FOREWORD

Starting with this issue, Test Pit would be available as an open access, online only publication. The shift to a purely digital publication presents an exciting opportunity for Test Pit to reach a wider audience in a format that is increasingly popular and more readily accessible. Being an online publication, Test Pit is now free from the constraints of printing. As you might have noticed, this issue features a new layout that takes advantage of this freedom. We also made sure that the lay out is dynamic and easy to read in a computer screen.

This issue also marks the transition of Test Pit into a new editorial team. My first task as the new editor is to pay tribute to the fine work done by my predecessor and colleague Aya Ragragio and her editorial assistant Anna Pineda over the past years. I have worked with Aya and Anna on the last four issues of the chronicle, as a contributor, copyreader and layout artist, and would attest to their enthusiasm and commitment to make Test Pit a lively channel where members of the graduate community can engage in discussions and useful exchange of ideas and experiences.

The diversity of the articles in this double issue reflects the development of the chronicle since it was first published in 2002. We have updates on excavations conducted in Batangas, Quezon Province, Cebu, Ilocos Sur and Palawan, and articles looking at sourcing of adobe blocks from a Spanish house, the stratigraphy of Tabon Cave and the feasibility of using three dimensional artifact scans in Philippine archaeology. We also have book and thesis reviews, essays on issues of cultural resource management, the handling human remains from archaeological sites and the subjectivity of archaeology as well as personal reflections on the discipline.

Rest assured that the primary goal of the new editorial team is to continue this development and ensure the quality of Test Pit as a vital venue for discussion and exchange of ideas.

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Cover Image: Excavation of Structure B in Pinagbayanan, San Juan Batangas; Photo: Archie Tesoro; Plans: Excavation Team 2010-2011
Some Notes on the Archaeological Investigations of Structure B in Pinagbayanan, San Juan, Batangas

2011 Excavation Team

Under the supervision of Dr. Grace Barretto-Tesoro, the UP Archaeological Studies Program 2011 Field School team focused their energies in investigating the ruins of an old stone house, known as Structure B in archaeological records. Structure B is located 10 meters east of the Barangay Road and south of the previously excavated Structure A. The archaeological investigation of Structure B concludes the three-year research project that aims to understand the history of San Juan, Batangas. The knowledge that the archaeological community gained through the excavation and interaction with local community enriches our understanding of the town’s local history, the archaeology of Spanish colonial period and our practice of the archaeological discipline.

Excavations on historic site done in the past were mostly on churches and historic public structures. The 2009 to 2011 excavation of the ruins of the two stone houses in Pinagbayanan provides us with the opportunity to gain valuable knowledge on the domestic life during the 19th century. It allows us to understand how historic structures were constructed, used as living spaces, abandoned and later destroyed. Through the archaeological investigation of these stone structures, the team has been able to explore the interaction of people and structures they inhabit.

Structure B was first recorded archaeologically during the 2008 archaeological survey of Batangas. While the site was heavily covered in vegetation, the presence of three stone pillars and bases of stone walls indicated that it was the location of a stone structure. The site, located within the property of Dr. Edgardo de Villa Salud, was assigned the National Museum Code IV-2009-G. The team conducted the archaeological investigation of the structure from April to May 2011. To fully realize archaeology of the site, the team utilized an excavation methodology with a context recording system, interviews of the local people, and a modified artefact management system. The team also mounted an exhibit to share the knowledge that the team gained in the excavation with the local residents.

The stone house had a rectangular shape. The longest side, which is oriented from east to west, has a measurement of 24.95 meters; the shortest side, oriented from north to south, is 9.35 meters long. The house was constructed in the late 1800’s, using grout, solid and dry masonry technique in different parts of the house. A mixture of cement and lime mortar was used as fill and binder between the adobe and conglomerate blocks. These adobe and conglomerate blocks were used to form the walls and pillars of Structure B. Tisa and baldoza fragments, ceramic sherds, and volcanic rocks were...

The objectives of the team were as follows:

1. Identify the nature of Structure B,
2. Investigate the construction technology of Structure B,
3. Investigate the reasons for the abandonment and destruction,
4. Identify the activity areas within the structure,
5. To recover materials for archaeological analysis,
6. Look at the similarities and differences between Structure A and B,
7. And to continue the investigation of the plaza complex of San Juan.
used as aggregates in the cement and lime mortar mixture to strengthen the structure. Postholes for wooden post, believed to be made from Mulawin, were also exposed during the excavation. Processed capiz for windows and thick corrugated galvanized iron sheets (yero) possibly used for roofing were also recovered during the excavation. From the analysis of the diverse construction techniques and the materials used in different parts of the structure, the team has been able to infer that the house had two phases of construction. Phases of occupation, abandonment and destruction also had been reconstructed through the analysis of stratigraphic layers and the artefacts recovered in each layer.

The excavation yielded a diverse number of artefacts: tisa and baldoza fragments, window capiz, earthenware, stoneware and trade ware ceramics sherds, glass shards, animal bones, shells nails and screws, metal artefacts, buttons, hair combs and other artefacts were found. The artefacts recovered from the site will undergo archaeological analysis that will help the team make inferences on the material culture found on the site.

There are still more sites waiting to be studied in San Juan, Batangas. While the archaeological analysis of the two stone houses is nearing completion, there are other stone ruins just within Pinagbayanan alone that are needed to be investigated archaeologically. Studying these other structures is essential to gain a more detailed archaeological picture of the town’s local history and the life in 19th century Batangas.

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Sangguniang Bayan of San Juan, Batangas
Sangguniang Barangay of Pinagbayanan, San Juan, Batangas
Sangguniang Kabataan of Pinagbayanan, San Juan, Batangas
Pinagbayanan Elementary School
Residents of Barangay Pinagbayanan
Notes on the Catanauan Archaeological and Heritage Project
Thea Kersti C. Tandog, Clarissa Ruzol, Maria Rebecca L. Ferreras, and Andrea Dominique M. Cosalan

Slowly maturing into its third season, the Catanauan Archaeological and Heritage Project was once again conducted as a joint excavation between the University of the Philippines-Archaeological Studies Program (UP-ASP), Australian National University (ANU), and the National Museum of the Philippines (NM).

It was conducted last of January, with a team composed of students from ANU and the UP Department of Anthropology; students, faculty, and staff from the UP-ASP; and local staff from the Catanauan community.

Exposing an older extended burial at Napa Site

During this season, the team, while still working on the Napa property site, sought to explore nearby areas previously reported in 2006 by Mr. Deo Cuero, a resident of Catanauan, that are probable archaeological significance (Paz et al. 2008). Archaeological investigations at two other sites within the municipality, the Comiso property and Kampo Santo sites, were conducted. Ms. Aya Ragragio and Ms. Myra Lara, both from the UP-ASP, led the Comiso property and Kampo Santo excavations respectively.

Napa Property Site (Locality #1), Brgy. Tuhián

The Napa property site (National Museum code: IV-2008-QS) was first brought to the attention of the UP-ASP and the NM by Mr. Cuero after following a report that earthenware sherds and archaeological materials were accidentally unearthed in 2003. Excavation during the first season in 2008 established Brgy. Tuhián as having significant archaeology (Paz et al. 2008). The succeeding season continued with the excavation and further explorations the scope of the archaeology in the area. In situ jar burials, hearths, shell middens, and postholes were systematically recorded and properly associated with the stratigraphy of the Napa property site. A total of fifteen trenches have been opened since then (Paz et al. 2010).

The current season investigated the extent of the jar burial culture within the site. Previously excavated trenches and new trench extensions were either reopened or established to determine whether patterns in the placement, shape, or association of the stone markers with the jar burials could be made out. After attempting to define the boundaries of the stone markers, three major clusters were found – Stone Marker Trench 1 (SM1), Stone Marker Trench 2 (SM2), and Stone Marker Trench 3 (SM3).

Trenches 11, 12, and 13 were re-excavated with the task of fully uncovering the jar burials left in situ at the end of the second season due to time constraints. The said trenches are associated with SM3, SM2, and SM1 respectively.

SM1 had the widest spreading of the stone markers. These were methodically plotted before removal. Human teeth, long bones, earthenware sherds, and fragmented jars were often found underneath the stone markers. A most interesting feature that was uncovered in SM1 was that of a complete extended human burial; a first, not only for the Napa Property Site, but for the Catanauan Archaeological and Heritage Project in general.

Archaeologists working on SM2 were preoccupied with the careful recovery of jar burials. As the team excavated around the jars, another extended burial was found. However, the collection of skeletal material was not as systematic as that of the first extended burial since the bones were originally thought to be a random scatter of osteological materials.
Trenches 11, 17, and their extensions comprised SM3. Lifting the stone markers revealed several jar burials arranged almost neatly into two rows and included a red burial jar with an unusual thickness. Except for the jars found in the southern quadrant of Trench 11, none of the jars were excavated nor were its contents recovered due to time constraints.

