, 734, 747). In some places it appears as though a pile of shells has slid off the top of the midden, appearing as tip lines separated from the main midden layer by lenses of silt. In other places the various shell lines could be in primary locations; there appear to have been several middening episodes. Several limestone and possible quartzite worked flakes were found in these layers. Shells from the midden were collected through excavation and sieving in a targeted 100% collection policy. All shells were washed and counted on site, but it was not possible at the time to carry out detailed study of the many thousands of shells collected; this collection has been stored at the site for future identification and analyses.

Kress (2005) suggests that the shells from this layer were almost exclusively freshwater varieties. Preliminary analysis conducted in 2003 revealed that the *Batissa* and associated species varied little in size, compared to the collections from the overlying midden deposits, in which the range of shell dimensions was great, at least in the higher levels. This observation appeared to hold true during the 2004 excavations, but the distribution of shells changed dramatically. There were both vertical and horizontal areas in which there were very few or no shells, and others in which only large, mature *Melanoides* shells appeared. Some previously unobserved freshwater snails also appeared in profusion in the deeper strata. At present the changes in size distribution and the apparent uniformity in size noted in the Palaeolithic levels can be interpreted as seasonal exploitation, selective foraging habits and/or a smaller population putting less pressure on local resources (Kress 2005). Further detailed analysis of the excavated shells, including studies in the growth patterns of the molluscan species involved, will shed light on patterns in the foraging habits of the Palaeolithic population.

When the rock falls were exposed at the southern end of the trench, a small flat limestone slab was found leaning against one of the boulders. The upper face of this stone was a smooth depression, with five diamond shaped grooves apparently cut or ground into it (Figure 6). These grooves resemble some sort of sharpening or grinding pits, but the issue of whether this stone represents portable art and/or manufacturing or 'pointing' pits remains to be decided, and will be discussed further in future reports. A further unit of brown, compact clayey silt (context 718 = 334 from 2004 excavations; Szabó et al.'s Layer 4) underlies these layers in some areas of the trench, and with depth all of the silt layers become much more clay-rich, presumably related to local limestone weathering and leaching from higher up the sequence. The layer of brownish silt under the shell midden also slopes down sharply towards the north, and must have given the contour for the shell midden above it to follow.

**Figure 6 'Diamond' shaped incisions in stone leaning against boulder under/within shell midden layers in the East Mouth**

At a depth of 80-120cm a clayey silt layer rich in decaying limestone was found (Contexts 336-769-784), with frequent oxidized limestone pebbles (some apparently burnt), charcoal, burnt and unburnt animal bones and shells, oxidized and reduced clay (some possibly burnt) and occasional chert and obsidian flakes. This layer continued in the northern end of the trench to a depth of almost 2m below datum, and several contexts at the deeper levels (e.g. 771, 778) produced frequent small animal remains, some burnt, including pig toe bones and several fragments of turtle carapace. This part of the sequence includes an almost continuous layer of 'rotten' limestone running across the entire trench (Context 769), with a slope down to the south (out of the cave), but a much more gradual gradient than seen in the shell midden. Because of the slope of the cave entrance deposits exposed, it is now clear that this phase is separated from the overlying shell midden by at least 25cm of silt along with rock fall deposits. The current dating of 7000-9000 yr. BP for the shell midden and 8000-10,500 yr. B.P. for charcoal originating from silts just under the shell midden (Szabó et al. 2004), makes a good sequence, and it could be argued that this lower, thick layer of burning and cooking deposits could predate 10,000 yr. B.P. by quite some time. A preliminary set of radiocarbon dates on charcoal from the uppermost of these layers shows a range around 9,000-11,000 yr. B.P. (Lewis below); as such, the deposits dated thus far appear to show a series of intensive cave occupation remains, including in situ burning features dating from the early Holocene, and a shell midden from the early to middle Holocene.

This layer extends the deep hearths and 'surfaces' found in 2004 at 150-200cm depth in the Treasure Hunters' Pit (Paz et al. 2004); contexts 769 (decayed limestone layer) and 784 are both part of context 336 as it was first identified. In addition to the 30-50cm thick layer of disturbed burning and cooking deposits, we found four in situ combustion features, including two hearths with in situ burning evidence and extensive burnt animal bones, one probable hearth, and one lens of clean ash. Two further hearths were identified in 2004 (Paz et al. 2004). Several further features, comprising arrangements, 'surfaces' and/or piles of oxidised and burnt limestone pebbles were also identified in this

layer (contexts 801, 768, 790). The burning and cobble features were associated spatially (both horizontally and vertically) with finds of small chert flakes and rare tiny obsidian flakes, suggesting that knapping of lithics was also carried out during this time at the cave mouth. At one location (W2-3/N3-4) it is possible to suggest repeated or long term use as an 'activity area', where the greatest concentration of stone features, hearths and lithic working debris was found, along with deer antler (in 2004), and charred and uncharred faunal remains, including some shells. Typical of these contexts, in situ hearth 768 produced frequent large charcoal fragments, one possible charred seed, turtle carapace and animal bones, including possible pig teeth. These contexts also produced molluscs (including *Batissa* sp., venus clam, murex, *Melanoides* sp., *Telescopium telescopium*), rodent remains and crab dactyls.

Kress (2005) states that the flake tools, particularly those of obsidian and chert, were uniformly very small, and had apparently been continually reduced by bipolar flaking until they were almost too small for use. Rare broken blades have also been recovered. This industry at first bears a strong resemblance to Fox's small flake-and-blade assemblages collected in the Quezon area in the 1960s (Fox 1970). However, it is important to remember that in the area around the Tabon Caves chert or flint nodules are fairly common and flint tools are abundant at several Palaeolithic sites (Kress 2005). In the Ille area these materials, particularly obsidian or any other material with an easily workable concoidal fracture, are apparently nonexistent, imported probably at great expense in terms of local resources and extremely valuable. It was obviously necessary to use the material to exhaustion. It is quite possible that the similarity between these two Palaeolithic cultures is superficial. Unfortunately, Fox's flake-and-blade culture has yet to be adequately described in terms of knapping techniques and use for meaningful comparisons (ibid.).

In square W4N3 at the surface of this phase (130-148cm below datum), at the interface between 336 and overlying 334, we found a unique burial context (758). An intact human cremation was found as a pile of bones, evidently originally within a small container of some sort, on top of a block of decayed limestone (Figure 7). The location of the cremation is interesting, sitting on top of a limestone rock, with patches of the same stone found above it as well. Carlos (2005) suggests that a hole was dug through the rotting limestone for the cremation, but it could also be that the remains were held in a small container (of some now disintegrated organic material). The bones were burnt, but not fully whitened, and the outsides remain black. Given the dating sequence thus far (Lewis below & Szabó et al. 2004), this would appear to be a pre-Neolithic cremation. The possibility that this represents cooking remains (cannibalism) was considered, but seems unlikely since very few typical middening remains were associated, including no directly associated charcoal or shells and only few animal bones. Cut marks have been identified on some of the bones (see Lara below); preliminary analysis suggests that the deposit represents the collection of defleshed and charred human remains from one individual. Some burnt and unburnt human bones were also found in the northern part of the square, from around 125cm below datum. Further discussion of these remains is given below (Lara), but details await further osteological analyses. An apparently uncharred human bone was taken from the context for radiocarbon dating at RLAHA in Oxford;

unfortunately the bone did not contain enough protein to provide a date (Tom Higham, pers. comm. 2005; see Lewis below).

**Figure 7 Stack of charred human bones on top of limestone slab; Context 758**

The lower layers excavated produced some interesting sediments. Layer 806, a layer rich in clay, included fine gravels of many colours, similar to those seen in layers at the base of the Test pit excavated to the south of the platform (Robles & Ragragio below). The relationship between these gravels will be explored in the 2006 season. The context also contained fine layers of silt and clay, and no artefactual or faunal remains, and is currently considered to be 'sterile'. This layer was overlain by context 807, at the interface between 784 and 806. Layer 807 also contained small angular stones, but not as frequently as in 806, and contained several larger animal bones along with shells.

Most interesting, however, was context 866, which underlay the 'sterile' 806. This layer contained animal bones, possible worked deer antler, chert flakes and a possible chert core. Given the 'sterile' gap with possible water lain deposits overlying it, the finding of faunal and cultural remains in this layer is very exciting; this layer requires dating and will be a focal point for the 2006 season at the East Mouth.

# Preliminary observations on the East Mouth cemetery sequence and human remains

**Myra G. Lara**[7]

***'Recent' Burials***

Of the fifteen burials, seven are sub-adults, including one neonate, one juvenile and the rest are children. Sex determination on the adults is yet to be carried out. There were several isolated bones found at the level of the burials but only two were given context numbers owing to the greater significance that they might impart: one is a human adult scapula lying close to an iron implement (probably a blade), the other a mandible lying close to animal bones, all encrusted in calcium carbonate. The latter might be significant, possibly suggesting the group of remains has come from deeper, older layers, but closer scrutiny of the state of preservation of the human teeth and the mandible's morphology is needed.

All burials are supine and extended and, except for one (context 713), oriented east-west - Medrana 2005), are oriented with the head towards the south and the feet to the north; the south is the direction of the cave mouth, and it might be significant for future excavations to reveal whether the burials are oriented by cardinal directions, or simply following the local landscape and facing the cave mouths. There are three ways in which the arms are observed to rest: one is where both hands rest on top of the pelvic/lower lumbar area with the elbows slightly flexed; another is where the hands are placed just below the clavicle

[7] Edited from Lara 2005.

area (each on its own side of the body) with the elbows tightly flexed; the third is a combination of these two: one hand on top of the pelvis/lower lumbar area and the other hand on top of the opposite clavicle/sternum. All bones are generally poorly preserved, with soil infiltrating the spongy portions, leaving only the outer compact bone intact (thus, the shapes of the bones and their integrity are only given by the soil matrix and the bones easily break up upon brushing or lifting). Root infiltration and insect burrowing, particularly by termites, has also contributed to their poor preservation.

There were no clear grave cuts observed among the burials either in plan or in section, except for one (703), whose grave cut was only observable in plan at the west side of its head portion (see Lewis et al. above). That there were no obvious cuts observed for the burials does not mean that the remains were not buried, for had they been left on the surface not much would have been preserved in articulation owing to animal scavenging and other physical taphonomic agents, such as rain and flooding. Also, the absence of clear cuts does not indicate that the remains were inhumed at the same time in one big pit. One reason for this observation is that there are many indications that there were extensive ancient excavations made into this layer. There are clear indications of burials disturbing underlying burials, with the absence of parts of skeletons in many burials due to post-mortem activities, and the presence of other human bones found commingled with many burials. For example, Burial 489, with its cranium missing post-mortem (all cervical vertebrae were left intact in the grave and loose teeth were found at the neck area), was probably disturbed by an overlying burial (context 709), which had three extra crania associated with its grave. However, some of the burials with commingled human remains might include bones already disturbed by previous grave digging, e.g. Burials 224 and 704 have commingled human remains in their graves but there seem to be no skeletons close to them that have missing body parts. There are also bones that lie isolated which, most probably, were originally parts of primary burials. Another reason for the observation that the remains were not inhumed at the same time is that at least one burial has an obvious grave cut (Burial 703, mentioned above).

In most burials, no artefacts were found in direct association with the skeletons, except for one (713) in which a copper ring was found still worn on one of the 2$^{nd}$, 3$^{rd}$ or 4$^{th}$ left proximal phalanx (determination of the exact finger bone will follow during lab assessment of the skeletons). Many of the burials, however, are intermixed with animal bones, potsherds and shells, in addition to other human bones. The inclusion of potsherds in the graves might indicate that the sherds represent grave goods, either from their adjacent burials, or from disturbed older burials. A further option is that the potsherds had been formerly used in other functions, such as food storage or cooking, and their presence could represent disturbance of some earlier context by the cemetery (such as former habitation activities, or jar burials on the surface – see Kress below). At the present time, no burial with a definite grave good of pottery has been identified. And interestingly, no potsherds were found either within or underlying the shell midden layer (*contra* previous excavation results - Szabó et al. 2004). It is clear then that whatever the source of the potsherds intermixed with the burials, it is not in or deeper than the shell midden layer.

There were no jar burials found at Ille Cave through excavations, although there are reports (particularly from El Nido resident Gloria Fernandez) that there used to be jars

inside the cave. One jar lid was found in 2005 in the West Mouth (see Kress below), but without an accompanying jar burial. Probably some of the potsherds found in the East Mouth are traces of jars (see Kress below). It remains, of course, for pottery specialists to examine the types of potsherds found in the graves to settle these speculations.

***'Neolithic' burial***

A burial associated with shell ornaments was found at a level of 60 to 80cm below datum point. The burial belongs to an adult, probably male, and had the following artefacts associated with it: two pairs of large shell disc beads (ground bottoms of conch shells) with each pair found in proximity to each of the left and right forearms and could have been used as beads attached to them; a further single shell disc bead found near the waist; a group of smaller shell beads and pig tusks (one large male incisor and one small female incisor), all apparently within some sort of pouch, since degraded, found underneath the pair of shell discs for the left forearm; a large partial conch shell (upper half cut or ground off to leave a receptacle-like lower half of the shell) found at the right lower rib area; and three flat rounded stones found in proximity to the conch shell and shell discs for the right forearm, one underlying the lower spine.

The burial was found at the southernmost portion of the trench (Squares N1-2W3-4) underneath a line of limestone slabs ranging from 20 to 40cm in size. The skeleton was laid within the brown silt overlying the shell midden, but might have cut the shell midden on its foot area. It appeared to be resting on a 'lining' of shell (Medrana 2005 states *Batissa* sp.), although this was difficult to determine for certain. Upon discovery, the fractured distal end of a left femur was sticking out of the northernmost rock, while, under the rocks, the whole skeleton was found supine but slightly tilted to its left portion, which is a few centimetres lower than the right portion, with head facing the west; these positions or depositions might have been artefacts of the weight of the stones. As in the burials at the upper level, this burial is oriented with the head towards the south or cave mouth direction. The left elbow is slightly flexed for the left hand to rest over the right lower rib area close to the large conch shell (*Turbo marmoratus* – Kress 2005), while the right elbow is tightly flexed for the right hand to rest at the right upper rib/chest area. Finger bones from the left hand were found both over and under the conch shell, giving the (perhaps erroneous) impression that the hand was holding the shell. Kress (2005) suggests that two of the four shell disks which were relatively large (c. 6.5cm in diameter) were manufactured from a large variety of *Conus*, possibly *C. leopardus*.