Trench 15 was also reopened to further examine a feature discovered at the end of the previous season. The feature included a mottling of sediments and a cut which was visible from the vertical profile of the southeastern wall of the trench. Limestone fragments within the same quadrant were recovered above it. This feature has been observed to be associated with the burials found in the other trenches. At first, nothing of interest was unearthed beneath the feature, but as the cultural layer was leveled off until sterile sand was reached, another extended burial was slowly uncovered. The skeleton was not completely collected as the end of the project’s season was coming to a close.

In order to determine the northernmost boundary of archaeology within the Napa property, Trench 16 was established. Initial finds included earthenware sherds, animal bones, shell midden, and human teeth. A human cranium was later found but was left in situ due to time constraints.

The Comiso Property Site (National Museum code: IV-2008-25) is located in Sitio Canlagkit, Barangay Matandang Sabang Kanluran, Catanauan, Quezon; it is just a few kilometers away from the Napa Property Site. Burial jars with limestone covers, similar to the ones found at the Napa Site, were accidentally exposed during a sand quarrying operation on a piece of land owned by the Comiso family. Test excavations in 2010 further confirmed its archaeological potential, as bone fragments, pottery sherds and shells were unearthed at the shallow depth of 20cm from the surface (Paz et al. 2010).
During this season, a UP-ASP team conducted further archaeological excavations at the Comiso site. A total of five trenches were opened. Trench 1 was located at the edge of the quarry pit, overlapping with the previous season’s test pit. Trench 2 and 3 were located within two quarry pits, corresponding to spots where locals reported cultural materials. Trench 4 was further up north, on a hilly area of the property. Trench 5 was across the dirt road, leading to the sea. The five trenches were strategically positioned to target the substantiality and the extent of the archaeology of the site.

Out of the five trenches, only two trenches remained open until the end of the season. Trenches 2, 3, and 5 were closed earlier due to the lack of significant artifacts and cultural layers. In Trench 1, a shell midden layer similar to that of the Napa Site was exposed; there too, was a concentration of fragmented human bones and burial jar pottery. Initial interpretations for this feature included either a burial jar damaged during the quarrying process, or disturbed extended burial. Trench 4 had an interesting formation of shells (bivalves and gastropods) and rocks. Finds from the season included human bones, mostly fragmented, shells, animal bones, Indo-Pacific beads, and earthenware pottery sherds.

The remaining sherds of the burial jars that were previously exposed were also collected along with the human bones and Indo-Pacific beads. All were sorted, accessioned, and brought back to UP.

There is a need to continue excavations in Trenches 1 and 4 for the next season. Further investigation of the Comiso property site should be done to explain what was happening within that site as well as understanding its relationship with the Napa property site.

The Catanauan Archaeology and Heritage Project will be revisited next excavation season to further investigate the progression of the archaeology of the Napa Property and the Comiso Property Sites.

References:
An Excavation in Sunny San Remigio

Andrea Natasha E. Kintanar

Located in the Northwestern part of Cebu is the municipality of sunny San Remigio. Located 109 km from the provincial capital of Cebu City, it features the province’s longest ivory shorelines. It is said that San Remigio used to be called “Kanghagas” due to the abundance of this type of tree in the area. Today, the municipality owes its name to a Spanish sentry named Remigio Mulon who headed a group of townsfolk to fight the “moro pirates” that came to loot the shores of the old town.

In June 2011, a multinational group of students and researchers conducted an archaeological excavation to continue what the University of San Carlos, Cebu (USC) and the National Museum of the Philippines (NM) started in March early that year. The June team was headed by Prof. Stephen Acabado of the University of Guam, co-directed by Prof. John Peterson, director of the Micronesian Area Research Center (University of Guam), Prof. Grace Barretto-Tesoro of the Archaeological Studies Program of the University of the Philippines, and Prof. Jose Eleazar Bersales of the University of San Carlos, Cebu.

From the University of Hawai‘i at Mānoa were Adam J. Lauer, a supervisory archaeologist and osteologist and Cyril Calugay, a Ph.D. candidate in Anthropology. The other participants were comprised of fellows from the Luce Asian Archaeology Program and students from USA and Canada. Students from UP-ASP who joined this international group, (myself included), are Kathleen Tantuico, Nico Unay, Ena Luga, Harpy Valerio, Donna Arriola, Sarah Briones. Michelle Eusebio came to excavate for a short while during her working vacation.

Previous excavation of the area by a USC and NM team in the vicinity of the town’s parish church uncovered six burials associated with shells and metal artifacts, as well as pottery that bear a resemblance to artifacts from elsewhere in the Philippines that have been dated to between 500 BC to AD 900.

The excavation served as a field school for the anthropology students of the University of Guam. The excavation objectives were to document the impact of Spanish colonization on indigenous lifeways and settlement, as well as to record early Holocene sea-level changes in Cebu. Within three weeks under both sun and rain, the group excavated 11 tenches, uncovered six burials, unearthed 11 earthenware jars along with some 3,000 accessioned artifacts and ecofacts. All have been deemed to date to the Philippine Metal Age (500 BC—AD 900).
Soil samples were likewise collected for further testing, such as establishing an absolute date and in determining sea level changes. In Dr. Stephen Acabado’s words, these results “would give us a picture of the environmental transformation in San Remigio, as well as contribute to the geologic history of the island of Cebu.”

Overall, it can be said that the excavation was a success as the students of the University of Guam and other colleges in North America learned the fundamental field methods in archaeology such as identifying artifacts and ecofacts, documenting archaeological sites, site survey techniques, classification and description of soil, sketching, mapping, and of course, pot-washing and accessioning. Preliminary analyses of the excavation have given us ample information and veritable knowledge regarding the pre-Spanish contact period of the island of Cebu, and further studies will surely tell us more about the past. Currently, the artifacts and other samples are housed in Museo Sugbo in Cebu City.

The City Museum of Cagayan de Oro
Nanette Roa

In 2004, when the team from the Archaeological Studies Program (ASP) of the University of the Philippines came to Cagayan de Oro City and did extensive archaeological explorations and excavations at the Huluga open site and other parts of the city, the team leader and ASP Director, Dr. Victor J. Paz talked to the members of the city’s Historical and Cultural Commission about the possibility of establishing a City Museum. Ms. Joy Belmonte (now the Vice-Mayor of Quezon City), then a faculty member of ASP, encouraged the Commission to set up a museum that "should embody and preserve the city's cultural symbols and icons, chronicle the achievements of the people, provide a venue for artistic expression and exhibit its shared past for the purpose of showcasing the building the Kagayanon identity."

The following year, the Commission started to work for the establishment of the City Museum. The first and most important task was to look for a suitable building for the museum, preferably a property owned by the City government. The unanimous choice was the old water tower that is near the City Hall. Built in 1921, it served as the town’s water reservoir for many decades. It is the oldest concrete public structure of the city and is one of the less than ten buildings that survived the massive bombings by American planes of Cagayan near the close of World War II. The water tower is located within the 1622 settlement of Cagayan that was founded by the Augustinian Recollect priest, Agustin de San Pedro, also known as the legendary El Padre Capitan, and Datu Salangsang, a local ruler.

Clearly, the water tower is a heritage structure that is befitting to become the City Museum. However, it took two more years for the Commission to obtain full possession of the edifice since the City Government turned it over to the local Water District in the 1970s though it was not fully utilized. With the help of Mayor Vicente Y. Emano, the Water District Board gave the water tower back to the city with the sole condition that this will be turned to a museum. In 2008, the tower’s interiors were renovated and two floors were added. By December 1st, the City Museum was inaugurated and opened to the public.

The tower’s floor area is not spacious and the challenge is to present exhibits that will promote the knowledge and appreciation of the history and culture of the city within a limited space. Soon, we will add another floor for the prehistoric gallery that will feature stone tools, sherds from secondary burial jars and other artifacts that were excavated by the ASP team in several sites around the city in 2004 and 2008. This will be exhibited permanently so people will know that several thousand years ago, there were groups of people living in Cagayan territory.

We have come up with a heritage studies center that has books, journals, archaeological site reports and other papers pertaining to the city and Mindanao as a whole. In time, the Cagayan de Oro Historical and Cultural Commission hopes that the City Museum will evolved to become a facilitator of learning about the Kagay-anon’s rich identity and a primary historical and cultural center for northern Mindanao.

*The author is the current curator of the City Museum of Cagayan de Oro*
The Ilocos Sur Archaeological Project (ISAP)
Michael Armand P. Canilao

The twin agencies National Museum (NM) and the Archaeological Studies Program, (UP-ASP) usually spearhead archaeological research initiatives in the Philippines. Yet the limited number of field and laboratory archaeologists from both institutions is not yet proportionate to cover all the islands in the whole archipelago. An envelope of mist still hangs over a large part of the Philippine archipelago, as limited manpower, time and resources impede archaeology of other equally valuable areas, both terrestrial and underwater.

It is quite fortunate that the people of Ilocos Sur, through the initiative of Vice Governor Deogracias Victor “DV” Savellano, have initiated preliminary archaeological investigations in the province in coordination with the UP-ASP and the NM. This interest arose from the desire to unearth more of the province’s pre-Spanish contact period history. Indeed, the Spanish contact period history of this province already has ample pages of literature. The pre-contact period; however, has received limited attention. Thus, the Ilocos Sur Archaeological Project (ISAP) was deemed to be the first step to a fuller elucidation of the pre-contact period (ancestral) Ilocano who may date to as old as the Neolithic (as early as 5000 ya).

Historical sources report that there were coastal maritime trading centers in operation all over the Ilocos coastline at the advent of the Spanish contact period.

Here, products from the Cordilleras, shipped through the major rivers, were traded in exchange for lowland (abel iloko, burnay) and foreign goods (Chinese, Thai, Vietnamese ceramics). Japanese and Chinese traders frequented the area to purchase mineral ores and forest products. Some even chose to settle in the area permanently. This pre-contact historical knowledge about the Ilocos is truly deserving of full archaeological attention. After all, archaeology is the judge to what we know in history.

Systematic archaeological excavations were conducted in 2011 at Sapilang site, Municipality of Sianit (NM code I-2011-H1) by a team from the UP-ASP, namely: Jane Carlos, Myra Lara, Janine Ochoa, Emil Robles, Eleanor Lim, Pauline Basilia, Clarissa Rusol, Kritsana, and Michael Canilao; in close coordination with Chief Wilfredo Ronquillo of the NM Archaeology Division and NM representative Pamela Faylona; Ilocos Sur Heritage Consultant Eliza Agabin and provincial researcher Maria Lourdes Ingel. Sapilang Site is a burial site straddled with mostly disarticulated human remains with a few articulated ones. The site itself is deemed important because it depicts the Ilocano as far from what he/she has become after Spanish colonialism. The site features traditional industries like weaving, fishing, metal working, and more importantly, long-distance trading. The ISAP team is in the process of completing their post-excavation analysis.

The ISAP team members
NOTES

Coin, Card and Plastic Bag
Grace Barretto-Tesoro and Pauline Basilia

On Backfill Day morning, you pull out an index card. You painstakingly write what you’ve been told: Site Name, Site Code, Trench Name, Excavators, etc. This is the Backfill Card. By this time, the hard-won coin from the bitter feud on who gets the most recently dated coin is already in its bag. Perhaps the most exciting part was the message. The newbies might be very inventive, while the more seasoned hands might be more mechanical. The Card was the holder of feelings so that they get left behind. A season ends; everyone goes home, and maybe move on to the next one. The plastic bag is stapled shut with the Card and the Coin stowed safely inside. It floats down to the deepest surface, weighed down by the Coin and intent. The dirt covers it, and is lost forever.

The results of the 2011 Field School excavation prompted the reinvestigation of features on Trench 4 in Structure A in San Juan, Batangas, first excavated in 2009. The trench was reopened and records showed that excavation ended at the adobe floor. Approximately 20cm of back dirt was taken out, yet the Backfill Card was nowhere. The Card is more than a message left for the next excavators; it was going to tell you that everything above it was back dirt. Recent rains had muddied up the stratigraphy and the excavation was guided only by the records. As trowels scraped the mud off the spaces between the adobe floors, the sides of a folded up plastic gleamed in the weak sunlight. The paper and the coin survived in the plastic, but water had leaked in washing away the ink. The message was gone.

"... And stones do not tell stories. Gladly, archaeologists do."

Of course, the first question the original excavators of Trench 4 asked was whether the message had survived. No, it didn’t. But it brought out so much more than messages. They were called memories, which are more important because memories carry feelings. It was the archaeologist telling his or her comrades that this place was a trench, it had a name, there were excavators responsible for it, and it was touched. Someone spent time on these features and thought about them. A coin and a card in a plastic bag are telling you the stories about walls and features and contexts. They are telling you about the most important part of the excavation: that the features have come full circle. The adobe floors were made, laid, used, abandoned, and, finally, recovered. It is a humbling experience to realize that one is just a small part of the great scheme of things. In 2011, it was decided that Backfill Cards should be laminated to better preserve the ink. Of course, reading the message would have been much appreciated by many. If only memories could be pinned down just as easily...
And stones do not tell stories. Gladly, archaeologists do.

The Subjectivity of Archaeology: Archaeology and Social Science
Kate Tantuico

Banking on the frameworks of material culture, Archaeology is deemed an interdisciplinary practice (Hodder, 1992; Dark; 1995 ; Jones 2004). As evidenced by the various subfields of archaeology, there are many ways by which archaeology can be applied. Dark (1995) asserts that the study of archaeology has many identities, may it be in the field of hard sciences, which emphasizes objectivity in the process by which archaeological artifacts and structures are obtained, analyzed and interpreted, and social sciences, where post processual archaeologists utilize the social sciences to make interpretations with regard to human activity through the study of material objects. With the countless ways by which archaeology can be applied, Jones (2004) outlines the problems that have arisen from such lack of absoluteness that defines archaeological practice. Dark (1995) demonstrated that archaeology can be considered as an aspect of anthropology, geography, ecology and literature. However, Jones goes on to argue that given that archaeology is viewed as “a record of the static remains of past physical processes” (Jones 1994:14), archaeology’s main objective is to understand human behavior through interacting with the material objects they utilized.
"...social sciences provide fine balance between objective evidence and intangible subjective laws."

While the material objects in question are tangible, observable and obtained through a rigid, scientific methodology, social theory is undoubtedly crucial for making interpretations pertaining to human behavior and how human beings attached meaning to such material objects. Although Hodder (1992) avows that archaeology puts a premium in scientific practices to obtain crucial data, he emphasizes that archaeologists cannot bank on practice alone. Shanks and Tilley (1987:vii) uphold "No amount of excavation, survey, ethnoarchaeological work or so-called 'middle-range' empiricism will cure the perceived fundamental isolation of past from present. This gap can only be dealt with adequately if we develop conceptual tools and theoretical structures with which to reinscribe the past into the present, to realize their interaction." Thus, the social sciences, or the injection of social theory, is a crucial aspect that can solidify assertions with regard to human social structure, distribution and hierarchy.

Through the social sciences, a theoretical framework can be constructed to provide a fine balance between the objective evidence that science permits us to observe empirically, and the intangible subjective laws that are ubiquitous to daily human activity.

References

Notes About the Decorated Earthenware and a Modified Shell from Calabanig Point, Camarines Sur (Part One)
Andrea Malaya M. Ragragio

Introduction
The University of Nueva Caceres (UNC) Museum is the first in the Bicol region, and among its collections are archaeological assemblages, some of which came from exploration activities of UNC faculty and students for academic purposes.

One such collection that is now curated in this Museum comes from a cave on Calabanig Point in the town of Libmanan, Camarines Sur province. Aside from the objects themselves, a single preliminary unpublished report was written about the survey by Honorio Torres (Torres 1960).

According to this report, Calabanig is a sitio of Barangay Bahao in the aforementioned town. Calabanig Point faces the Ragay Gulf and the Visayan Sea. Mr. Torres reports that there were several limestone burial caves in the location, but only two were explored. Cave 1 is located 300 meters from the seashore. The interior had already been disturbed by pothunters, though they left plenty human remains. The team collected a "receding skull cap" and an "extra large" mandible from this cave. Cave 2 is located 400 feet above sea level and can be reached via a cliff that is reportedly 15 feet high.

The report is quite sketchy in describing the caves themselves as well as how these can be accessed, and no map was included in the report. Also, there was no complete list of artifacts recovered from these surveys, though he did mention finding porcelain and earthenware similar to those found in Marinduque dated to 300 to 850 CE.

Currently, the artifact types displayed at the UNC Museum from Calabanig Point are: decorated earthenware sherds, tradeware, human remains, and a single shell artifact. This brief note will provide descriptions of the decorated earthenware sherds and the shell artifact only.