The burial is intermixed with shells, animal remains and some human remains that are not part of this skeleton. Interestingly, there were no potsherds found within the grave and many of the animal and human remains found intermixed are blackened (charred), such as were seen to be only abundant in deeper layers of the site (see Lewis et al. above). Some of the shells could have been placed intentionally as they lay in between the body and the rocks overlying it. Although the inclusion of grave goods (shell beads and pig canines) as well as the type of deposition of the body (overlain by rocks and the depth of the burial) seem to suggest that this burial is separate in time and tradition from those at the 20 to 40cm level, the position of the hands and orientation of the body is similar to them, suggesting some continuity of practice or belief.

The whole skeleton is encrusted in calcium carbonate, which also bound many of the bones together. The skull is badly fragmented, again most probably from the weight of the stones, with the maxilla and mandible having been displaced more anteriorly (if anatomical positions are considered) or further to the west (if positions in the grave are considered). The left femur is fractured at the distal end by post-mortem activities (some of which were incurred during excavation) with approximately the distal 5$^{th}$ missing (including the condyles). The whole left tibia and fibula, and the left foot are also missing. In addition, the whole right leg (meaning the right femur, tibia, fibula and foot) is missing. The right femur seems to be missing through post-mortem activities as no femoral head was found within the right acetabulum, although this acetabulum was intact. This means that the femur must have been taken as a whole, easily detaching the head from the acetabulum. A femur head would be attached to the acetabulum by a ligament which could not easily be severed had the remains still been fresh or fleshed. Hence, the right femur must have been taken away when the remains were skeletonized already or, at least, partially skeletonized (decomposing), in order that this ligament could be easily severed. There were no foot bones found at the foot area of the grave (there was actually one metatarsal found within the grave, but this could be commingled as there are other 'extra' human bones also found within the grave). If the alignment of shells approximately 50cm north of the pelvis is taken as the limit of the grave, this suggests the feet must also have been taken as wholes, which in turn suggests that there was still flesh holding them together. If the foot bones had been skeletonized at the time the remains were disturbed, some of the bones at least should be found since there are many small bones in the foot (phalanges especially) that can easily get detached from the rest of the bones upon moving or lifting.

The left femur was obviously disturbed as its head was no longer in place within the left acetabulum and the fovea and linea aspera were visible from above, indicating that the femur had been overturned towards the west. The positions of the left and right os coxae seem to support this observation, as the right os coxa was displaced lower (or towards the north) and more to the west relative to the whole skeleton, with the pubis still close to the left pubic area, a position suggesting it had been pulled down and also towards the west, with the pubic area as a sort of pivot. It might be possible then that both the left and right femora were disturbed at the same time along with the os coxae; the displacement of the left femur and os coxae suggests that they were disturbed while skeletonized or at least partially skeletonized.

The importance of trying to determine whether the skeleton was disturbed when still fleshed or skeletonized is that this might have implications in the determination of whether the remains were buried underground or left on the surface. The inclusion of burnt bones that are usually found in deeper layers and the position of some shells (ends up) might imply that there was an excavation made in which the body was put. However, if the remains were disturbed when still partially fleshed then there is also the possibility of them being left on the surface exposed to the elements before the stones were placed on top (but this does not exclude the possibility that the remains were buried and that subsequent diggings disturbed the burial, or at least the distal part of it).

***'Cremated' remains***

A pile of remains, most of which are human, was found at a level of c. 140cm below datum point. The bottom of the pile rested on a slab of decaying limestone which appears incised at the very bottom (some of the incisions observed at the bottom may be artefacts created in the process of retrieving the bones, but when a small pile was remaining this was taken as a whole leaving a pristine small portion of the bottom, from which sediments were brushed away to expose a small depression which appears to be an incision). The pile appears rounded with a diameter of approximately 12cm, and a height of 15-20cm. No traces of any material suggestive of a receptacle was found, but the pile was cylindrical in shape, and fragments of long bones were arranged horizontally along the sides, both suggesting that the cremation was originally placed within some sort of case. There were also a few animal remains intermixed within the pile. All of the remains, including the animal bones, are burnt and blackened, and some of the edges inspected exhibit cracks on their surfaces (Phil Piper, 2005, pers. comm.), conditions that are suggestive of burning. Remains at the bottom of the pile were also bound together by calcium carbonate.

With the abundance of human remains in the pile, it is beyond doubt that the pile represents a secondary cremation burial. Whether it represents an in situ cremation is unlikely, although it may have been burnt nearby; the c. 60cm thick layer in which the remains were found had a ubiquitous presence of burnt animal bones and charcoal in almost all squares as compared to overlying levels (especially W2-4/N2-3), as well as inclusions of reddish-orange angular aggregates (oxidised soil, possibly burnt), and frequent oxidised (including both possibly and definitely burnt) limestone fragments (see Lewis et al. above).

Most of the portions of the skeleton are well represented, especially the cranium in which many parietal, occipital and temporal fragments were identified along with a large portion of the frontal bone that included both supra-orbital margins. Fragments of the left and right femora, humeri, os coxa and ribs have also been identified and there are numerous long bones which could possibly represent the forearms and lower legs. Additionally, there was a single human tooth retrieved from the pile, possibly a third molar with an abraded occlusal surface. A particular cut in one of the bones (frontal bone) is typical of post-mortem fracturing which could result in a bone that is already dry (had been skeletonized for a long while for all traces of flesh and other tissues to be completely lost). Kress (2005) notes that only one small fragment of a condyle was found adhering to a fragment of the skull vault, and a small piece of the left malar was the only trace of the lower face. He states that the frontal had no superciliary arches, but well above the orbits was a clear bossing constituting what Howells (1989) has described as a Class 3 brow ridge - one which is characterized by thickening of the bone above the orbits with less extreme development at the glabella and at the lateral trigone areas. This condition is very rare in modern populations, and was present in none of the skulls found in the cemetery. The frontal is smaller and less robust than the Tabon frontal which has now been firmly dated to 16,000 yr. B.P. (Dizon et al. 2002; Dizon 2003), but the thickening in the latter skull is confined to the superciliary area, and is somewhat dissimilar to other Ille example (Kress 2005). These observations will be investigated through future laboratory research on the skeletons.

Further examination of these skeletal remains will aim to determine the minimum number of individuals represented, if burning took place when remains were already skeletonized or still fleshed, if fragmented bones were the result of deliberate cutting or not, and whether bones were fragmented prior to burning or burned first before being fragmented. Preliminary observations reveal that at least six long bones and one clavicle show cut marks, indicating definite defleshing or butchery.

## The cemetery, West Mouth excavations and notes on the early levels of the site

**Jonathan Kress**[8]

The first major component encountered at Ille, and presumably the youngest, is what we can call a Contact Age cemetery. After four major and several minor seasons of excavation, more than 60 identifiable burials and the randomly distributed bones of many more disturbed skeletons have been discovered. The condition of the bones is often seriously compromised by physical and chemical weathering making age and sex identifications for many of the skeletons difficult if not impossible. Moreover, many of the graves contain the skeletons of infants and juveniles, suggesting high mortality among the young in the source population, possibly due to malaria and other diseases. Adult skeletons appear to display a high degree of sexual dimorphism, an impression which will be either confirmed or dispelled by future lab analysis. Where there was no possibility of removing bones intact, anthropomorphic measurements were made before removal in order to preserve as much information as possible about the population.

Three major burial configurations have been encountered. All the burials are prone, stretched out on their backs with their bodies oriented roughly north-south, conforming to the axis of the cave entrances, heads pointing south. The orientation of the faces often appears to have been affected by post-interment settling or disturbance, but east may have been the favoured direction. In the latest burials encountered the arms were extended at the sides with the hands placed at or near the crotch. At deeper levels burials were found with one arm - usually the right - tightly flexed with the hand placed across the upper thorax below the mandible. Several burials were found with both arms flexed and the hand bones intermixed above upper chest cavity (contexts 755, 715, 720, 750).

Definite grave goods are extremely limited at Ille. Two burials were uncovered - one in the east mouth, one in the west mouth - with copper rings, on the ring finger of the right hand in the case of the West Mouth (see Lara above regarding the East Mouth ring). A small copper object shaped like a bell was found in close association with another burial in the East Mouth (context 722). Asian trade beds - a pale yellow to light tan in colour - have been found in association with two burials: the West Mouth adult burial with the ring on its finger and an infant burial in the Outlier trench (context 358) on the cave platform from the West Mouth excavations. Finally, associated with one partially excavated burial in the west wall of the West Mouth a very thick section of the apex of a

[8] Edited from Kress 2005

*Conus* shell was recovered. These items are known to be used as spindle whorls in parts of Indonesia today, but this particular specimen was found above the sternum of the skeleton suggesting that it may have been an item of personal ornamentation.

Several questions have arisen in connection with the nature of burials in the cemetery. One of the first burials recovered at the site - an adult female excavated in the 2000 season - was found with an iron point in her torso, perhaps even embedded in one of her vertebra (Solheim 2000). This association was for some time taken as a confirmation of a local verbal tradition of an ancient massacre of some of the indigenous population (Tagbanwa) by Moros. No further evidence of such an incident has been found, although further examination of the later skeletons should be carried out to explore this further.

Another question is the sequence of the burials. Some investigators (Paz and Ronquillo 2004) would divide the burials into three phases based on stratigraphy. However, during the 2005 excavations more than thirty burials in the cemetery were excavated, from its highest levels to its deepest, and there was no evident discontinuity either in the stratigraphy or configuration of the burials. Those recovered no more than 15cm beneath the surface were indistinguishable in preservation and arrangement from those found at the earliest levels (60 to 75cm deep in the West Mouth), and there was no evident hiatus in the stratigraphy of the burials. Moreover, the strata were found to dip towards the outer edge of the platform in the East Mouth; if this is true across the entire platform, this could account for the depth of the infant burial found in the Outlier trench (80-90cm). While some stratigraphic division of the burials is without doubt valid, what chronological significance this has regarding cemetery phasing is unclear.

Some investigators (V. Paz & H. Lewis, 2005, pers. comm.) also feel that some of the burials had shell linings on the floor and even walls of the graves (Paz 2004). The phenomenon has been encountered only once before in Palawan, at Sa'gung Rockshelter in the Quezon Municipality (location of the famous Tabon Cave and Lipuun Point sites – Fox 1970). In that instance, it seems that the original grave diggers had cut into a pre-existing layer of capiz shells (*Placuna placenta*), and shells beneath, around and probably fallen into the grave feature created a complete lining of the grave. While this may have been a visually pleasing environment in which to inter the deceased, the incident appears to have been fortuitous and the behaviour of the grave diggers idiosyncratic, yet the distribution of shells they created deviates dramatically from chance. At Ille shells are found beneath skeletons and at an angle around the skeletons, no doubt arriving in such positions through the action of grave digging, but in the opinion of this author in neither their number nor species distribution do these instances deviate sufficiently from the probability of chance (happening to dig into a shell-rich layer) to be considered a purposeful creation.

There is only one slight suggestion of an attempt at spatial organization of the cemetery. In the northwest corner of the West Mouth excavation four juvenile burials were found in close vertical and horizontal proximity (contexts 702, 704, 708 and 711). However, juvenile burials were found throughout the site, so this single instance of age segregation is difficult to interpret unequivocally.

***The context of the cemetery***

The context in which many of the burials are found represents Contact Age deposits. It is characterized primarily by 11th and 12th century Southeast Asian (Vietnam and/or Thailand) trade stoneware, earthenware and iron implements. The stoneware sherds are all extremely fragmentary making positive identification difficult, and examples ultimately derived from Chinese kilns may be present. That there is no Ming blue-and-white at the site thus far cannot be taken as definitive proof of no Ming pottery or a pre-Ming Dynasty date, as this distinctive ware was an expensive luxury item at the time. The accompanying fauna is extremely rich including an unusually small type of pig, monitor lizard, snake, several kinds of bat, squirrel, tree shrew, viverid, fish and birds - a wide spectrum of exploitation of the local mammalian, reptilian, avian and fresh and salt water fish populations. The recovered molluscan assemblage is equally impressive. More than 50 types of fresh water, estuarine, mangrove and salt water varieties appear to be represented. The salt water varieties come from littoral, shallow sandy environments and shallow and deep water reef communities, indicating an impressive knowledge of marine habitats.

During the 2004 season several shells of the large freshwater bivalve *Batissa violacea* were recovered which had been formed into implements or ornaments. Two examples had been worked into artistic patterns which appear to have no practical application. This discovery prompted a re-examination of the edge breakage patterns of these and other shells. The purple *Batissa* is a thick shell. When cooked, either roasted - the common pattern at Ille in all levels - or boiled, it almost always opens, obviating the necessity of breaking the shell to get at the meat. Yet a great number of the *Batissa* shells at the site are broken, often in such a way as to create a sharp point at one or both sides of the shell which could be used as a burin or graver. Often these shells bear the distinctive discoloration of roasting, indicating that they were probably not broken to get at the meat. Sometimes these points appear to be worn smooth. In the 2004 season the excavation team conducted experiments with freshly cooked (both boiled and roasted) *Batissa* shells. When properly broken the newly created thick, strong and sharp edge proved to be an excellent wood working implement as did the sharp point or points. Shell tool usage merits further detailed investigation; Ille Cave is already known for its fascinating and important assemblage of shell tools (Szabó 2004; Szabó et al. 2004), and the new excavations have already produced a number of items that require assessment and integration with the previously investigated dataset.