Decorated Earthenware Sherds
The Calabanig Point collection of the UNC includes fourteen separate pieces of decorated sherds coming from at most twelve vessels. Most of the sherds come from the body of the vessel and thus have no distinct morphological traits that can tell us the form of the complete vessel. Their most important attribute, therefore, is their surface treatment.
The most common form of decoration is incising lines and/or impressing shapes into the clay while it is still plastic, with ten sherds bearing this type of treatment. The second most common form of decoration was applying clay to create flanges, mouldings and other positive textural elements; three sherds have such elements. Also present is the use of paint, with at least three sherds having been painted. It must be clarified at this point that while different types of decoration were described separately, it is common for them to occur with each other on a single sherd, as we shall see below.

Sherd 1 is one such sherd wherein two decorative elements are combined. Areas delineated by incised curving lines are filled with punctations. The incised lines themselves seem to be part of a larger design which is no longer apparent.

Sherd 2 is also decorated with incised lines, and just like Sherd 1, the overall motif of the vessel is not clear because the rest of the vessel had been broken off.

Sherds 3 and 4 were decorated not with the excision of the plastic clay but with the addition of clay to create texture. Sherd 3 is a rim sherd from an unrestricted vessel. The lip down to its broken edge is stepped, as can be seen at the profile of the sherd. Sherd 4, on the other hand, is a body sherd with a flange and bulge apparent in its profile.

Sherds 5, 6 and 7 share the same major motif, namely: impressed concentric circles which, for Sherds 6 and 7, are inside curvilinear scrolls.

The decorations on Sherd 5 consist of two concentric circles and a border of a pair of incised lines. This sherd must have come from an unusually shaped vessel based on its profile, with the circle motif placed on a flange.

Sherd 6 is a body sherd. Like Sherd 5, a pair of incised lines serve as the border of what seems to be a bigger, more central motif of impressed circles within curved lines. Two concentric circles occur at the bottom portion of the sherd while smaller circles occurring singularly are found towards the top, right beside the border. The smaller circles are fairly comparable in size with the smaller, inner circles found in the concentric motif, suggesting that the same tool was used in making these particular circles.

Like Sherd 6, Sherd 7 is also decorated with circles within curvilinear scrolls, and also has a single incised line bordering the former combination of motifs. This sherd is big enough to show us that the motif is of S-shapes linked end to end to create a wave-like pattern. Also like Sherd 6, singular circles also occur on Sherd 7; however, these singular circles are approximately the size of the bigger, outer circles, and they only occur near the terminal end of one of the S-shapes.

The circles in these three sherds were applied with the impression of a circular tool, rather than by incising a circular stroke such as how one would write the letter “o”. This was concluded based on two observations: first, the circles are regular in size and shape, and second, there are no start and end points to the stroke left in the clay.

Sherd 8 is a body sherd with one decorative band consisting of two elements. The band is bordered by a pair of incised lines. In between these lines are short, incised strokes each a little more than a centimeter in length. The visible short lines appear to be arranged roughly parallel to each other, and grouped into five clusters of three or two lines.

Sherd 9 is a rim sherd of what is possibly an unrestricted vessel with a flaring lip. There is a pronounced corner point on this sherd, possibly delineating the mouth and neck of the vessel and the rest of the body. There are two bands of decoration concentrated on the corner point area that is further emphasized not only by the incised motifs but also by the use of paint, which will be explained below.
The top decorative band is simply a pair of incised lines, one of which is placed above the corner point and the other, below it. Right below this is a decorative band with a more complex decoration consisting of straight and curved lines combined to make a flower-like motif. Reddish paint on this sherd is applied on the negative space outside these two bands of decoration. The unpainted portions show the more yellowish natural surface of the earthenware.

Sherds 10 and 11 share virtually the same surface treatment, though because both are body sherds with no other diagnostic feature, we cannot be sure if they belong to the same vessel. Both sherds are decorated with two bands of incised lines; at most each band has three lines, though some of the bands are incomplete as these portions of the sherds have been broken off. Aside from these lines, and like Sherd 9, paint was also used to emphasize the design. Again, like Sherd 9, reddish paint on both Sherds 10 and 11 was applied to the negative space outside of the decoration bands, and the unpainted portions were likewise more yellow in hue.

Finally, Sherd 12, a rim sherd belonging to a large, restricted jar with a flaring lip is decorated with both punctuates and clay moulding. Pairs of punctuates are present right at the lip of the vessel, while at the neck of the vessel, just at the corner point where the mouth of the vessel begins to flare out, a strip of clay had been appliqued (as evidence by the visible articulation surfaces where the clay had been broken off) and pierced by a thin tool.

**Brief discussion of the earthenware decorations**

Some elements of these decorations can also be found in the Sa-Huynh Kalanay pottery complex. For example, punctuates are present in both assemblages, but Sherd 1 from Calabanig is too small for the overall design to be ascertained and compared to Sa-Huynh Kalanay examples. Sherd 8 is also similar to a sherd from non-type vessel from Kalanay (Ma 723) as depicted in Plate 11a in Solheim 2002. Both have curving bands with incised short lines inside them, though the short lines of Ma 723 (red-slipped lid) are arranged in a single line.

The curvilinear bands are present in both assemblages, but only in Calabanig does it occur with the impressed circles, and while impressed circles are also present in Sa-Huynh Kalanay, they only occur singularly, not with a smaller circle inside another as it does in Calabanig. Despite these similarities, other crucial diagnostic elements of Sa-Huynh Kalanay are not present, such as the lenticular impressions, crenelated (scallop) designs and triangles.

Another comparable assemblage is that of the pottery from the Tabon Caves (Fox 1970). Scrolls with dashes are present on burial jars from Manunggul Cave [see Fig. 23] and in Tabon Cave [see Fig. 25]. Punctuates also occur with incised curved lines in Fox's Tabon Incised and Impressed type, for example, from Duyong Cave [see Fig. 24]. However, just like the Sa-Huynh Kalanay assemblage, some diagnostic features in the Tabon pottery are not present in Calabanig, such as the basket and paddle impressions, triangles and chevrons.

While the total number of sherds is too small to conduct any statistical analysis on them, on a superficial level we can say that the impressed circles (especially the concentric pairs) is a significant design element. Numerically, they can very well be present on three different vessels, as the different coloration of each sherd (Sherds 5 and 6 are more yellowish in hue while Sherd 7 is more reddish) suggests that they do not come from a single vessel (though only other types of analyses can say this for sure). A comparable usage of impressed circles (especially paired cirlices) comes from idolot Cave in northern Palawan [See Plate 15] (Paz et al. 2010).

By no means are these the only assemblages that could be compared with the decorations on sherds from Calabanig. More published and unpublished sources should be scoured to find similarities and possible relationships between the pots themselves, and the people who made and used them.

**Shell Artifact**

A single modified shell from Calabanig Point comes from a Melo sp. Its maximum length is 9.1 cm and its maximum width is 7.2 cm. According to the typology devised by Vitales (2009), this object can be considered as under Class 1, since it has been deliberately cut while a portion of the spire is still intact.

According to the curator of the UNC Museum, this artifact was stored with fragmented human remains that were also collected from Calabanig, suggesting that it was mistaken for a fragment of bone. This also suggests that other shell artifacts may have been overlooked during collection.

**Concluding Remarks**

The caves in Calabanig Point are just some of the numerous archaeological sites in the Bikol region, many of which have been disturbed by unsystematic collecting activities (Ragragio 2010). This case is a fortunate one in that the materials from the sites were stored in an educational institution, and that the collectors left a report, no matter how vague,
that could be used as a reference by other scholars. These acts have made sure that cultural information from these items will not be completely lost to future generations. This brief note is but the preliminary step in studying these artifacts more closely, and I am certain that this can be replicated in local museums across the country.

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I would like to acknowledge the UP-OVCRD for providing the thesis grant that made my Bikol museum visits possible. Mr. Clodualdo Ceron, UNC Museum curator and fellow Bikol culture enthusiast, gladly accommodated me and helped me access these materials and reports. Finally, the University of Nueva Caceres for continuing to be a premiere repository of Bikol cultural materials and educational institution in the region.

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ARTICLES

From artifact information to information artifact
Can the 3D model of an artifact take the place of the real artifact?

Maria Sagrario R. Simbulan

Abstract

Artifacts are important to archaeologists, being one of the keys to understanding the social relations and frames of mind of cultures past. The artifacts made and used by a people are not only a basic expression of that people; they are, like culture itself, a necessary means of man’s self-fulfillment. This article explores the utility (or lack thereof) of virtual or computer-generated three-dimensional (3D) models of artifacts vis-à-vis actual artifacts. Can the 3D model of an artifact serve the same purpose as the real artifact? Will the use of 3D modeling and virtual reconstruction help improve our understanding of the past or will these technologies just be another vehicle for subjective interpretations of past cultures and practices? The use and usefulness of 3D models and virtual reconstructions are discussed as well as the implications of its use to archaeological theory and practice.