Iron implements are rare and are usually in the form of fractured blades. The projectile point found with the first burial uncovered at the site and a few pieces so heavily corroded as to have lost most vestiges of their original form are the sole exceptions. Rare gold rings were the only other metals found in this context. This simple collection of iron and gold metal artefacts differs dramatically from that found with the burials excavated in 2005 which, as noted above, consist entirely of copper.

The earthenware ranges from numerous examples and varieties of elaborately decorated sherds in the Sa Huynh-Kalanay pottery tradition, through to more simple incised or impressed wares and completely plain wares. There also appears to be great variation in rim and body form, size, colour and quality. It has been proposed that the elaborately

incised Sa Huynh-Kalanay vessels were used exclusively in ceremonial contexts, as containers of votive offerings of special foods and liquids at burial sites (Solheim 2000). These ceramics have been found in just such situations throughout their range in the Philippines and Southeast Asia. Jar burials (secondary and above ground) appear to be the most common context, often with both the jars and accompanying votive vessels bearing distinctive decorative patterns. Only at Sa'gung Rockshelter in the Quezon Municipality area of Palawan has their context been interpreted as domestic. At that site there were no burials with which it was possible to associate the Sa Huynh-Kalanay pottery found. This issue is discussed further below.

***The relationship between the cemetery and its context***

The finding of Sa Huynh-Kalanay pottery complicates interpretation of the cemetery site. Is this pottery related to a jar burial cemetery (still absent from the sequence), or to domestic contexts as at Sa'gung? At Ille there are thus far no domestic features (or features of any kind, for that matter) in the burial context. Either all traces of domestic activity have been obliterated by the grave digging activity, or there were never any to begin with. A few concentrations of ash and charred earth which might represent hearths have been found in upper levels of the West Mouth, but their association with the burial context is not definite. Secondly, the nature of the sediments of the cave platform, and extensive bioturbation, has destroyed evidence of grave cuts in the cemetery. It has been almost uniformly impossible to recognize the levels from which the various grave features were cut. Moreover, while the extent of some grave cuts is at times palpable to the trowel, it is always invisible. Where the borders of a grave can be proposed, they are no more than a few centimetres from the skeleton itself. Bioturbation is a problem of great magnitude. Termite colonies and large roots have displaced many of the skeletons, and parts of many have been seriously depressed in the stratigraphy or scattered horizontally. Finally, the original grave diggers themselves were obviously responsible for the disturbance of previous burials. Numerous skeletons have been widely scattered by subsequent digging, many, no doubt, beyond all recognition (see Lara above). The burial of one woman was uncovered during the 2004 season with no fewer than three skulls in her immediate vicinity (context 709) - one just at the right side of her head, another (seriously weathered) just above her pelvic area, and a third at the side of her right foot. No post-cranial remains can be associated with any of these skulls. The significance of this arrangement is currently unclear: are these three skulls actually associated with the woman's burial, or did the grave diggers simply put three crania disturbed through excavation in with her grave?

At present there is only one cultural element which could serve to tie the burials to their wider context - the Asian trade beads which have been found in small numbers in association with two burials and in equally small numbers scattered widely in the burial context. This is an extremely weak link, however. The beads have a great time depth in the Iron Age of Southeast Asia, and those found in the burial context may well have been scattered and/or bioturbated from one or more of the graves.

What then can we make of the relationship between the Sa Huynh-Kalanay pottery sherds found and the cemetery site? Either these represent a habitation, the structure of which has been completely destroyed, or they are the fragmented remains of votive offerings

placed at the side of the graves in the cemetery or with earlier, long smashed and scattered jar burials. The latter proposition is not completely out of the question. Rim sherds of extremely large jars have been recovered at the site in the Contact Age context. Several unusually large body sherds have also been found, bur so far no connection can be made between the rims and the body sherds. One interesting jar lid is discussed below.

Moreover, we must ask exactly what kind of remains we should expect to find if the ceramic, metal and faunal remains found in the Contact Age layer represent the remains of votive offerings. Few undisturbed jar burial caves have been found intact in the local region. The looting of these caves has long been a lucrative business in the Philippines, and in caves like Ille where edible bird nests are collected, large ceramics have been considered a nuisance by the nest collectors and smashed and discarded. At Pagayona Cave and other jar burial sites in the Quezon Municipality area some of the large burial jars had one or two smaller jars, all earthenware, placed in close proximity to them (Fox 1970). (These were all pre-Contact Age burial assemblages, so there were no stoneware vessels.) Whatever food or liquid offerings these smaller, votive vessels may have contained had long since disappeared. The votive vessels were few and could not have contained much in the way of food or other offerings. Moreover, there was no evidence that these offerings were ever repeated. The little evidence that is available from jar burial sites in the El Nido area suggests that the same or a similar pattern prevailed. It is quite apparent that the faunal and artefactual remains in the Contact Age layer are much too prolific to represent the remains of this kind of jar burial assemblage.

Could these faunal and artefactual remains represent the disturbed detritus of a completely different kind of funereal rite or frequently repeated votive ritual conducted beside the graves of deceased relatives? If this were the case, it would represent something entirely new in Philippine archaeology. Moreover, there are no known ethnographic examples of such rites. We are left, then, with the somewhat tenuous conclusion that this layer represents the remains of some kind of habitation, and that the subsequent use of the cave platform and the cave itself as a cemetery, and associated grave digging activity, destroyed any structure it may have ever possessed. As at Sa'gung Rockshelter, the evidence is negative, but no other plausible explanation presents itself at this time. A finding of burial jar sherds, however, supports the jar burial interpretation, so the issue is still open for debate (see below).

***The question of the deep ceramics***

During the 2004 season excavations in the West Mouth, squares W13N2-3 produced one of the most puzzling aspects of the work to date. Three major rock falls covered much of the opened area which included W13N2-4 and W12N2-4. Excavation in W12 was virtually halted by rocks and was limited in W13 to N4 and two small areas astride one very large rock which filled much of N2-3. Excavation in W13N4 had proceeded to more than one meter deep during the 2004 season, and earlier excavations had been carried out in W14N2-3, but unfortunately records could not reproduce the extent or exact locations of that work. The soil along the west side of the very large rock was loose in both N2 and N3, and it was assumed that all of this had been previously excavated. However, large sherds began to emerge from the southern section - sherds which could

have been in no one's backfill - so work was halted until the large rock could be removed - a process which took the better part of three days.

When the confusion over the unexcavated areas and the backfill was finally resolved, it became clear that we had encountered in the southern part of the trench evidence of a major feature, while in the northern part of the trench midden deposits were undisturbed. Soil in the ancient pit was very loose to the touch, while that in the midden deposit was firm. At a depth of about 1.6 metres an arc appeared that very clearly delineated the pit. The loose soil of the pit was dark, while the compact soil to the north had a reddish hue. The pit had yielded at a higher level (c. 1.4 metres) several red-slipped sherds and three human metatarsals in correct anatomical configuration. At lower levels (c. 1.8 to 2.0 metres) a human frontal bone, a robust femur and an unusually thick parietal fragment were found. These human bones were accompanied by molluscs, ceramics (largely plain wares) and a thin, polished, stepped adze of basalt. These deep ceramics, then, appear to be inclusions in a pit originally dug from quite high up in the sequence.

The 2005 excavations opened a large (six metre square) area just to the west of this feature partly in the hope of determining the level from which the ancient pit was cut, but the necessity of carefully recovering many burials in the upper layers slowed the work, and the resolution of this question must await the 2006 season.

***A ceramic Neolithic layer***

At the West Mouth (in W14 and W15) earthenware continued to be recovered in the layer immediately below the burials (c. 60 to 65cm below the surface). Stoneware became rare (contamination from upper layers) and then non-existent. Faunal remains continue in profusion, but only future analysis can tell if there is any significant change in ancient resource availability or procurement strategies. This layer includes the remains of at least two and possibly three burials. A series of badly scattered and fragmented human long bones were found at the southern end of the excavations. They were for the most part heavily encrusted with calcium carbonate. A vertical separation of 15 to 20cm between two sets of bones suggests an origin from two different skeletons, but extensive termite colonies in the area could have easily accounted for this type of disturbance. Found in the proximity of these bones were four pig tusks, and, most interestingly, the remains of a dog, apparently also a burial. Bone from the dog was sampled for radiocarbon dating, but did not contain enough collagen to produce a date (Tom Higham, 2006, pers. comm.; see Lewis below). Slightly lower and to the north, but again in a large termite pit, was a large, intact and finely worked *Melo diadema* scoop or 'bailer'. Farther to the east was a finely polished basalt adze. The adze was recovered too far away to be counted among the burial goods, but its presence in situ at this level lends support to the idea of a pre-Metal Age ceramic Neolithic in the West Mouth. The orientation of the few bones recovered was primarily east-west, directly opposite that of the burials from the rest of the cemetery.

It is interesting to note that at the north end of the excavated area this layer was not represented, and just beneath the cemetery the extensive midden deposits which have characterized the West Mouth excavations from the beginning of work at Ille were

encountered. It may well be that strata in the West Mouth dip very sharply - even more so than in the East Mouth; this will be determined in 2006.

At the same level as the dog skeleton a very distinctive orange tradeware sherd was found. For some time this discovery shattered our hypothesis of a ceramic Neolithic layer in the West Mouth. The following morning a larger sherd, obviously from the very same pot, was found among the collection of artefacts recovered from the same square, but 40cm higher. This is but one example of the potential confusion wrought by the extensive natural and cultural forces at work on the stratigraphy of the site. The deeper sherd could be intrusive.

The ceramics found in this layer raise several interesting questions. Not far from the dog burial the corner of a square lid was recovered. Unlike similar square jars described by Fox (1970) from the Quezon area, the lip of the lid fits outside the lip of the base on which it sits. In addition, the exposed lip is incised with fragmentary geometric designs suggestive of the Sa Huynh-Kalanay decorative tradition. To the east was recovered a huge body sherd - 20 by 30cm - again suggestive of a jar burial. Just to the west of this sherd excavation was just beginning on a skeleton which termite activity had worked into a highly contorted orientation. There was a degree of both anatomical conformity and confusion in the orientation of the bones which can only be worked out when the skeleton is completely mapped, but at present there is a slim possibility that it represents the contents of a large jar that were scattered into their present configuration when the jar was shattered.

This finding suggests that Metal Age jar burials did once occupy the floor of the cave platform. This possibility has been discussed above along with my reasons for thinking it unlikely. It cannot, however, be rejected out of hand. There is always the possibility that in the cemetery context we are dealing with the remains of both extensive Contact Age use and an earlier jar burial complex. Future excavations may establish this fact. It is even possible that there were pre-Metal Age jar burials at the site; Sa Huynh-Kalanay pottery has been found at sites in the Philippines pre-dating the Metal Age. At present the evidence from Ille is still too fragmentary to draw any strong conclusions. In all the previous excavations at the site, this layer has never been encountered, but future excavations must be extremely sensitive to its presence and the questions it raises.

## Preliminary observations on the West Mouth cemetery

**Jack G. L. Medrana**[9]

At 26cm above the datum (30cm below the present ground surface) in the West Mouth the first human remains were exposed. A total of seventeen burials were found in 2005, and among these at least seven were juveniles. Most of the burials were laid in a northeast-southwest orientation, with the head towards the southwest. Five of the adult skeletons had their upper extremities flexed with hands on top of the chest, and two others had both hands in the pelvic region. The cuts and fills of the graves were hard to

[9] Edited from Medrana 2005

distinguish from the surrounding matrix, and many of the skeletons were situated very near to each other. No graves were found to have a lining of shells or stones.

There is a significant scatter of isolated human skeletal elements throughout the layer of burials. One particularly interesting grave in relation to this is burial context 714-715. This was an almost complete adult burial interred supine with upper extremities flexed, hands on the upper thoracic area. At its right pelvic area were another skull, mandible and tibia, while at the other innominate was a set of disarranged long bones, including a femur, radius, humerus and ulna. These bones showed no obvious signs of fractures.

Some of the burials at the West Mouth may be accompanied by grave goods as shown by the presence of large stoneware sherds (context 798) beside the skeletons from two of the burials (context 782, also associated with pig tusks, and context 800). Another skeleton was also seen to have a ring on one of its hand phalanges, and at its right chest area numerous small beads were recovered. Throughout this layer of burials, stoneware and earthenware sherds, animal bones and a few pieces of worked metal and charcoal were found.

The 2005 excavation season strengthens the argument that the burials at the East and West Mouths of Ille Cave form part of a cemetery that was in regular use. The idea that this burial ground was formed by a single event (e.g. mass burial in one pit) is not supported by present archaeological observations. However, the first excavations in the West Mouth did suggest that some burials were related in one single event (interpreted as possibly being the historic massacre mentioned above). This was not seen in the East Mouth; perhaps contexts related to any such event are limited to the West Mouth, (Bill Solheim, 2006, pers. comm.). The characteristics of the graves and manner of inhumations suggest that a series of burial activities was carried out in a sequential fashion and with funerary procedure (Figure 8). The ambiguity of grave cuts (see Lara, above) and the close proximity of skeletons could mean that they were either buried together, or the later dead were interred in areas close to earlier burials. In graves with more than one individual, a complete supine skeleton may be accompanied by unfractured long bones and/or skulls in disarray. When further exposing adjacent graves, the excavator finds skeletons without heads, suggesting that previous graves were disturbed by the creation of newer ones, or that there was a practice of secondary burial where skeletal remains of a relative were buried with newly deceased kin. The

**Figure 8  West wall of the West Mouth excavation trench, showing estimated grave cut locations (grave cuts were almost entirely indistinguishable in the field), and frequent intercutting and disturbance. Lower shell-rich layers suggest that the West Mouth cemetery may also overlie a shell midden, as was seen in the East Mouth sequence.**

observation that there were no complete ceramic vessels found in this layer could also support the idea that graves were disturbed.

Further osteological analysis will shed light on the demographics and health of this population. At present the significant frequency of juvenile burials hints of high childhood and infant mortality. Studies of ornaments could answer questions on social organisation. And there are also some interesting issues arising concerning worldview, such as the use of caves as burial grounds, the orientation of the dead with respect to the cave entrances, and the arrangement of the body in burial.

# 2005 Excavation at the East Chamber

**Phil Piper and Vito Hernandez**[10]

As an exploratory investigation, one excavation area was opened in Ille Cave's east chamber (Figures 2 & 9). Based on the 2005 excavations in the rock shelter mouths (above), it was thought by the team that the general slope (30-40° gradient) shown in the rock shelter suggested deposits within the cave itself may very well be older at a higher level. With this in mind the East Chamber excavation commenced with the following objectives:

(1) to investigate and understand the nature of the natural and archaeological cave deposits,
(2) to augment and/or corroborate data coming out of the East Mouth excavation area and possibly other excavation areas of the rock shelter platform, and
(3) to substantiate the hypothesis of the age of deposits in correlation with the slope of the platform.

To achieve these, a 2x3m area was excavated to the north of the East Mouth excavation area, measured in using a total station from datum reference points in the East Mouth. Since the excavation area received very poor natural lighting, gas fuel lamps were utilised; this limited the visibility of features. Surface debris and sediments were scraped with a shovel to determine any partially exposed or surface artefacts. Excavation by trowel then commenced in ~5cm spits for the upper 30cm, until a possible cultural feature was exposed, upon which time excavation carried on by context. All features and layers were recorded in relation to the excavation's southern wall (Figure 10). Samples were taken from each fill and layer context for flotation. Below is the result of preliminary contextual description of each of the sediments excavated in the trench (Table 3).

One of the more notable results of the East Chamber investigation is the exposure of at least 6 distinct rectangular cut features. These elongate features are all oriented on a south-north axis. These were exposed at the same level at all corners and at the centre of the excavation area. One of these, situated around the centre of the excavation, was excavated, resulting in the exposure of an infant burial thought to be no older than ten years of age (Figure 11). Ochre-covered bones were found at the foot of the burial; these were not part of the buried infant and so are thought to be a form of ritual offering. Preliminary observation shows the burial fill sediments to be very similar in texture and

[10] Edited from Piper and Hernandez 2005

colour to the sediment matrix that it cuts, although they are less compacted. All of the other elongate features, currently unexcavated, are thought to also be graves.

**Figure 9 The East Chamber excavation area, showing surfaces of features**

**Figure 10 The south wall section in the East Chamber, showing layers and grave features**

**Table 3 Context descriptions from the East Chamber**

| Context | Description | Depth from datum |
|---|---|---|
| 770 | Surface cleaning, hard compact silty clay with sherds and shells | 0-20cm |
| 795 | Patches/lenses of light reddish brown loose silt identified during recording of profile, no associated artefacts | ~23-28cm |
| 772 | Layer of light greyish brown/pinkish brown loose silt with gravel, animal bone fragments and shell inclusions | ~25-30cm |
| 776 (Spit) | Deposit is light greyish brown/pinkish brown at the south end to dark greyish brown at the north end of the excavation, a mix of guano and silt deposits, with animal bone fragments and shell inclusions. | 30-35cm |
| 777 (Spit) | Dark greyish brown mix of guano and silt with lenticular patches of clay and fragmented limestone, animal bone fragments and shell inclusions. | 35-40cm |
| 780 (Spit) | Same as 777 with more patches of clay, and patches of small shell accumulations (middens) at the northeast corner (<50cm from northern wall) | 40-45cm |
| 781 | Possible surface. Compact dark greyish brown mix of guano and silt with gravel to cobble sized angular limestone debris. | 45-50cm |
| 783 | Burial fill. Same as 781 except loose. | 50-85cm |

| | |
|---|---|
| **Figure 11 Infant's grave in East Chamber, context 783** | |

Artefacts were recovered in large quantities in all levels of the excavation except at a depth of ~50cm below datum point. These include shells, animal bones, and earthenware and porcelain sherds. The most common shells excavated in this area are Neritidae sp. and *Batissa* sp. (referring to types described in Szabó et al. 2004 and Faylona 2003) Although shells were recovered relatively consistently, there were also small midden deposits seen at around 40-45cm below datum point (Context 780). Animal bones were recovered in dense quantities from the surface to around 45-50cm. The most commonly excavated animal remains in this area were pig (*Sus* sp.) and lizards (*Varanus* sp.). These animal remains were however not identified associated with any cultural feature and some may have been deposited naturally within the cave sediments.

Earthenware sherds were recovered from 0 to around 45cm below datum point. None were recovered at the burial level. Rim, body and base sherds were recognized; some body and rim sherds exhibited decoration, but these remain to be typologically classified or further described. Only two porcelain sherds were recovered, both not more than 15cm below datum (Context 772). Neither shows any direct association with any cultural features.

***A preliminary synthesis of the East Chamber cave archaeology***

The 2005 excavation of Ille Cave's east chamber was a preliminary exploration of questions initially posed during the same season. In summary these were questions of (1)

natural and human events that have taken place in the cave, (2) relations with the rock shelter platform deposits, and (3) cave and rock shelter topography in relation to the archaeology.

Accumulation of shells into small middens in the post-burial layers is evidence that the cave was used as a depository of food remains and/or discards from shell working in late contexts. For now this may only be said for the shells seen in apparent midden deposits. Animal bone fragments and other shells not in middens but retrieved as inclusions in other sediments could be naturally deposited.

The most important result of these excavations is to show that the cemetery identified in the East and West rock shelter mouths and cave platform continues into the cave proper. Unlike in those locations, in the East Chamber graves have distinct grave cuts, which will allow interpretation of cemetery stratigraphy upon further excavation. The description of contexts 781 and 783 leads to the conclusion that sediment from 781 was excavated and subsequently used as fill (783) for the burial, i.e. that burial fills comprise the sediment into which the grave is cut. The main difference visible between the burial fill and the surrounding sediments is the relative looseness of the burial deposits.

It is difficult to discuss depositional processes within the cave at this point. Although it is likely that the features identified at this relatively high level relate to the main cemetery, it is not clear what phase or level of the cemetery is exposed here. The equation of the rising slope with older deposits nearer the surface has not been fully proven. The rock shelter deposits are known to tilt down to the outside of the cave mouth, and presumably some of those deposits had their origin within the cave and have been washed downslope towards the outside, but it is unclear how much has been lost in this way from the deposits in the East Chamber. In addition, while observable differences in sediment colour at different areas of context 776, which was dug as an arbitrary spit, suggests an existing slope in the area, this slope appears to be the opposite of the rock shelter slope, rising towards the south and not to the north. It is possible that direction of slope may change abruptly towards the platform. Further excavations connecting the chamber trench to the East Mouth trench in 2006 will elucidate the stratigraphic relationships and clarify which phase of cemetery is seen in the East Chamber surface deposits. Within the cave we also identified guano, debris and limestone deposition, and that deposits were apparently mixed in some places.

# Paddy field test pit

**Vito Hernandez**

The rice paddy field excavation pit (Figure 3; see Paz and Ronquillo 2004) was temporarily re-excavated for environmental sampling in 2005; samples are listed in Barton (below) and in Table 4.

**Table 4 Samples from the rice paddy field test pit**

| Accession Number | Sample Number | Type | Depth | Notes |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| IV-1998-P-16954/102 | 2005-102 | Sediment | 0-4cm | Sample divided into two, sent to Leicester for starch analysis and ANU for pollen analysis |
| IV-1998-P-16954/103 | 2005-103 | Sediment | 4cm-8cm | Sample divided into two, sent to Leicester for starch analysis and ANU for pollen analysis |
| IV-1998-P-16954/104 | 2005-104 | Sediment | 8cm-12cm | Sample divided into two, sent to Leicester for starch analysis and ANU for pollen analysis |
| IV-1998-P-16954/105 | 2005-105 | Sediment | 16cm-21cm | Sample divided into two, sent to Leicester for starch analysis and ANU for pollen analysis |
| IV-1998-P-16954/106 | 2005-106 | Sediment | 22cm-27cm | Sample divided into two, sent to Leicester for starch analysis and ANU for pollen analysis |
| IV-1998-P-16954/107 | 2005-107 | Sediment | 27cm-31cm | Sample divided into two, sent to Leicester for starch analysis and ANU for pollen analysis |
| IV-1998-P-16954/108 | 2005-108 | Sediment | 40cm-44cm | Sample divided into two, sent to Leicester for starch analysis and ANU for pollen analysis |
| IV-1998-P-16954/109 | 2005-109 | Sediment | 43cm-47cm | Sample divided into two, sent to Leicester for starch analysis and ANU for pollen analysis |
| IV-1998-P-16954/110 | 2005-110 | Sediment | 47cm-51cm | Sample divided into two, sent to Leicester for starch analysis and ANU for pollen analysis |

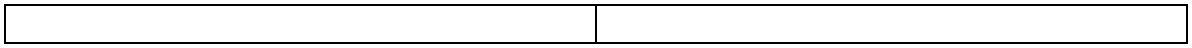
# Test pit south of the platform

**Emil Robles and Andrea Ragragio**

A small test pit was excavated in the depression off the platform to the south, to explore the issue of why the platform ends where it does – has it been cut through and eroded by a stream? Is the adjoining land lower simply because of human land use activities in recent times (the paddy field creation in the plain to the south)? Or does the platform edge simply correspond to the edge of the area sheltered by the limestone tower?

In order to investigate the area south of the platform, which is at present vegetated, a 1x1m test pit was excavated at grid square W15S22 (No. 5 on Figure 2). Trowels, shovels and a crowbar (since deposits were very compact and hard) were used to excavate the pit to a depth of a 1.5m, until it was very difficult to continue due to compactness of the deposits and small working area. No cultural materials were recovered from the pit, but the vertical profile showed some interesting depositional features. The upper layers of the profile were a soil profile, which includes O, A and B horizons (Figure 12). The lower layers consist of oxidized clay and layers with highly oxidized and highly weathered gravels of many colours which could be water-lain deposits. These lower layers were similar to gravels seen in the lower parts of the East Mouth (Lewis et al. above); perhaps they have a similar origin. Soil micromorphology samples and bulk samples were taken for further analysis.

**Figure 12 Test pit profile and close up of possible water-lain deposits**



# Dating

**Helen Lewis**

The earlier occupation levels revealed at Ille Cave contained hearths and possible 'activity areas' with frequent charcoal, shell, lithic artefacts and human and faunal remains in what became known as the 'Treasure Hunters' Pit (THP) in the East Mouth (Paz & Ronquillo 2004). Our initial dating programme aim was to develop a sequence for these earlier deposits, to compare with previous dates from the upper levels at this location in the cave (Szabó et al. 2004), and 17 charcoal samples taken in 2004 were submitted to the Research Laboratory for Archaeology and the History of Art in Oxford for dating under the NERC/Orads scheme. Most of these come from the East Mouth, with only a few samples from the deeper exposures in the West Mouth (Table 4). A further three samples of bone from the 2005 contexts 727 (East Mouth possible Neolithic burial), 758 (East Mouth cremation) and 796 (West Mouth dog burial) were submitted to the same laboratory for dating under a British Academy Large Research Grant. Several additional samples were taken in 2005 from newly exposed layers with charcoal and in situ burning and hearth deposits for future dating (Table 6).

As Table 4 shows, several samples taken in 2004 contained too little charcoal for successful dating. In addition, the three samples taken for bone dating (Oxford Radiocarbon Laboratory reference numbers P16870, P16871 & P16872) all produced less than 0.1% nitrogen, showing that there is not enough protein in the bones for dating through radiocarbon methods (Tom Higham 2005, pers. comm.).
The radiocarbon dates on charcoal from the lower burning layers of the East Mouth revealed in 2004 consistently fall between c. 9,400-11,300 cal. yr. B.P., a range falling in the earlier Holocene (Table 4; locations of most dated samples are shown in Figure 13). It should be noted regarding depths, that the dating samples come from pre-rock fall layers, and depths of contexts vary with the steep slope of the deposits at the East Mouth entrance. As the samples originate from deeper within the same basic excavation area as those dated by Szabó et al. (2004), it is a relief to see that the dating sequences fit quite well (Table 5), and show overall progressively older radiocarbon age ranges with depth, with rare exceptions in the upper sequence (Figure 14).

The few West Mouth results (Table 4) reveal a mid-Holocene date for the deposit sampled (context 301 - a hearth deposit). Two dates from 160cm depth show a c. 1500 year separation in date; this suggests that there is some disturbance, although there may be some influence of context 283 on sample OxA-14900 (IV-1998-P-15671). As discussed by Kress (above) there are other indicators of disturbance in the West Mouth excavation area, including a large late pit cutting through the cemetery deposits, as well as disruption associated with the cemetery itself. As we are not yet clear that we have the same sedimentary sequence in the West Mouth as seen in the East Mouth, dates will not be compared between them at this time.