Introduction

In archaeology, knowledge of the past is gained primarily through a study of its material culture. Sites are discovered and excavated, and artifacts or material remains are recovered, restored and classified. By observing the colors, shapes and other properties of the artifacts, and their associations with one another and with features like house structures, archaeologists are able to reconstruct the way of life of the people who lived at the site (Shanks, 1992). The theoretical approach adopted by an archaeologist can determine the methodology used in the interpretation of artifacts and material culture present at an archaeological site. For example, an archaeologist using the processual approach would insist on employing a rigorous scientific approach, the use of quantitative data and a hypothetico-deductive model to understand the people who used these artifacts in the past. A post-processual archaeologist, on the other hand, would take a more subjective approach and probably write about the symbolic meaning of the community’s settlement structure and the artifacts found therein (Renfrew & Bahn, 2005).

Artifacts in Archaeology

An artifact is any object (article, building, container, device, dwelling, ornament, pottery, tool, weapon, or work of art) made, affected, used, or modified in some way by human beings. It may range from a coarse stone or a needle to a pyramid or a highly technical accomplishment – these objects are
used to characterize or identify a people, culture, or stage of development (Kipfer, 2007). The earliest
records of man include objects made to satisfy his many needs — to extend his physical and psychic
power over nature and his fellow man, delight his fancy, affirm his sense of form, and create symbols
of meaning (McClung, 1974; Pearce, 1994; Prown, 1982). Why are artifacts important to
archaeologists? One of the reasons artifacts are valuable to researchers is that artifacts are a key to
understanding social relations and frames of mind. McClung (1974) in Artifact Study: A Proposed Model
wrote that the artifacts made and used by a people are not only a basic expression of that people; they
are, like culture itself, a necessary means of man’s self-fulfillment.

As a discipline, archaeology has relied heavily on the analysis of data collected from actual artifacts
and from the context or environment in which those artifacts were found to learn more about the past.
Computers were employed mainly to facilitate the storage and retrieval of data and information from
databases for use as inputs to Geographic Information Systems (GIS). Software such as
statistical packages allowed archaeologists and researchers to conduct mathematical or statistical
modeling and simulations. The use of models and the process of modeling are fundamental to
archaeological interpretation. Because the past is complex and often unverifiable, working through
models is the only way of approaching explanation and experimenting with the meaning of observed
data. In this sense, a model is a simplification (which we understand and can manipulate) of an aspect of
complex reality (which we do not understand and cannot manipulate). It follows, therefore, that if we
can understand the processes and outcomes of the model we can attempt to extrapolate that
understanding on to the past world situation that we are interested in. The results of the simulation
are of primary interest because these can be compared with observed data sets in archaeology
(Lock, 2003). These datasets, both from simulations and from actual observations, can be used as inputs
to graphical 3D models.

**Graphical 3D Modeling in Archaeology**

Graphical modeling is concerned with the visualization of artifacts, buildings, sites, and
landscapes. Originally involving only two-dimensional (2D) Computer-aided Design (CAD)
renderings, recent advances in technology have led to the use of graphical modeling software to create
three-dimensional (3D) models of artifacts, as well as virtual reconstructions of archaeological
landscapes and historical sites. All of the models and reconstructions are based on actual datasets and
measurements. Frischer (2008) in From Digital Illustration to Digital Heuristics wrote about the
present state of graphical modeling: “2D and 3D modeling of cultural heritage is no longer used just
to illustrate the location and appearance (past or present) of archaeological sites, but also as a tool to
discover and recover data from archaeological remains. When applied to the legacy excavation
data of a cultural heritage site or when used to record the progress of a new excavation, 3D
modeling has the potential to mitigate the irreversible and destructive nature of archaeological
evacuation, an unfortunate, ironic, and unavoidable central fact of archaeology as traditionally practiced.
Up to now, we have had to murder to dissect. With the widespread adoption of 3D technologies to
record and reconstruct archaeological sites, we can virtually preserve the site through 3D data capture
as we dig it up.” He also pointed out a new application of this technology — once the 3D model of
the data gathered in the field is complete, archaeologists can allow colleagues to retrace the
decisions of the field team and to test the validity of their conclusions with more precision and
confidence.

The use of 3D modeling to enhance GIS software capabilities has yielded surprising results. Nigro,
Ungar, de Ruijer & Berger (2003) created a method to ‘unexcavate’ or rollback an excavated site to its
original state prior to excavation by a paleontologist,
C.K. Brain. Nigro et al. used a GIS consisting of three
elements: a 3D model from grid-based provenience
data to reconstruct the spatial contexts of in situ
géology, fossil and artifacts removed during the
original excavation, information from original
excavation notes by the field team, and a database
containing data on individual fossils and artifacts
from the site. This provides a digital archive
incorporating all available information, and allows
virtual re-excavation of the site by researchers in any
number of ways. The information that allows the
user to simultaneously visualize and analyze fossil,
artefact, and geological materials within their
original spatial contexts makes possible a more
comprehensive investigation of the site post-
evacuation. Geriach, Herzog, and von Koblinski
(2008) combined 2D GIS and 3D terrain mapping to
develop a method for distinguishing true
archaeological sites from pseudo-sites in the Lower
Rhine area.
Lieberwirth (2008) used 3D GIS to reconstruct an archaeological site in Greece that was excavated stratigraphically more than thirty-five years ago. The model she created for the site prior to its excavation permitted her to interpret the stratigraphy independent of the explanation offered by the excavators. The result was very promising: while the excavators’ interpretation was largely confirmed, important new information emerged. Much more important than the specific advances is the general point implicitly made by Lieberwirth’s study that 3D software can permit us to reconstruct with great accuracy a site that has been excavated using the stratigraphic method. One last example illustrating the immense potential of 3D technologies: Karasik (2008) tackled the problem of how 3D scanning of pottery can lead not only to more accurate illustrations of the profiles of ceramics but also to new discoveries. Profiling pottery is based upon the assumption that pots are perfectly axially symmetrical, so that one profile serves for all possible profiles that might be made. But in the real world, as Karasik notes, no vessel shows perfect axial symmetry. 3D data reveals the deviations from perfection and these, in turn, can be used to determine intra-vessel and inter-vessel uniformity of pottery belonging to the same assemblage. Uniformity in this sense has never been taken into consideration in pottery studies, doubtless because without 3D vector data, it is extremely difficult to calculate. Why might uniformity be of interest to the archaeologist? As Karasik succinctly notes, ‘the intra-vessel uniformity represents the quality of the production of a single vessel, and the inter-vessel uniformity the reproducibility of the manufacturing process.’

There are, however, important issues relating to the use of 3D models and virtual reconstructions. According to Renfrew & Bahn (2005), one issue is how to determine, in the virtual reality reconstruction or 3D model, what is based upon the evidence, what is based upon connecting the ‘archaeological dots’, what is based upon ethnographic analogy, and what is based upon pure speculation. This is a very important issue to address since the usefulness of the 3D model and the validity of the data and conclusions derived from its use are at risk.

Additionally, technical problems that occur during the digitization and 3D modeling process can lead to the unintentional introduction of distortions in the model that can have an effect on the final output. If one cannot trust the digital surrogate of an artifact, how can archaeologists and researchers trust the data that will be gained from the study of the model? There are also larger issues such as model quality and the protection of intellectual property (Terras, 2011). Equally important, particularly to Third World countries, is the cost of the hardware, the availability and cost of the software, and access to professional training to help locals maximize returns on their investment in these technologies.

Having cautioned readers about the need to verify the authenticity and provenance of data used to create 3D models, Renfrew & Bahn (2005) still believe that the future of visualization, simulation, and graphical modeling is bright. The trends of increasing computing power, increasing literacy and increasing ability of archaeologists to use simulation to solve previously insoluble problems continue. As archaeological resources become physically more limited, more difficult to reach, more politically, legally and bureaucratically difficult to survey and excavate, graphical modeling becomes an increasingly important method of studying, visualizing and communicating archaeological data.

**Conclusion**

The preceding examples have shown how data directly recorded and measured from artifacts – collectively called artifact information – can be processed and exploited to yield information artifacts like 3D models and reconstructions. It is now time to answer the question – can the 3D model of an artifact serve the same purpose as the real artifact? Despite the capabilities described in the preceding section, 3D models have significant ‘disabilities’ that make it difficult to deliver a resounding ‘yes’ to this question. A virtual 3D model of an artifact cannot be grasped, weighed, or even smelled – none of the sensory or tactile tests a field or lab technician normally performs can be employed. On the plus side, though, a virtual 3D model can be shared with any interested party, it can never be broken, and it can be updated as newer and more accurate information is made available. The decision to adopt the 3D modeling technologies based on its obvious advantages will have to be weighed carefully against the cost, the willingness of current practitioners to adapt to the demands of the technologies, and other political, professional, and social considerations.