The rare mixing seen in the East Mouth dates was unexpected, given the apparently very mixed internal natures of the various layers that were stratigraphically identified. The dates also show a good separation throughout the sequence, over c. 50cm of sediment. Despite the appearance of culturally mixed (e.g. hearth rake-out) and bioturbated (homogenized) sediment, and slope processes, there is obvious integrity regarding deposition of charcoal samples. A good sequence (with two exceptional dates) was also produced by Szabó et al. (2004) higher up in the same area. Because wood in the region is generally thought to have a high turnover (to be relatively short-lived), it is not thought that the sequence represents only a few burning episodes with wood dispersed throughout

**Table 5 Radiocarbon dates from Ille Cave 2004-5**

Radiocarbon dates were produced by the University of Oxford Research Laboratory for Archaeology and the History of Art. They were calibrated using IntCal04 dataset (Reimer et al. 2004) through CALIB 5.0.2. Unmodelled age ranges BC were provided by Tom Higham (2006, pers. comm.). The following information is provided by RLAHA (Tom Higham, ibid.):

> *Radiocarbon dates are listed as uncalibrated radiocarbon years BP (BP – AD 1950) under RLAHA Information, and as calibrated years BP. Uncalibrated dates use the half life of 5568 years; isotopic fractionation was corrected using the $\delta^{13}C$ values listed (to +/- 0.3 per mil relative to VPDB). The pre-treatment, target preparation and AMS measurement used follow Radiocarbon 46 (1): 155-63, 46 (1): 17-24 and Archaeometry 44 (3): 1-149. The dates are published in datelist 32 in Archaeometry 2006.*

| **Sample Information** | | | **RLAHA Info** | | **Calibration** | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sample Number | Material | Context/location | Sample Number | $\delta^{13}C$ | Date yr. B.P. | Unmodelled BC/AD | % | Cal yr. B.P. | Prob. |
| IV-1998-P-15671 | Charcoal | West 2004 160cm [301] | OxA-14591 | -25.6 | 4793+/-34 | 3648-3518 BC | 95.4% | 5469-5597 | 1.000 |
| IV-1998-P-16778 | Charcoal | West 2004 160cm [283/301] | OxA-14900 | -25.8 | 6346+/-37 | 5465-5221 BC | 95.4% | 7171-7331 | 0.908 |
| | | | | | | | | 7355-7373 | 0.035 |
| | | | | | | | | 7389-7414 | 0.057 |
| IV-1998-P-15826 | Charcoal | West 2004 163cm [301] | OxA-14895 | -25.1 | 6546+/-36 | 5610-5469 BC | 95.4% | 7419-7512 | 0.957 |
| | | | | | | | | 7540-7559 | 0.043 |
| IV-1998-P-16943 | Charcoal | East N1W3 100-120cm [731] | OxA-14959 | -23.5 | 5802+/-38 | 4766-4544 BC | 95.4% | 6494-6677 | 0.980 |
| | | | | | | | | 6687-6690 | 0.003 |
| | | | | | | | | 6704-6716 | 0.017 |
| IV-1998-P-15837 | Charcoal | East ThP 2004r 153 [335]L5 | OxA-14898 | -24.5 | 8545+/-40 | 7601-7530 BC | 95.4% | 9480-9550 | 1.000 |
| IV-1998-P-15839 | Charcoal | East ThP 2004o 153 [335]L5 | OxA-14893 | -24.3 | 8705+/-40 | 7835-7596 BC | 95.4% | 9546-9784 | 0.985 |
| | | | | | | | | 9850-9863 | 0.009 |
| | | | | | | | | 9877-9885 | 0.006 |
| IV-1998-P-16782 | Charcoal | East ThP 166cm | OxA-14960 | -27.8 | 9400+/-45 | 8784-8565 BC | 95.4% | 10515-10733 | 1.000 |
| IV-1998-P-15828 | Charcoal | East ThP 2004k 170cm [336] | OxA-14894 | -26.6 | 8920+/-45 | 8250-7954 BC | 95.4% | 9905-10198 | 1.000 |
| IV-1998-P-15824 | Charcoal | East ThP 2004a 170cm [336] | OxA-14897 | -25.6 | 8970+/-45 | 8283-7968 BC | 95.4% | 9918-10071 | 0.413 |
| | | | | | | | | 10115-10232 | 0.587 |
| IV-1998-P-15831 | Charcoal | East ThP 2004h 175cm [336] | OxA-14899 | -26.3 | 8799+/-40 | 8182-7713 BC | 95.4% | 9663-9951 | 0.891 |
| | | | | | | | | 9990-10012 | 0.014 |
| | | | | | | | | 10024-10040 | 0.010 |
| | | | | | | | | 10061-10132 | 0.085 |
| IV-1998-P-15832 | Charcoal | East ThP 2004d 177cm [336] | OxA-14896 | -25.8 | 8860+/-45 | 8222-7816 BC | 95.4% | 9745-9748 | 0.003 |
| | | | | | | | | 9766-10171 | 0.997 |
| IV-1998-P-15829 | Charcoal | East ThP 2004g [336] 183cm | OxA-14592 | -25.4 | 9340+/-45 | 8739-8469 BC | 95.4% | 10419-10472 | 0.097 |
| | | | | | | | | 10476-10687 | 0.903 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| IV-1998-P-15825 | Charcoal | East ThP 2004b [337] 200cm | OxA-14163 | -25.0 | 9740+/-75 | not available | n/a | 10786-10974 | 0.220 |
| | | | | | | | | 10990-11032 | 0.240 |
| | | | | | | | | 11062-11273 | 0.756 |
| IV-1998-P-18308 | Charcoal | East, 185cm, [784] | Submitted | | | | | | |
| IV-1998-P-18309 | Charcoal | East, 180cm, [336]=[717] | Submitted | | | | | | |
| IV-1998-P-18310 | Charcoal | East, 180cm, [769] | Submitted | | | | | | |
| IV-1998-P-18311 | Charcoal | East, 185cm, [784] | Submitted | | | | | | |

**Unsuccessful dating samples**

| Sample Information | | | RLAHA Information (T. Higham, 2006, pers. comm.) | |
|---|---|---|---|---|
| Sample Number | Material | Context Description | Sample | Reason |
| IV-1998-P-15827 | Charcoal | West W13N4 190 [301-5] | P-17042 | Sample stopped; no carbon yield |
| IV-1998-P-15830 | Charcoal | East ThP 2004l | P-16883 | Chemistry; no extractable charcoal |
| IV-1998-P-15833 | Charcoal | East ThP 2004e | P-16879 | Sample stopped; low carbon yield |
| IV-1998-P-15835 | Charcoal | East ThP 2004q | P-16881 | Burn failed; low carbon yield |
| IV-1998-P-15840 | Charcoal | East ThP 2004f | P-16874 | Sample failed; no extractable charcoal |
| IV-1998-P-15841 | Charcoal | East ThP 2004i | P-16880 | Burn failed; low carbon yield |
| IV-1998-P-16924 | Bone (human) | East Mouth [758] | P-16871 | Chemistry showed too little protein |
| IV-1998-P-16925 | Bone (human) | East Mouth [727] | P-16870 | Chemistry showed too little protein |
| IV-1998-P-16956 | Bone (dog) | West Mouth [796] | P-16872 | Chemistry showed too little protein |

**Figure 13 Location of East Mouth 2004 dating samples**

**Table 6 2005 calibrated dates compared to Szabó et al.'s (2004) dates from the East Mouth at Ille Cave 2002**

*This table shows the two sequences of radiocarbon dates on charcoal for the East Mouth from the 2002 and 2004 excavations, all arranged by depth below datum, and showing the full possible date range (following the arrangement of Szabó et al. 2004). All dates are on charcoal and calibrated to 2 sigma (Szabó et al. 2004 dates calibrated using Calib 4.4; 2004 ThPit dates calibrated as described above).*

| | Context & depth | Dated sample | Cal. yr. B. P. | Comments |
|---|---|---|---|---|
| **Szabó et al. 2004** | Burial 1<br>N6W3 10-35cm | ANU-11871 | 9438-10557 | Old charcoal mixed into upper layers |
| | Layer 3 (shell midden) top N5W3 65-75cm | ANU-11866 | 5489-6407 | |
| | Layer 3 bottom N5W3 75-80cm | ANU-11869 (B1) | 5908-7253 | |
| | Layer 3 bottom N5W3 75-80 | ANU-11869 (B2) | 5914-6446 | |
| | Layer 4 top N5W3 85-90cm | ANU-11872 | 6121-7570 | |
| | Layer 4 middle N5W3 95-100cm | ANU-11873 | 7957-9231 | |
| | Layer 4 base N5W3 105-115cm | ANU-11868 (B1) | 6809-7921 | |
| | Layer 4 base N5W3 105-115cm | ANU-11868 (B2) | 9090-10187 | |
| | Layer 5 N5W3 115-120cm | ANU-11867 | 9152-10496 | |
| | Layer 5 N5W3 120-125cm | ANU-11870 (B1) | 1414-1991 | Intrusive; contamination |
| | Layer 5 N5W3 120-125cm | ANU-11870 (B2) | 8596-9528 | |
| **2004 THpit & East Mouth** | [335] 123cm = Layer 5 | OxA-14898 | 9480-9550 | |
| | [335] 123cm = Layer 5 | OxA-14893 | 9546-9885 | |
| | [336] 140cm | OxA-14897 | 9918-10232 | |
| | [336] 144cm | OxA-14894 | 9905-10198 | |
| | [336] 147cm | OxA-14899 | 9663-10132 | |
| | [336] 149cm | OxA-14896 | 9745-10171 | |
| | [336] 151cm | OxA-14592 | 10419-10687 | |
| | 166cm | OxA-14960 | 10515-10733 | |
| | [337] 177cm | OxA-14163 | 10786-11273 | |

the profile (Tom Higham, 2006, pers. comm.). As such, the dates support the field impression of long-term or frequent episodes of occupation of the East Mouth by Late Palaeolithic people in the mid to early Holocene.

This sequence does not include the new deep burning deposits excavated in 2005 (only one sample from a deep hearth is included); frequent large charcoal fragments were found over the lower 60cm of the profile, associated with hearths and lithic working areas in the oldest contexts exposed (towards the chamber, i.e. where the sediments slope upwards into the cave). Samples taken in 2005 from these deposits, and from the cemetery and shell midden, will be analysed through a new dating programme (application spring 2006). Table 6 lists samples prepared for dating at this time. In addition to taking the sequence further back in time, this new programme will aim to date the few discrete burning features found, and to explore the charcoal internal sequence by dating samples targeted to fall between those already dated from the samples available. Microstratigraphy of the layers as discerned through soil micromorphology (below) may also help to clarify the issue of sediment bioturbation and charcoal sequences.

Assuming the sequence to be sound, there is great potential and interest now in tightening up sampling and recording intervals in regard to the cultural and environmental remains in the site. In particular, if the deposits can be tightly dated in a sequence, any changes in faunal and floral remains could be potentially dated to a relatively short time span.

**Figure 14 OxCal depth sequence plot for the 2004 ThPit sequence.**

**Table 7 List of charcoal samples for dating the lower exposed layers of East Mouth 2005 excavations. JC indicates wood samples currently being described for identification by Jane Carlos.**

| Accession No. | Square | Context | Depth (cm) below datum point | Notes |
|---|---|---|---|---|
| IV-1998-P-19759 | N3W2 | 784 | 200-220 | Charcoal, 2 pieces |
| IV-1998-P-19760 | N1W3 | 771 | 180-200 | Charcoal |
| IV-1998-P-19761 | N3W2 | 807 | unrecorded | Possible charred nut (JC) |
| IV-1998-P-19762 | N3W2 | 784 | 180-200 | Charred plant and bat mandible (JC) |
| IV-1998-P-19763 | N3W2 | 784 | 180-200 | Charred wood (JC) |
| IV-1998-P-19764 | N3W2 | 336 | 160-180 | 2 pieces of charred wood (JC) |
| IV-1998-P-19765 | N3W2 | 768 | 160-180 | Charcoal |
| IV-1998-P-19766 | N1W3 | 334 | 155-165 | 2 pieces charcoal |
| IV-1998-P-19767 | N4W2 | 768 | 180-200 | Charcoal |
| IV-1998-P-19768 | N3W2 | 768 | 180 | Charcoal from “activity area” |
| IV-1998-P-19769 | N2W4 | 769 | 180-200 | Charcoal |
| IV-1998-P-19770 | N3W2 | 336 | 160-180 | Charcoal |
| IV-1998-P-19771 | N3W2 | 784 | 200-220 | 3 possible charred nut (JC) |
| IV-1998-P-19772 | — | 336 | 160 | Charcoal, near charred human bone |

| | | | | |
|---|---|---|---|---|
| IV-1998-P-19773 | N2W3 | 769 | 160-180 | 3 charcoal pieces |
| IV-1998-P-19774 | N2W3 | 336 | ~ 170 | Charcoal |

# Preliminary assessment of the vertebrate remains recovered during the 2005 season

**Philip Piper**[11]

This report presents preliminary results of the initial 'on site' study of vertebrate remains from the 2005 excavations in the West Mouth, East Mouth and East Chamber, all of which produced relatively large assemblages of animal bones. The application of wet sieving and flotation during the excavations has resulted in the recovery of an unprecedented number of excellently preserved large and small vertebrate remains.

With the exception of one or two solid, compact pig metapodials all the large mammal bones were fragmented. Inspection of the fracture edges indicated that almost all the breakage had occurred during or prior to burial. Slight surface abrasion of breakage surfaces suggests that some subsurface or post-depositional movement had occurred to a high proportion of the bones. Many of the bones appeared to be partially coated in a 'calcite type' concretion. This probably results from the precipitation of calcium carbonate dissolved in water on the surfaces of the bones, and is a natural product of burial in limestone environments.

The bone assemblage contained representatives of all four vertebrate classes, mammals, reptiles, fish and one or two bird bones. This included residents of the cave and the environment surrounding it, such as bats, rats, squirrels and some reptiles. So far, a minimum of three species of chiroptera have been identified, two insectivorous bats, including *Hipposideros diadema*, and a fruit bat, possibly *Cynopterus cf. brachyotis*. The current location of the insectivorous bat roost is beyond the east and west entrances, in the darkest and highest recesses of the cave. Several rat mandibles have been tentatively identified as being from one or more members of the *Rattus* genus, a group infamous for their close commensual association with people that has permitted them to be transported around the world. Its presence at Ille Cave, possibly quite early in the Holocene will make an important contribution to the debate about when these species first arrived in the Philippines and other regions of Island Southeast Asia.

Of the large vertebrate remains recovered from the site, adult, sub-adult and juvenile pigs (*Sus* sp.) appear to be the most abundant. The Philippine macaque (*Macaca fascicularis philippinensis*) and monitor lizard (*Varanus* sp.) are both well-represented. A mandible and several loose teeth of the now extinct deer (cf. *Cervus* sp.) are important inclusions in the vertebrate inventory. Fox (1970) reports that deer remains have been found at other cave sites in Palawan, including Tabon Cave. Carbon 14 assays on charcoal found in close association to deer remains at some of these sites (unstated by Fox) suggest that it inhabited the island up until about 4,000 years ago.

[11] From Piper 2005

A single fragment of horn core from cattle was recovered from the upper horizons of W3/N3 (0.1m-0.4m). Future close examination of this specimen might determine whether it is from wild or introduced domestic stock.

Other vertebrates so far identified include Hystricidae (porcupine), Sciuridae (squirrel), Viverridae (civet cat), snake, Bataguridae (hard-shelled turtle), bird, fish and possibly a single tooth of *Crocodillus* (crocodile).

***Discussion and future objectives***

The preliminary study of the vertebrate remains has demonstrated that the bone assemblages from Ille Cave have huge potential. The methods of recovery employed on the site (wet sieving and flotation) are rarely applied on archaeological sites in Southeast Asia even though they optimize the recovery of small bone fragments, isolated teeth and the remains of small vertebrates. This is clearly demonstrated by the much higher diversity of vertebrates identified after the sorting of sieved bones from contexts 340 and 379 than those where only the large hand-collected bones have so far been assessed (Table 7).

Further research over the next two years will employ and extend standard analytical techniques of faunal analysis, in the identification of taxa and the interpretation of human, biostratinomic, and post-depositional modification of vertebrate remains. Macro-faunal remains will require weighing and counting, to provide information on temporal and spatial variation in bone concentrations resulting from natural and anthropic processes. Observations will need to be made of rates of fragmentation, bone fragmentation and size, and surface modification. Modifications such as human-derived cut marks will be recorded using a digital camera attached to a low-power trinocular microscope. Morphometric analyses should be undertaken to aid identification of closely related species and to quantify within-species variation. Bone fragmentation and body-part representation will inform on taphonomic processes including human predation, and hence on resource procurement and dietary stresses. Age structures will be established from tooth eruption/wear and long bone fusion, to investigate natural versus catastrophic death patterns and selective versus opportunistic hunting. All data will be entered directly into an *Access* database specifically tailored for the study of South East Asian vertebrate remains. The result will be high quality visual and quantitative datasets providing an analytical framework for the production of accurate results and interpretation of the vertebrate assemblages.

The current stratigraphic sequence at Ille Cave spans the early, middle and late Holocene, and future excavations will possibly extend the potential occupation into the Pleistocene. The length of continuous occupation and the quality of the animal bone assemblage at Ille presents a unique opportunity in the Philippines to study early human behavioural and cultural adaptation to the humid rainforest environments of Southeast Asia, and to investigate the long-term impact of people on Southeast Asian rainforests. The diversity, structure and composition of the small mammal, reptile and bird assemblages will also contribute to ongoing debates about the palaeogeographic affinities with the taxa of the

Sunda shelf and the duration of insularity of Palawan. A partial list of additional faunal remains available for analysis is given by Paz (below).

| | Context No./ Grid Area | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Taxa** | **340*** | **379*** | **W15/N3 (20-30)** | **W2/N2 (40-60)** | **758** | **731** | **W15/N5 (1st lift)** | **W3/N3 (20-40)** | **W14/N5** | **727** | **W2/N2 (90-100)** | **W3/N3 (40-60)** |
| *Bos* sp. (Cattle) | | | | | | | | | | | | |
| *Sus* sp. (Pig) | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| *Macaca* sp. (Macaque) | **X** | **X** | **X** | **X** | | | **X** | **X** | | | **X** | **X** |
| Muridae (Rat-sized) | **X** | | | | | | | | | | | |
| Sciuridae (Squirrel) | **X** | **X** | | **X** | | | | **X** | | | | |
| Hystricidae (Porcupine) | | | | | | | **X** | | | | | |
| *Cervus* sp. (Deer) | | **X** | | | | | | | | | **X** | |
| Microchiroptera (Insectivorous bat) | **X** | **X** | | | | | | | | | | |
| Megachiroptera (Fruit bat) | **X** | **X** | | | | | | | | | | |
| Viverridae (Civet cat) | | | | | | | | **X** | | | | |
| Bataguridae (Hard-shelled turtle) | **X** | | | | | | | | | | | |
| Chelonii sp. (Turtle) | | | | | **X** | | | | | | **X** | |
| *Varanus* sp. (Monitor lizard) | **X** | **X** | | | **X** | | | **X** | | **X** | **X** | **X** |
| Snake | **X** | **X** | | | | | | | | **X** | | |
| *Crocodillus* sp. (Crocodile) | | | | | | | | | | | | **X** |
| Bird | | | | | **X** | | | | | | | |
| Fish | **X** | **X** | | | | | | | **X** | | | |
| Crab | | | **X** | **X** | | | | **X** | | | | |
| Calcined or burnt bone | **X** | | | | | | | | | | | |

**Table 8: Preliminary identification of taxa by depth and context, 2005 excavations at Ille Cave, Palawan (continued over)**

*Taxa identified in Manila from sieved assemblages. Note the much higher number of taxa identified from sieved rather than hand-collected samples.

| | Context No./ Grid Area | | | | |
|---|---|---|---|---|---|
| **Taxa** | **W3/N3 (10-40)** | **W14/N5 (+12-0)** | **W15/N4 (+25-0)** | **W2/N1 - W3/N1 (80-100)** | **W3/N1 (40-60)** |
| *Bos* sp. (Cattle) | **X** | | | | |
| *Sus* sp. (Pig) | **X** | **X** | **X** | **X** | **X** |
| *Macaca* sp. (Macaque) | **X** | **X** | | | |
| Muridae (Rat-sized) | | | | | |
| Sciuridae (Squirrel) | | | | | |
| Hystricidae (Porcupine) | | | | | |
| *Cervus* sp. (Deer) | | | | | **X** |
| Microchiroptera (Insectivorous bat) | | | | | |
| Megachiroptera (Fruit bat) | | | | | |
| Viverridae (Civet cat) | | | | | |
| Bataguridae (Hard-shelled turtle) | | | | | |
| Chelonii sp. (Turtle) | | | | | |
| *Varanus* sp. (Monitor lizard) | | | | | |
| Snake | | | **X** | **X** | |
| *Crocodillus* sp. (Crocodile) | | **X** | | | |
| Bird | | | | | |
| Fish | | | | | |
| Crab | | | | | |
| Calcined or burnt bone | | **X** | **X** | | |

**Table 8 (cont.): Preliminary identification of taxa by depth and context, 2005 excavations at Ille Cave, Palawan**

# Ancient starch analysis and usewear studies

**Huw Barton**

A study of preserved starch granules in ancient and modern sediments will be undertaken on samples from prehistoric deposits within Ille Cave and from modern monsoon rice fields in front of the cave. Following initial success in the extraction of starch granules from cave sediments at Niah Cave in Sarawak (Barton 2005), it is hoped that this study will both further progress methodology, which is still experimental, and be informative of prehistoric plant use at the site. Starch granule analysis (Torrence and Barton 2006) is a recent addition to the suite of techniques used to study plant microfossils in archaeological contexts which includes studies of pollen and plant phytoliths. Starch has particular attraction for the tropics as it has the potential to reveal the use of carbohydrate rich plant parts such as tubers, corms, rhizomes (USOs: Underground Storage Organs), sago pith, and fruit that would otherwise, unless preserved by charring, have rotted and disappeared. Such plant parts, particularly USOs are likely to have been an extremely important aspect of hunter-gatherer diet in pre-agricultural periods, and their detection will greatly improve our understanding of plant use and the nature of human adaptation to these environments during the late Pleistocene and early Holocene.

A detailed sample of cave sediments (Table 8) was taken from the main excavation square in the East Mouth at Ille Cave. The sampling strategy followed that of sampling for pollen and was taken in an adjacent parallel column. A small bag of sediment was collected every five centimetres from -5 cm to a total depth of 185 cm. The sample from 150 cm depth was taken from the pollen column as a plant root prevented sampling in the starch column.

**Table 9 Starch samples from the East Mouth**

| Sample location | Sample Number | Context | Depth from surface (cm) | Date sampled |
|---|---|---|---|---|
| Ille-EM | 2005/65 | 398 | 5 | 9/5/05 |
| Ille-EM | 2005/66 | 398 | 10 | 9/5/05 |
| Ille-EM | 2005/67 | 398 | 15 | 9/5/05 |
| Ille-EM | 2005/68 | 398 | 20 | 9/5/05 |
| Ille-EM | 2005/69 | 398 | 25 | 9/5/05 |
| Ille-EM | 2005/70 | 398 | 30 | 9/5/05 |
| Ille-EM | 2005/71 | 398 | 35 | 9/5/05 |
| Ille-EM | 2005/72 | 398 | 40 | 9/5/05 |
| Ille-EM | 2005/73 | 398 | 45 | 9/5/05 |
| Ille-EM | 2005/74 | 398/394 | 50 | 9/5/05 |
| Ille-EM | 2005/75 | 394 | 55 | 9/5/05 |
| Ille-EM | 2005/76 | 394 | 60 | 9/5/05 |
| Ille-EM | 2005/77 | 394 | 65 | 9/5/05 |
| Ille-EM | 2005/78 | 394 | 70 | 9/5/05 |
| Ille-EM | 2005/79 | 395 | 75 | 9/5/05 |
| Ille-EM | 2005/80 | 395 | 80 | 9/5/05 |
| Ille-EM | 2005/81 | 395 | 85 | 9/5/05 |
| Ille-EM | 2005/82 | 395 | 90 | 9/5/05 |
| Ille-EM | 2005/83 | 395 | 95 | 9/5/05 |
| Ille-EM | 2005/84 | 395 | 100 | 9/5/05 |

| | | | | |
|---|---|---|---|---|
| Ille-EM | 2005/85 | 334 | 105 | 9/5/05 |
| Ille-EM | 2005/86 | 334 | 110 | 9/5/05 |
| Ille-EM | 2005/87 | 334 | 115 | 9/5/05 |
| Ille-EM | 2005/88 | 334 | 120 | 9/5/05 |
| Ille-EM | 2005/89 | 334 | 125 | 9/5/05 |
| Ille-EM | 2005/90 | 334 | 130 | 9/5/05 |
| Ille-EM | 2005/91 | 334 | 135 | 9/5/05 |
| Ille-EM | 2005/92 | 334 | 140 | 9/5/05 |
| Ille-EM | 2005/93 | 334 | 145 | 9/5/05 |
| Ille-EM | 2005/94 | 334/336 | 150* | 9/5/05 |
| Ille-EM | 2005/95 | 336 | 155 | 9/5/05 |
| Ille-EM | 2005/96 | 336 | 160 | 9/5/05 |
| Ille-EM | 2005/97 | 336 | 165 | 9/5/05 |
| Ille-EM | 2005/98 | 336 | 170 | 9/5/05 |
| Ille-EM | 2005/99 | 336 | 175 | 9/5/05 |
| Ille-EM | 2005/100 | 336 | 180 | 9/5/05 |
| Ille-EM | 2005/101 | 336 | 185 | 9/5/05 |

* Sample taken from adjacent pollen core.

To improve our knowledge of starch preservation in sediments of different composition and taphonomic histories, a small sample of material from the monsoon rice paddy test pit (Table 9; see Figure 3 for location). This deposit will be analysed for the presence/absence of starch granules and, it is hoped, for the detection of rice type starch and/or rice phytoliths. These samples will also be used as part of a larger experimental program to determine if the study of starch granules in sediment can be used to help detect the presence or absence of an agricultural signature in prehistoric contexts. This approach has shown promise in studies by Lentfer et al. (2002), who used a combination of starch and phytoliths to discriminate between gardens, disturbed vegetation and forest, and Denham et al. (2003) who are including starch in their research of early tropical agriculture at Kuk Swamp in the New Guinea Highlands.

**Table 10 Rice paddy trench samples**

| Environmental Sample No. | Depth (cm) | Layer |
|---|---|---|
| IV-1998-P-16954/102 | 0-4 | 1st layer, top portion |
| IV-1998-P-16954/103 | 4-8 | 1st layer, mid portion |
| IV-1998-P-16954/104 | 8-12 | 1st layer, lower portion |
| IV-1998-P-16954/105 | 16-21 | 2nd layer, top portion |
| IV-1998-P-16954/106 | 22-27 | 2nd layer, mid portion |
| IV-1998-P-16954/107 | 27-31 | 2nd layer, lower portion |
| IV-1998-P-16954/108 | 40-44 | 3rd layer, top portion |
| IV-1998-P-16954/109 | 43-47 | 3rd layer, mid portion |
| IV-1998-P-16954/110 | 47-51 | 3rd layer, lower portion |

Additional sediment samples were taken for starch and phytoliths analysis from Ille Cave by Helen Lewis (Table 10).

**Table 11 Additional sediment samples**

| Sample location | Excavation Square | Depth (cm) |
|---|---|---|
| Ille-EM | N5W3 | 5-7 |
| Ille-EM | N5W3 | 10-12 |
| Ille-EM | N5W3 | 15-17 |
| Ille-EM | N5W3 | 20-22 |
| Ille-EM | N5W3 | 25-27 |
| Ille-EM | N5W3 | 30-32 |
| Ille-EM | N5W3 | 35-37 |
| Ille-EM | N5W3 | 40-42 |
| Ille-EM | N5W3 | 45-47 |
| Ille-EM | N5W3 | 50-52 |
| Ille-EM | N5W3 | 55-57 |
| Ille-EM | N5W3 | 60-62 |
| Ille-EM | N5W3 | 65-67 |
| Ille-EM | N5W3 | 70-72 |
| Ille-EM | N5W3 | 75-77 |
| Ille-EM | N5W3 | 80-82 |
| Ille-EM | N5W3 | 85-87 |
| Ille-EM | N5W3 | 90-92 |
| Ille-EM | N5W3 | 95-97 |
| Ille-EM | N5W3 | 100-102 |
| Ille-EM | N5W3 | 105-107 |
| Ille-EM | N5W3 | 110-112 |
| Ille-EM | N5W3 | 115-117 |
| Ille-EM | N5W3 | 120-122 |

***Functional Analysis of Stone Tools***

A sample of 19 stone artefacts from the Ille Cave excavation were selected for analysis of usewear and organic residues, including starch granules, at the University of Leicester. Analysis will include high power usewear analysis using a Zeiss Axioscop polarising microscope and extraction of tool edges for possible residues following protocols published in Barton et al. (1998) and Fullagar (2006). To improve reliability of usewear interpretations, notoriously difficult on coarse-grained raw materials (see Mijares (2002) for the most recent review) a series of experiments on modern andesite flakes, sourced from the nearby river, was conducted in the field. Tasks included sawing bamboo, planning wood, splitting softwood, graving wood of medium hardness, slicing *Alocasia* sp. petioles and slicing banana fronds (prob. *Musa* sp.). A partial list of stone tools available for study is given by Paz below.