Will the use of 3D modeling and virtual reconstruction actually help improve our understanding of the past or will these technologies just be another vehicle for subjective interpretations of past cultures and practices? Graphical modeling and virtual reconstructions will definitely improve our understanding of the past but care must be
taken to ensure that these models and reconstructions are based upon verifiable evidence as much as possible. To heed Renfrew & Bahn’s advice, where there is a gap in the information available, the model builders must clearly state where the ‘connecting the archaeological dots’ occurs, what part of the model is based upon ethnographic analogy, and what is based upon pure speculation.

What are the implications of the possible adoption of these new technologies on the practice of archaeology in our country? Major retooling will be required, in terms of manpower, skills, software, and equipment. A major re-orientation of attitudes towards technology is definitely necessary, coupled with a willingness to learn new things. The possibilities for archaeology in this country, as I imagine them, are endless and exciting!

References


Recent work on the stratigraphy of Tabon Cave, Palawan Island, Philippines: The Upper Eight-meter Sequence

Vito Hernandez and Xavier Gallet

Tabon Cave (National Museum of the Philippines site code IV-200-T), one of over 200 cave sites in Lipuun Point, a limestone peninsula at the northwest end of Malanun Bay, Quezon region, central Palawan Island, is one of the most significant archaeological sites in the Philippines because early modern human remains found here are one of the oldest, so far, dated. Uranium series (U-series) dates for these remains are from 16,300 – 47,000 years B.P. (Dizon 2000; 2003; Detroit et al. 2002; 2004; Dizon et al. 2001). It is also cited as an important regional site because it sheds light not only on how people in the Pleistocene lived in these parts, but also how they moved to Island Southeast Asia, Mainland Southeast Asia, and perhaps beyond into the Pacific (Bellwood 1997; Barker 2007; O’Connor 2007; Lewis et al. 2008a). More recent work on the site has also contributed a more focused understanding of regional paleoclimates dating to the Last Glacial Maximum (LGM – c. 21,000-19,000 yr. B.P. after Yokoyama et al. 2000) (Lewis et al. 2008b).

The general stratigraphy of the site has been established – and re-established – with every excavation (Fox 1970; Dizon et al. 2001; Orogo 2000; 2001). Lewis and co-workers (2008b) attempt to correlate each stratigraphic interpretation by tabulating depths, layers, sediment sequences, archaeological and paleoenvironmental sequences, and radiocarbon and U-series dates (from Fox 1970; Dizon et al. 2003, respectively) in order to make sense of and assess the success of their dating of a speleothem layer, initially interpreted as travertine (Fox 1970). Conclusively, their dates conformably agree with those of radiocarbon dates from charcoal above and below this layer. The most recent excavation by Jago-on and co-workers (2007) have documented a more comprehensive stratigraphy of the Tabon Cave, in which Fourier Transmission Infrared (FTIR) analyses has been conducted. Here we report on the upper nineteen sedimentary levels documented during the 2007 excavation season at Tabon Cave. More recent work at the Cave has documented lower sedimentary levels. This will be reported in future publications.

**Levels 1 to 3**: sections of Fox

**Levels 4 to 19**: observations on the excavation and the sections throughout the cave

**Level 1:**
Strong homogeneous sedimentological deposits of small size (clays, silts), red in color with bioturbation made by wasps (according to Fox). Thickness: 20 cm. Bioturbation decreases with the depth. Fireplace and artefacts found in the stratigraphy related to assemblage 2.

**Level 2:**
Dark pinkish loose sediments (clays, silts). Thickness: 10 cm. The thickness decreases from the north to the south and seems to disappear.

**Level 3:**
Light brown heterogeneous loose sediments (clays, silts) with carbonates grains (few millimetres in size). Thickness: 10 cm. On the “Fox section” these sediments seems to disappear or form the upper part of level 4.

Excavations in tabon Cave
(Photo: PREHSEA, 2007)
Level 3:
Loose white homogeneous sediments (silts?) seen only on square W158. Thickness: 30 cm. These sediments should be compared to the ones of level 3. The question is: are they really different sediments or just a variation of facies? Are they in fact already level 4?

Level 4:
Strong stalagmitic floor with a thickness from 30 to 70 cm with four distinct facies differentiation:
   a) Dark to black thin layers of possible calcite
   b) Very loose and homogeneous white sediments
   c) White and quite hardened chalky sediments
   d) Strong and well defined light brown stalagmitic floor (calcite) at the base of this level (thickness 5 cm)

Level 5:
Reddish brown homogeneous sediments (possible clays). Thickness: 10 cm. Inclination of level from the N to the S until the centre of the cave.

Level 6:
Loose pinkish silt sediments with carbonate grains (few millimetres). Thickness 15 cm.

This level shows a lot of variations and it appears to be difficult to be sure of the description.

Level 7:
Red brown homogeneous hardened sediments with a lot of bioturbation (wasp holes about 1 cm). Thickness 30 cm. The last tier shows carbonate laminations.

Level 8:
Fine pinkish sediments but strongly hardened with several stalagmitic floors of calcite (i.e. 8a, 8b and 8c) Thickness: 55 cm.

Level 9:
Very loose light brown to yellow homogeneous sediments (possible aeolian silts). Thickness: 30 cm.

Level 10:
Loose and fine homogeneous white sediments (may be clays, silts or from the alteration of carbonates, phosphates). Thickness: 20 cm. Blue facies in the basal part (1 cm).

Level 11:
Brown to dark brown loose sediments (possible organic materials). Thickness from 3 to 40 cm. (Transition with level 12 is sometimes difficult to see).

Level 12:
Dark brown to black loose sediments (organic materials). Thickness from 3 to 25 cm.

Level 13:
White to pinkish floor more or less altered. Sub-horizontal in different places of the cave. The surface is quite homogeneous.

Level 14:
Brown clayish sediments with some carbonate deposits. Thickness 5 cm.

Level 15:
Altered stalagmitic floor with pink and yellow facies. The last tier is more altered (dissolution of calcite).

Level 16:
Loose homogeneous brown sediments (clays). Thickness from 5 to 15 cm.

Level 17:
White stalagmitic floor with pinkish facies. Thickness from 5 to 15 cm.

Level 18:
Brown to dark brown clayey sediments with well formed oxides, possibly manganese.

Level 19:
Very thick grey stalagmitic floor.
The Problem of Sourcing: Preliminary Analysis of Tuff/Adobe Blocks from Structure A Site 1 in Brgy. Pinagbayan San Juan, Batangas

Riczar Fuentes

Introduction

The sourcing of artifact raw materials is a vital approach in an archaeological study. It could provide information on the flow of the materials, and on the interaction of the people and things in any given time frame. The Spanish-period stone houses in the Philippines were mostly, if not all, made of stones that vary in origins and types. One of these common construction materials is adobe or tuff, and the problem of sourcing of this material from an archaeological site is presented in this paper.

Adobe or tuff is a pyroclastic igneous rock - made up of volcanic materials that were ejected from a volcanic vent - and is composed of ash (<2 mm diameter) and lapili (2 – 64 mm diameter). This type of rock is a good construction material because it is resistant to weathering, lightweight, and has good insulating properties (Heiken 2006).

The main objective of this paper is to analyze the phenocrysts/rock inclusions of the tuff samples from Structure A Site 1 (IV-2009-F) in Brgy. Pinagbayan San Juan, Batangas in order to identify their source(s) through comparisons with the materials that are found in the possible source areas. The specific objectives are as follows: 1.) to analyze and compare the material composition of tuff from the site and from the possible source areas and to 2.) to identify the source (natural depositional areas) of the artifacts.

Methodology

The methods that were used in this paper include the analysis of the pyroclastic composition of the artifacts and historical research. The samples from Structure A Site 1 were initially analyzed and an outline of the artifact attributes that were used in the comparisons of artifacts was formulated. Also, the researcher came up with a list of the possible source areas to facilitate the selection of the tuff samples for the comparison. To get samples from the different possible source areas, surveys were conducted to locate the natural depositional area of tuff and the sources were the dealers took the tuff that they are selling.