# Soil micromorphology and pollen sampling

**Helen Lewis & Vito Hernandez**

Three soil micromorphology samples were taken in 2005 from the East Mouth, along with six from the Test trench south of the platform. These are added to a collection sampled in 2002 by Mary Clare Swete Kelly & Kath Szabó of the upper part of the sequence, and in 2004 by the author from the lower part of the East Mouth Treasure Hunters' Pit sequence, and a few taken from selected contexts in the West Mouth, Rice

paddy trench and the Outlier Excavations (see Table 11). These samples are currently being analysed, and will be integrated into a report and publication as part of a comparative study on cave sequences and landscape history of the region (Lewis 2002; 2004; forthcoming a & b). All samples were sent for thin section production to the soil thin sectioning Laboratory at CSIRO, Canberra and the McBurney Geoarchaeology Laboratory, University of Cambridge. The aim for all soil micromorphology samples is to complete analysis of Ille Cave in the summer of 2006, with samples being analysed at the University of Oxford RLAHA and the University of Cambridge McBurney Laboratory. Thin sections and resin-impregnated blocks will be stored at Cambridge thereafter as an archive collection.

**Table 12 Soil micromorphology samples from Ille Cave 2002-2005**

2002 (IV-1998-P-13594, -13595, -13596, -13597 & -13598)
N5W3 East Mouth West Wall 0-10cm
N5W3 East Mouth West Wall 9-19cm
N5W3 East Mouth East Wall 14-24cm
N5W3 East Mouth 90-100cm
N5W3 East Mouth 110-120cm

2004-2005
200 – !55-!48, organic layer, bioturbated
203 – [283]-[301], no ash
204 – [334], possible ash
205 – [334]-[335], less calcareous, with charcoal
206 - [335]-[336], with wood ash
207 - [335]-[336], with wood ash
208 – [336], with wood ash & speleothem (calcium carbonate)
209 – [336], with wood ash
210 – [336]-[337], ThPit no ash
211 – lots of odd rock fragments, very red, very burnt looking
East 797 limestone lens (?speleothem)
EN3W2 [334]-[769]-[784] – mixed deposits
East 784-797 lens at base
Test trench/1-6 (currently unprocessed - see Table 13)

A column sample for preliminary pollen analysis was taken from the East Mouth Treasure Hunters' Pit N4W4 west wall (samples 2004/1-37, with individual subsamples every 5cm of the column, to 2m depth) and sent to Janelle Stevenson in Canberra. The only variation noted in the cleaned back section compared to the section drawn in 2004 (see Figure 15) was an additional 20cm thickness to the shell midden layer, at the expense of the underlying layer. Dr. Stevenson will be travelling to Manila and Palawan later in the grant year to conduct background fieldwork and laboratory work. The 2006 season report will include her activities, methodology and preliminary findings.

Monolith and sediment samples were taken from the excavation south of the platform (ESP – also called test trench in main text). The monolith samples were taken in the aim

of gaining an understanding of the water-lain deposits thru micromorphological and bulk analysis. These samples have not been processed yet.

**Table 13 List of pollen and Test trench soil samples**

| Accession Number | Sample Number | Type | Square/ Context | Depth | Notes |
|---|---|---|---|---|---|
| No number given | 2004-1-37 | Column | N4W4 West Wall | 0-200cm | Pollen column sent to ANU |
| IV-1998-P-17479 | 2005-112 | Monolith | S22W15 | ~135cm-145cm | Sample <1> in storage at UP-ASP laboratory |
| IV-1998-P-17480 | 2005-113 | Monolith | S22W15 | ~140cm-150cm | Sample <2> in storage at UP-ASP laboratory |
| IV-1998-P-17481 | 2005-114 | Monolith | S22W15 | ~106cm-129cm | Sample <3> in storage at UP-ASP laboratory |
| IV-1998-P-17482 | 2005-115 | Monolith | S22W15 | ~120cm-130cm | Sample <4> in storage at UP-ASP laboratory |
| IV-1998-P-17483 | 2005-116 | Monolith | S22W15 | ~128cm-139cm | Sample <5> in storage at UP-ASP laboratory |
| IV-1998-P-17484 | 2005-117 | Monolith | S22W15 | ~104cm-109cm | Sample <6> in storage at UP-ASP laboratory |
| IV-1998-P-17485 | 2005-118 | Monolith | S22W15 | ~185cm-195cm | Sample <7> in storage at UP-ASP laboratory |
| IV-1998-P-17486 | 2005-119 | Sediment | S22W15 | 5cm-10cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |
| IV-1998-P-17487 | 2005-120 | Sediment | S22W15 | 15cm-20cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |
| IV-1998-P-17488 | 2005-121 | Sediment | S22W15 | 25cm-30cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |
| IV-1998-P-17489 | 2005-122 | Sediment | S22W15 | 35cm-40cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |
| IV-1998-P-17490 | 2005-123 | Sediment | S22W15 | 45cm-50cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |
| IV-1998-P-17491 | 2005-124 | Sediment | S22W15 | 55cm-60cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |
| IV-1998-P-17492 | 2005-125 | Sediment | S22W15 | 65cm-70cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |
| IV-1998-P-17493 | 2005-126 | Sediment | S22W15 | 75cm-80cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |
| IV-1998-P-17494 | 2005-127 | Sediment | S22W15 | 85cm-90cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |
| IV-1998-P-17495 | 2005-128 | Sediment | S22W15 | 95cm-100cm | Divided into two, sent to ANU for pollen analysis, and kept in storage at UP-ASP laboratory |

# Macrobotanical remains

**A. Jane Carlos & Victor Paz**

Our approach on macrobotanical sampling was guided by our understanding of the nature of the site's stratigraphy, which was based on results from previous excavation seasons. Sampling for the layers above the shell middens was limited to the combustion features found. It was understood that most of the matrices were likely to be secondarily deposited as fill material for numerous grave diggings, and thus not reliable contexts for macrobotanical analysis. At the shell midden level and all layers below it there was a total sampling strategy adopted. All excavated matrix underwent dry sieving; those associated with fills were subjected to flotation and the subsequent wet sieving of the heavy fraction. Special attention was given to features that had clear evidence of combustion.

For this season, there were 45 sample contexts recovered from the site, with the smallest sample size at 20 litres and the largest at 100 litres. Not all of these samples have been processed, given the quantity and the limited water supply at the base camp, which slowed down the work rate substantially. The unprocessed samples are stored at the site base in large plastic sacks and will be processed in the 2006 season.

Several charred plant remains were recovered from the various contexts. In the hearth/combustion feature samples there are several remains of seeds and nuts, the identification of which awaits further comparisons with reference collections in the Philippines and in the region. Carlos (2005) notes that charred nut fragments were found in at least two levels below the shell midden in the East Mouth through excavation: 140cm in W2N4 and 155cm in W3N3. These were found lumped with other charred materials (most likely wood). There were also a notable number of charred parenchymatous tissues recovered from the flot samples, indicating the utilisation of plants with tuberous organs on site. The parenchymatous samples await scanning electron microscopy for identification.

Seventy-six charcoal samples were taken in 2005; the wood from these will be identified before samples are sent for future dating programmes at RLAHA Oxford. Samples currently available for dating are listed in Lewis (above, Table 6).

# Artefactual analysis

**Victor Paz**

Artefactual analysis is ongoing and only partial at this time (Table 12). The excavation as a whole has produced more than 3154 earthenware sherds, 237 stoneware sherds, 18 celadon fragments and 25 other tradeware sherds (including porcelain, blue and white wears). Lithics, mainly from the cemetery (jade) and deep burning horizons (chert & obsidian) include 2 jade adzes, 1 pebblestone, 1 hammerstone, 6 chert flakes, 38 'lithics' and several possible stone tools including of basaltic stone. From the cemetery, two ling-ling-o were found, five metal objects, six jade accessories, and several beads of glass, stone and shell, including trade beads. Carlos (2005) notes that some of the potsherds

recovered had designs which resemble the patterns in the shells, especially the Neritids' (purple gastropod) geometric design, whose repetitious patterns were similar to embossed, impressed and incised designs (triangular, linear, etc.) on earthenware sherds found.

**Table 14 Ille Cave 2005 Excavation partial artefact count**

***Ceramics***

Earthenware
Body with impressions – 5
Body with temper – 2
Body with design – 130
Body with no design – 2459
Lid – 1
Body with Handle – 1
Rim with design – 136
Rim with no design – 321
Base with design – 1
Base with no design – 22
Carenated with no design – 64
Carenated with design – 10
Body with inclusion – 1
Body with root marks – 1

Stoneware
Rim – 33
Rim with design – 3
Body with no design – 175
Body with design – 14
Base – 12

Celadon
Base – 2
Body – 14
Rim – 1
Carenated – 1

Other tradewares
Base – 2
Rim – 2
Rim with design - 1
Body – 18
Body with design – 2

***Lithics***
Jade adze – 2
Geofacts – 18
Lithics – 38
Pebblestone probably ochre – 1
Hammerstone – 1
Chert flakes, etc. – 6
Chert pebble - 1
Stone – 4
Basaltic – 4
Possible stone tools - 5

***Bioarchaeological***
Bone fragments – 310
Turtle carapace – 1
Unworked shells – 18
Worked shells – 55
Tusks – 4

***Others***
Ling-ling-o - 2
Metal - 5
Stone disc bead – 1
Assorted beads – 14
Jade accessories – 6
Glass beads - 2

# Dissemination

Dissemination beyond the project team of the 2005-7 investigations to date includes the following submitted and forthcoming publications and presentations:


Bird, M. I., Boobyer, E., Bryant, C., Lewis, H., Paz, V. & Stephens, E. E. Forthcoming. A long record of environmental change from bat guano deposits in Makangit Cave, Palawan, Philippines. *Transactions of the Royal Society of Edinburgh, Special issue: Holocene environmental change: lessons from small oceanic islands*.

Lara, M. 2006 (forthcoming). The Human remains at Ille. Talk to be given at the IPPA conference, Manila, March 2006

Lewis, H., Paz, V., Kress, J., Lara, M.G., Medrana, J.G.L., Carlos, A. J., Piper, P., Hernandez, V., Barton, H., Robles, E., Vitales, T. J., Ragragio, A., Solheim II, W. & Ronquillo, W. Forthcoming. Holocene occupation of Ille Cave, Palawan, Philippines. (In prep for submission to Proceedings of the Prehistoric Society by April 2006).

Lewis, H., Paz, V., Kress, J., Lara, M.G., Medrana, J.G.L., Carlos, A. J., Piper, P., Hernandez, V., Barton, H., Robles, E., Vitales, T. J., Ragragio, A., Solheim II, W. & Ronquillo, W. 2006. *Early occupation at Ille Cave,*

*New Ibajay, El Nido, Palawan, Philippines: report on the 2005 excavation season*. Report for the British Academy, NERC/Orads and the National Museum of the Philippines.

Lewis, H., Paz, V. and Ronquillo, W. 2005. *The Palawan Island Prehistory Project: Joint Activities in 2004*. Unpublished report for the British Academy.

Lewis, H., Paz, V. and Ronquillo, W. 2006 (forthcoming). *The Palawan Island Prehistory Project: Joint Activities in 2005*. Unpublished report for the British Academy.

Medrana, J. 2005. Updates of the 2005 Excavation Season at Ille Cave. *Test Pit*, No. 6: 13-15.

Ochoa, J. 2005. Dog remains at Ille and the question of domestication. *Hukay*, 8:35-47.

Paz, V. In press. The Jade Trail as seen from the Ille Rockshelter. *The Jade Trail: From Archaeology to History*, Ed. By Cynthia Valdes, Mission View Publication.

Paz, V. 2005. Rock Shelter, Caves and Archaeobotany in Island Southeast Asia. *Asian Perspectives*. 44 (1): 107-118

Paz, V. 2005 Expanding the research horizon on the Neolithic of Island Southeast Asia. Southeast Asia a global crossroads, SEASREP 10th Anniversary Conference, 8-9 December 2005, Chiang Mai, Thailand.

Paz, V. 2005. The Philippine Islands and the Discourse on Austronesian Dispersals. International Symposium on the dispersal of the Austronesian and the ethnogenesis of people in the Indonesian Archipelago. Indonesian Institute of Sciences. Solo, Java, Indonesia, June 28 –July 1, 2005

Paz, V. 2005. The Philippines between Asia and Oceania: Austronesian dispersal and other ancient population dispersal hypotheses. The Philippines between Asia and Oceania conference, Bulwagang Sala'am, Romulo Hall, University of the Philippines, Diliman, Quezon City, March 2, 2005.

Paz, V. 2005 Update on the research initiative at the Dewil Valley, New Ibajay, El Nido, Palawan. Binalot Talks, UP-ASP, February 16, 2005

Further small reports were prepared by team members for integration into this report; these are cited throughout and listed in the bibliography. Post-excavation work on the remains from the 2004-2005 is ongoing at UP ASP Diliman, with the exception of soil micromorphology, dating, starch and pollen work which is being conducted at specialist institutions (named previously). All archive materials will be held by the National Museum of the Philippines/UP ASP Diliman, with the exception of soil micromorphology archives, which will be held in controlled circumstances at the McBurney Laboratory, University of Cambridge.

Forthcoming specialist reports from the 2004-5 season include:

- Skeletal remains (Lara, Medrana)
- Molluscan remains (Kress, Pamela Faylona, possibly Kath Szabó)
- Faunal remains (Piper)
- Trade beads (Jun Cayron)
- Lithic (t.b.a.)
- Pottery (Solheim)
- Soil micromorphology (Lewis)
- Starch (Barton)
- Pollen (Stevenson)
- Metal & other finds (t.b.a.)
- Archaeobotany (Paz & Carlos)

In addition, we aim to write the following for immediate submission from the 2005 season (author order uncertain at present):

- summary paper for Hukay (Paz, Lewis, Kress and team members)

- article on Burial 727 for Asian Perspectives (Lara, Lewis, Carlos, Medrana)
- note on decorated stone for Antiquity (Lewis and team members)
- article on cremation in Island Southeast Asia for Asian Perspectives (Paz & team members)
- soil micromorphology paper for Geoarchaeology (Lewis – including 2002 & 2004)

Other related studies will include a masters' project at UP Diliman on geoarchaeology in the region (Vito Hernandez), and inclusion of certain trade goods in a new PhD study (Jun Cayron, NUS).

Final publication of the excavation project will be in book form; the structure of this book is currently under discussion.

## Summary of the 2005 season and recommendations for future work

This first season of this phase of excavations at Ille Cave supports many of the interpretations of the earlier investigations (Szabó et al. 2004; Kress 2004), revealing an extensive Metal Age and possibly Neolithic cemetery in both mouths of the rockshelter. All cave trenches produced numerous burials, which appear to date from historic times into the Metal Age, and potentially beyond to the Neolithic. The later phases of this cemetery at least are known to extend out onto the platform (Paz & Ronquillo 2004), and this year we revealed that burials are also found deeper within the cave (Piper & Hernandez above). Although burials were difficult to phase in the rock shelter trenches, the East Mouth chamber trench showed clear grave cuts from near surface layers; this area shows great potential for clarifying the stratigraphy of the cemetery, and for better studying relationships between graves and between grave goods and individuals.

Overall, the burials show the Ille cemetery to be both extensive and intensively utilised in the past, with dozens of skeletons revealed within the upper 60cm of both the West and East Mouths. We have discovered that throughout the deposits there are consistencies in certain mortuary practices (Lara, above), perhaps suggesting a long-term burial tradition, possibly extending back beyond the Metal Age. In addition, there are hints of other, possibly early burial practices, disturbed by or included within the cemetery deposits, including fragments of probable jar burials in the West Mouth (Kress above). Finds from the cemetery include historic tradeware, stoneware and earthenware sherds, glass, stone and shell beads, iron and copper fragments and ornaments, a shell scoop, a polished chert adze, and the remains of several types of animals, most notably molluscs, pig, turtle, and fish. Of particular note was one grave from the East Mouth, in which lain slabs of limestone covered a body with large shell disc beads, a conch, and pig incisor grave goods. This was the lowermost grave of the main cemetery found to date, and it is possible that it dates into the Neolithic. In the West Mouth, graves with a conch and a stone adze were found that may also date to an early phase, and a dog burial was found associated with a human grave. The issue of whether Sa Huynh-Kalanay pottery found relates to a (now missing) jar burial cemetery or to late settlement activities is being considered. The worked shells from the cemetery are known to be of great significance in

the region, and this year's excavations produced many beads and implements to add to our understanding of the importance of shells as tools and burial goods.

The East Mouth trench was excavated beneath the cemetery, down through a series of important shell midden deposits with burnt and unburnt animal bones, oriented on a steep gradient downwards from the cave to the outside. Most of the remains suggest terrestrial and estuarine resource concentration, and the intensity of deposition suggests repeated and/or long-term use of the rock shelter. Interesting remains in the regional context include early rat and late deer bones. The shell midden has been shown to be extensive, and to slope down out of the cave mouth following the line of an earlier layer of silt, revealing that the current platform developed only relatively recently, overtop of the previously sloping entrance. The exact mechanism through which the later platform built up is still uncertain, but undoubtedly includes guano deposition, and possibly some aeolian deposition, along with the bulk associated with the cemetery deposits. Unlike in the previous excavations, the shell midden layers are seen to be aceramic, and we suggest that previous finds of pottery relate to burial remains intruding into the shell midden where this is closest to the surface (within the mouth). In addition to thousands of broken and complete bivalve and gastropod shells, the midden included many animal bones (some burnt), including frequent pig and fish, as well as reptile remains, and large limestone and possible quartzite flakes.

The sequence of the midden in the East Mouth is complicated by a series of rockfalls, most of which appear to predate the midden, but some of which may fall within the shell layer depositional sequence. Underneath the midden is a series of layers of silt and clayey silt, separating this from the lower sequence. Resting against one of the fallen boulders was a worked slab, with diamond-shaped grooves and a possibly smoothed or ground surface. This type of find appears to be rare in the region.

The midden deposits overlie around 60cm of burning deposits, zones with chert and obsidian flakes, numerous burnt and unburnt animal bones (including turtle carapace) and shells, and one cremated human burial, apparently originally in a small container. Radiocarbon dates from the upper parts of this phase range tightly around 9000-11,000 yr. B.P. The lowermost sequence excavated includes sediments with repeated burning events, with the entire silty clay layer being full of cooking refuse and hearth rake-out materials, as well as some structured in situ hearths and possible hearths. One area in particular was associated with occasional finds of chert and obsidian flakes, and suggested to be an 'activity area'. Throughout this phase are frequent dissolving limestone slabs, including one extensive layer of 'rotten' rock identified following a gentle slope down out from the cave mouth. This layer covers further sediments of the same type as seen overlying, but with apparently better preservation; more of the burning remains found underneath the limestone layer appear to be in situ. In the upper levels of this sequence, directly on top of one limestone slab, we found a human cremation that appeared tightly stacked, and was evidently within a container of some sort upon deposition. This has subsequently been seen to have cut marks on its long bones, and the context appears to be a rare or even unique find in the area, especially since the deposits overlying it date to the Late Palaeolithic; previous finds of cremation burials in the region are dated to the Neolithic and later. No later cremations have yet been found at Ille Cave.

The lowermost level of these deposits shows some levelling off, suggesting that perhaps there was a flatter platform at the cave mouth during the early Holocene (or earlier), with a much larger cave mouth opening.

At the base of these deposits is a thin layer of possibly water-lain mixed gravels with no animal or cultural remains; these small rounded mixed gravels are visually identical to those found in stratified layers within the off-platform Test pit trench (Robles & Ragragio above), suggesting some fluvial activity at the front of the cave. Whether this can be related to environmental change at the Pleistocene-Holocene transition remains to be seen. These gravels will be identified in future; we are currently uncertain as to their source of origin. These are the first definite stream deposits found in any of the cave or platform excavations, although frequent inclusions of oxidised clay and rare inclusions of reduced clay, both presumably originally weathered from the limestone, appear to come from sources elsewhere in the locality or in the tower. The overlying soil in the Test pit appears to be a slightly disturbed forest soil, with strong leaching creating an oxidised clay-rich B horizon. This is different from the paddy soil investigated in 2004, which possessed a typical compacted and organic lower A horizon, and came off onto reduced clay, reflecting the raised water table associated with paddy farming practice.

The final layer uncovered in 2005 underneath this 'sterile' gravel layer included animal bones, chert flakes, a possible chert core and a possible carved antler. Given the dating sequence from the deposits thus far, it is anticipated that this and any lower occupation layers will reveal early Holocene and late Pleistocene cultural activities and landscape history. The first stage of excavation has already provided a great deal of comparative material for studies of the island and region from the Palaeolithic on, and has produced material dating back into at least the Early Holocene. The occupation remains from the Palaeolithic are important in light of new regional research on early foragers and environments (eg. Niah Cave Project), as well as new work on the Tabon Cave 'early man' site, palaeoenvironmental change, and sea level rise on Palawan Island.

Several series of environmental samples were taken for ongoing study, and a large number of charcoal samples were taken from both mouths for future radiocarbon dating to add to the good sequence already being developed (Szabó et al. 2004; Lewis above). Detailed artefactual and skeletal studies are underway with the aim for complete archiving and interpretation within 2006. Dissemination is also ongoing; a major publication phase is planned for the 2006-7 year, with a final book or monograph in 2007-8 concluding this phase of the project.

***Recommendations: the East Mouth and Test pit south of platform***

The East Mouth will see extension to connect to the East chamber (see below), and continued investigation of deep levels. The finding at depth of a layer of possibly water-lain gravels comparable to those in the Test pit, and underlain by sediments bearing further archaeological and archaeozoological remains, is very interesting; this sequence will see further investigation, perhaps by trenching through the platform from the rock shelter to the Test pit. Continued post-excavation analysis of environmental, human

skeletal and artefactual remains, as well as further dating from the East Mouth excavations will inform the upcoming 2006 investigations.

Some of the issues raised by the East Mouth excavations have been mentioned above, and below (the West Mouth); others to be addressed include those raised by Kress (2005):

1. The nature of the waterlain deposits; the possibility of there being a lake/lagoon beyond the site & the nature of waterlain deposits
2. The nature of the shell midden deposits, and relationship of these with the lower Late Palaeolithic deposits
3. The relationship between the Ille and other Palawan Palaeolithic flake and blade assemblages
4. The significance of the cremation.

***Recommendations: the West Mouth***

The West Mouth will continue to see excavation to depths meeting those uncovered in the East Mouth, and sampling for comparative environmental and dating sequences. A further attempt to finally resolve the issue of the pit with late pottery at depth will be carried out in 2006. This trench could be extended to connect with the East Mouth, or with other previously excavated trenches (Figure 2) if necessary regarding stratigraphic interpretation. In particular it will be interesting to see if both mouths possess similar overall stratigraphy. Further recommendations regarding the West Mouth await the results of skeletal analysis and additional dating.

The cemetery in general has raised many issues that should be addressed. Kress (2005) lists the following as being of high importance at this stage:

1. The significance of the configuration of the burials in the cemetery
2. The relationship between the cemetery and its Contact Age context
3. The chronological and stratigraphic significance of the deep ceramics, polished adze and human bones in the W13 'pit'
4. The contextual associations of the possible Sa Huynh-Kalanay 'burial jar', and the possibility of pre-Metal Age jar burials
5. The existence of a ceramic Neolithic layer in the West Mouth
7. The existence of an aceramic Neolithic in the East Mouth, & the nature of the strata containing the 'Neolithic' burial (727), and relationship to the underlying midden.

***Recommendations: the East Chamber***

The East Chamber will be connected to the East Mouth trench through a long trench aimed at exposing and clarifying the stratigraphy of the rock shelter in relation to the cave itself. This is especially important for three reasons: a) to elucidate the depositional origin of sedimentary material on in the rockshelter and on the platform; b) to clarify the relationship and phasing of the cemetery deposits within the East Chamber; and c) to determine whether the tilt seen in the East Mouth deposits means that earlier deposits may be found higher up in the sequence within the cave entrance itself. The latter is important regarding the potential depth/age to which excavations can be pursued within health and safety constraints. In this regard, it is very important not only to extend this trench, but also to continue to excavate it down and expose the lower stratigraphy. We anticipate potentially different types of occupation remains to be found within the cave

proper in comparison to the rock shelter, and this area can thus help in the exploration of use of space over time at the site as a whole.

Because the East Chamber cemetery is the only area thus far to show good preservation of grave feature cuts, it is important that this be excavated carefully regarding cemetery sequencing, stratigraphy and the association of artefacts with individual skeletons. Radiocarbon dating of charcoal from the feature fills in this area will also be an important part of phasing the Ille Cave cemetery as a whole. All graves encountered during the establishment of the East Chamber trench extension, and all of those in the existing trench, will see full careful excavation, sampling and post-excavation study of skeletal remains, grave goods and included artefacts/ecofacts, as per the programme established in the East and West Mouths.

Piper and Hernandez (2005) further recommend that the distribution and characterisation of artefacts found unassociated with features be carried out regarding their origin and deposition in reference to microtopographic issues within the cave. Similar work in other parts of the Philippines shows the usefulness of such studies (Hernandez 2004).

***Recommendations: dating***

The dating programme, while slow due to issues of submitting appropriate samples, is progressing well as regards the results. The West Mouth results are somewhat mixed, perhaps reflecting the known later intrusion on Palaeolithic deposits. The East Mouth results are, however, very consistent and reveal that intensive and extensive occupation deposits at depth date to the mid to early Holocene. There are many new samples available for analyses; a new Orads dating application will be submitted shortly to continue the radiocarbon programme.

***Recommendations: environmental remains***

Most of the environmental analyses are currently not at a reporting stage, and the results that are available are preliminary. Nevertheless, it is clear that there will be a significant story coming from these remains, and particularly the various types of extremely abundant middened faunal remains. The dating and chronological significance of certain animals, such as deer, is also very important. The future season will continue our programme of sampling for faunal, archaeobotanical and sedimentary analyses.

One extremely powerful tool must be exploited to its full extent in post-excavation - faunal analysis. An understanding of the nature of mollusc exploitation, in particular, can address issues arising regarding cultural landscape and palaeoenvironment, as well as some questions regarding site phasing. If, for example, the molluscan assemblage from the East and West Mouth middens are similar - perhaps even identical - then there is a chance that they could represent a contemporaneous use of the site. If there is a difference in the exploitation patterns of the later burial contexts, the ceramic Iron Age/Neolithic, and the interpreted aceramic 'Neolithic', then there is a good chance that these are real prehistoric cultures representing developmental stages in the prehistory of the Philippines. If there is no difference, it does not necessarily disprove their existence, but clearly indicates that they need much sharper stratigraphic definition.

In the past our molluscan collection techniques have been inconsistent. Analysis of the present large (almost 100%) collection is useful and necessary, and should be carried out in a setting designed to compare the East and West Mouth assemblages: through investigation of two squares - one in the East Mouth and one in the West - which will expose all the various components discussed above, and within which rigorous molluscan collection is accompanied by simultaneous analysis, both counting and measurement.

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