The pyroclastic composition of the tuff samples was analyzed through an experimental method, which is anchored on the premise that different tuff materials have distinct properties in their pyroclastic composition. Samples (“fresh cut”) were taken from the artifacts for the microscopic analysis of the pyroclasts. Then, the pyroclastic composition of the artifacts from the site was compared to that of the ones from the source samples. The method is discussed in detail in the chapter on Tuff Sampling and Analysis. The equipments that were used in the artifact analysis included basic measuring instruments (tape measure, ruler, and a handy scale), a Nikon digital camera (P5100), and a low-power microscope (Nikon SMZ 745T). ImageJ, a free software, was used in the measurement of the pyroclasts. The analysis was conducted at the UP-Archaeological Studies Program.

Scope and Limitation

The tuff samples that were taken from Structure A Site 1 were assumed to represent all the other materials from the site - from all the other portions of the structure. The main concern here is to know the natural depositional source area of the material because it is also logically assumed that the nearer the source of the material, the cheaper it will be.

The first limitation of this study is the number of samples that were analyzed. Only seven samples (for the six trenches) were taken. The source samples were also limited because of the difficulty in transporting adobe blocks—they are heavy and space-consuming. Moreover, most of the samples were taken from the dealers and not from the natural deposition, so surveys and inquiries were conducted to check the sources of the tuff that were purchased.

The analytical method used in this paper is pyroclasts composition analysis, and basalt was quantified. Due to limited resources and time, no chemical and petrographic analyses were conducted. The method that was used was an experimental one so some tests were also conducted to check the validity of this method.
Basically, the method is trial-and-error and so some adjustments were made along the way. With regards to the controlled aspects of the study (identification and measurement of the pyroclasts), these were done with the utmost accuracy so as to provide a valid data set.

Significance of the Study

The sourcing of materials could tell a lot about the interactions between the people and the artifacts in any given period in our history. Tuff was the primary building construction material of the church and of the different structures in Brgy. Pinagbayanan. After two seasons of excavation – summers of 2009 and 2010 - in Structure A Site 1, this was the first time that the tuff materials were analyzed. The sourcing of the tuff from the site could also provide data, in general, on where the materials of the other contemporaneous structures in the old poblacion were taken.

The movement of the construction materials could be traced by knowing the source, and the possible route going to the site. The materials were first quarried and then these were sold by dealers/merchants. Moreover, the modes of transport, and the route and roads that were taken in the process of transporting the tuff could also be inferred. By identifying the source of the tuff, the areas, which were utilized by the Spanish government in the Philippines to provide the demand for construction materials in the creation of a poblacion, could also be identified.

Review of Related Literature

Only a few sourcing studies have been conducted in the Philippines. Most of these pertain to the prehistoric to protohistoric period and basically none for the historic period, yet. Some of the archaeological and materials sourcing studies, and tuff composition studies are presented here.

Lee Anthony M. Neri's thesis entitled Obsidian Sourcing at Huluga Open Site: An Evidence of Exchange (2003) investigated the obsidian materials from that site in Cagayan de Oro. The chemical components of the obsidian samples from the site were compared to the components of obsidian from Mindanao, neighboring island of Luzon, and from the other islands in the Pacific. The chemical composition of the obsidian from the source area should match to that of the Huluga. However, no definite source within the country was identified and it was proposed that there was an exchange/trade with the neighboring islands.

Aguilar (1953) studied the different compositions and properties of the tuff from the western section of Luzon. The samples were taken from Baesa in Quezon City, Mandaluyong, and Meycauayan in Bulacan. The megascopic descriptions of the samples were provided. Several tests, which include chemical, tensile and compressive strength, and specific gravity determination, were conducted. Basically, the results of the study show that there were no significant differences in the properties mentioned above. The main reason for this was that the samples were part of a huge/ large deposit in the western part of Luzon that was caused by the same volcanic lava flow episodes. The samples were taken from these three areas because during this time, most of the supplies from Manila were taken from these areas.

Arpa et. al. (2004 and 2008) did extensive geochemical study of the Diliman tuff with respect to other tuff deposits proximate to Metro Manila. The results were also compared to the properties of the tuff from Laguna and Batangas. Basically, the Diliman tuff is chemically distinct from the adjacent Taal and Laguna Calderas – both major- and trace-element concentrations (Arpa et. al. 2008). The results show that the geochemical data from Metro Manila pyroclastic deposits are not consistent with Metro Manila magma sources being related by simple fractional crystallization from either Laguna or Taal caldera sources. There were differences in the trace elements between Metro Manila, Taal, and Laguna deposits (Arpa et. al. 2004).

Tuff Utilization in the Philippines

Tuff was and is still a common construction material in the Philippines. It was utilized since the arrival of the Spaniards in the construction of houses, churches, and fortifications. This section of the paper provides an overview of the natural deposition areas and properties of tuff, and the utilization of tuff as a construction material in the Philippines.

Tuff Natural Deposition Areas

There are several formations/volcanic deposit episodes in Luzon. The formations that are proximate to Structure A Site 1 include Guadalupe Formation, Taal, and Laguna. This is in terms of the large-scale formations in the southern and central Luzon areas (proximate to the site).

Guadalupe Formation was formed during the Pleistocene period. It has a thickness of 1,500 – 2,200 meters. This is distributed in the areas of Quezon City, Pasig, Makati, southern Rizal, eastern Bulacan, and southeastern Nueva Ecija. This includes two member deposits – Alat Conglomerate and Diliman Tuff. Alat Conglomerate is a sequence of
conglomerate, sandstone, and mudstone. This forms an extensive outcrop belt of which covers the areas of eastern Bulacan and southeastern Nueva Ecija. Diliman Tuff consists of fine-grained vitric tuffs and welded pyroclastic breccias with minor fine to medium grained tuffaceous sandstone. It was named after the pyroclastic rocks in Diliman, Quezon City. It is also distributed in the areas of Pasig City, Makati City, southern Rizal province and adjoining areas, the area between Santa María and Baluán Rivers in Bulacan (Peña 2008).

Taál Tuff refers to the Pleistocene volcanic ash deposits in Batangas, Cavite, and Laguna which were presumed to be from Taál Volcano. This consists of a thinly laminated white ash and black cinder. It was estimated to have a thickness that exceeds 400 meters (Corby 1951, cited by Peña 2008: 297). Taál Volcano is at present located at the center of Taál Lake. The deposits around the Taál Lake region cover 2000 km² and include base surges and pyroclastic flows of the maar/caldera. The area covered by this deposit include Tagaytay ridge to Manila Bay to the north, Balayan and Batangas Bays (south), Mt. Makiling – Mt. Malepuno – San Pablo Area (east), and Nasugbu plain (west) (Peña 2008: 297).

Laguna Formation refers to the Late Pliocene to Early Pleistocene clastic and pyroclastic rocks around Laguna de Bay. The formation has several facies – air fall tephra, pyroclastic flow deposits, lahars, stream deposits, lake deposits, and basalt flows. This formation corresponds to the Guadalupe formation. Also, the Laguna de Bay Complex in the northeast of Taál Volcano is the largest volcano-tectonic depression in the region. The boundaries of this complex are the following – Taál-Banahaw Area (south and west) and Caliraya plateau (east) (Peña 2008: 160).

The current natural resources map of the Bureau of Mines and Geosciences (mbg.gov.ph.) indicates that there were several tuff sources in the Philippines. Several natural deposition areas that are proximate to Structure A site 1 were identified in the map namely, Guadalupe, Bulacan, and Laguna. There was no tuff marker for Batangas, but basically data from other sources show that tuff is also being utilized in this area, especially during the Spanish period.

Properties of Tuff from Luzon

Tuff is naturally occurring in the Philippines. This is especially abundant in west Central Luzon and extends from near Lingayen Gulf to the sea coast of Batangas (Cox 1908). Guadalupe which is within Manila was described by Alvir (1927) as a thick series of well stratified andesitic tuff and tuffaceous sandstone, shales, and conglomerate. This is found at the edge of the western and southern portion of the area at the edge of the Central Plain (Aguilar 1953: 210).

Aguilar (1953) provided some descriptions with regard to the properties of the tuff from Baása, Mandaluyong, and Meycauayan. Meycauayan is described as agglomerate, commonly ash colored, very coarse and has a stony appearance. This is characterized by the presence of pumice which measured from a sand size to 2 cm, and which comprise 60 to 70 percent of the tuff by volume. Baesa is commonly ash gray (sometimes very dark) in color. It is also similar to agglomerate and is made of very coarse fragments, which are 6 inches or more. The fragments are mostly pumice and also include vitrophyres, occasional basalt (all types), and chert. Mandaluyong has a buff to gray color, generally. It is described as sandy (fine to medium texture) and also conglomeratic in some instances. This contains rounded granules of basalt, pumice, and sometimes chert with size ranging in size from fine sands to about one centimeter in diameter (Aguilar 1953).

Diliman Tuff, which is widespread in the northeastern part of Metro Manila, is the youngest unit of the Laguna Formation. It was a product of the pyroclastic flows, surges, and fallout deposition from a massive eruption during the Pleistocene period (Catane and Arpa 1999). Basically, this tuff is andesitic in nature, and has the following composition – sand to clay grain size, glass shards as main components, pumice, and lithic fragments. Accretionary lapilli (clusters of ash) composed 30 percent of the specimen volume (Catane et. al. 2006).

According to Arpa et. al. (2004), most of the deposits in Metro Manila is part of the Diliman Tuff, which is a member of the Guadalupe Formation. The uppermost layer of the pyroclastic unit in Metro Manila consists of mafic, felsic, and banded pumice clasts. The results of their study shows that the geochemical variations in the pumice clasts of tuff from Metro Manila are different from the deposits that were erupted in the two nearest calderas – Taal and Laguna. Taal is 60 kilometers south while Laguna is 40 kilometers southeast of Metro Manila. These two calderas produced basaltic to dacitic pyroclastic flows. The deposit from Metro Manila has higher K₂O, Sr and Rb values compared to Taal and similar to Laguna. Moreover, the pyroclasts from Metro Manila have lower TiO₂ and Zr and higher MgO concentrations than Laguna, and the concentrations of these are intermediate between Laguna and Taal caldera. Finally, the study concluded that
the geochemical data from the pyroclastic deposits in Metro Manila are not consistent with Metro Manila magma sources being related by simple fractional crystallization from either Laguna or Taal caldera sources (Arpa et. al. 2004).

The above observations are corroborated by the later study by Arpa et. al. (2008), wherein the comparisons of deposits from Diliman tuff with the deposits from adjacent Taal and Laguna Calderas show that the former is chemically distinct to the latter with respect to both major- and trace-element concentrations (Arpa et. al. 2008).

**Tuff Use and Cost in Late Spanish Period**

According to Zialcita and Tinio (2002), tuff was the most common type of stone construction material, in the Tagalog and Pampango regions, during this period. The sources of volcanic tuff during this period include San Pedro de Makati (Manila), Meycauayan in Bulacan, and Santa Maria, Luisiana, Pakil, Los Banos, Mt. Amblong, Mt. Taa-nan in Laguna. To quarry this type of material, crowbars, adzes, hammers, and clubs were used (Zialcita and Tinio 2002: 34 and 38).

The materials that were used in the construction of the church in Pinagbayanan, when it was still the poblacion, were imported from Metro Manila. These include cut stone (from Meycauayan, Bulacan), lime (from Binangonan, Rizal), tiles, bricks, and ironwork from Manila (Villegas, ed. 2002: 108). Basically, the major source of tuff during that time was Meycauayan (Bulacan) and this is still true up to the present. At the current period, there are several dealers of tuff in Metro Manila. Some surveys were conducted showing that most of the tuff sources were from Bulacan. The dealers along Quezon Avenue and along C.P. Garcia in (Quezon City) took their merchandise from the said area. The material is already delivered in blocks and is already cut to several dimensions.

Based on the figures in the construction of Cala Mansion in Cebu in the late Spanish Period (Mojares 1983), the total cost of the materials used in structure A site 1 would be about 1043,025 pesos. This total cost only covers the adobe blocks, baldoza tiles, roof tiles (tisa), and floor wooden boards. The number of pieces of the materials that were used in the structure, and the costs were computed by the Archaeology 207 class (1st semester 2010 – 2011) based on the dimensions of Structure A Site 1 and on the data from Mojares (1983). The standard measurement of the adobe blocks is 72 x 28 x 28 centimeters. The unit cost is 8 pesos per 100 pieces. The calculated number of the pieces of adobe blocks used in Structure A Site 1 is 2767. The cost for this material alone would be 221.36 pesos. The baldoza tiles with a dimension of 28 x 28 centimeters would cost 12.975 pesos (759 pieces at 0.025 pesos/piece). An estimate of 7,469 pieces of tisa was used in the structure which would cost 74.69 pesos (10 pesos/1000 pieces or 0.01 peso/piece). Last, the wooden floor boards would cost 728 pesos (0.50 peso/piece) given that 1456 pieces (12” x 36”, “83 cm barras) were used. These are just estimates and the figures were based on a structure which is chronologically contemporaneous with Structure A Site 1.

**Tuff Sourcing – Pyroclast Composition Analysis**

This section of the paper provides the details of the laboratory analysis of the tuff samples from Pinagbayanan and from the possible source areas. The method of rock sample preparation is discussed in details. The results show somehow that there are differences in the composition of the tuff samples taken from different areas. The experimental study conducted here was based on the premise that rocks taken from different locations have different identifying marks. At this point, the researcher
would just like to clarify that the method is not an established one and purely experimental - through comparisons and measurements of tuff pyroclasts (mainly basalt fragment).

‘Pinagbayanan Tuff’

Tuff was the major construction material of Structure A Site 1. This was the material used in the foundations, walls, and the pillars of the house so it was found all over the site. A total of 7 artifacts were taken from the site – one for all the trenches except trench 7 that has two (part of a supposed arch). The accession numbers of the artifacts are IV-2009-F-2250 to 2256. These artifacts vary in shapes in sizes – rectangular/squarish (Trenches 6 - IV-2009-F-2251 and 7 - IV-2009-F-2252, IV-2009-F-2256), triangular (Trench 5, IV-2009-F-2253), and small rounded fragments (Trenches 8 - IV-2009-F-2255, 9 - IV-2009-F-2250, and 10 - IV-2009-F-2254). These also vary in their locations and their stratigraphic associations. The samples came from the following context numbers with their corresponding elevations: Trench 5 - Context 2031 (elevation of +29 cm from Datum Point 2), T6 - Context 2214 (+40 cm), T7 - C2429 (+9 cm to 0 cm), T8 - 2608 (+18 cm to +9 cm), T9 - C2820 (+21 cm to +3 cm), and T10 - C3005 (+20 cm to -2 cm).

Tuff Studies in the Philippines

One of the most common methods used in studies about tuff deposits in the Philippines is the Acid-Base analysis (see Arpa et. al. 2004 and Aguilar 1953), wherein the silica (SiO2) content of the rock is tested. Under this method, the material that is being analyzed can be classified as ultrabasic (less than 45% by weight, basic (45 – 52%), intermediate (52-66%), and acidic (more than 66%). However, this method was not used in this study because of limited resources. In previous studies about tuff, it was pointed out that the chemical composition of the tuff samples from the deposit found in the western section of Luzon, which include Meycauayan (Bulacan), Baesa (Quezon City), Mandaluyong, Guadalupe, Majayjay (Laguna), and Manila were identical/similar. The elements that were tested in these studies include Silica, Alumina, Ferric oxide, Lime, Soda, and Potash (Cox 1908, Alvir 1927, and Aguilar 1953).

However, according to some geochemical studies conducted by Arpa et. al. (2004, 2008), the three major formations – Laguna, Batangas, and Metro Manila/Guadalupe are distinct in their major and trace-elements. The deposits from Laguna and Batangas are from two distinct major formations in southern Luzon that are from Laguna and Taal Calderas. The published data (Arpa et. al 2004 and 2008) shows the chemical composition of Diliman, Laguna, and Batangas tuff deposits basing on the pumice. The data are already available for the Diliman Tuff, and also for the Laguna and Batangas because their chemical compositions were already compared.

Sample preparation

Rock Sampling

Four samples were taken from the tuff materials from Pinagbayanan. Sample refers to the cross section/fragment taken from the artifacts. These do not have definite measurements because the purpose of having samples was to have flat surfaces for microphotography. The photos were used for the analysis and measurement of the pyroclasts through a computer software. A saw was used to get the cross-section samples. Moreover, a bolo and sandpaper were also used to flatten the surfaces of the samples. Then these were washed and dried to remove the ash, and to have a clean surface for photography. Tuff samples were taken from all the trenches (5 to 10), Guadalupe, Diliman, and Bulacan. Two samples were taken each of the trench artifacts from Structure A Site 1 as representatives – because the researcher assumed that the samples were taken from the same source. On the other hand, four samples each were taken from the possible source areas.
Photographs of the samples were taken using a Nikon digital camera (P5100) attached to a Nikon low-power microscope (Nikon SMZ 745T). The magnification of 20x (microscope) plus 4x optical (digital camera) was used. The magnification was standard for all the photos. Five frames (or photos) were taken for each of the sample. The frames were taken from the different surfaces of the tuff materials. There was no duplication of part/sections of the samples to avoid duplicating the count and measurement of the pyroclasts. The millimeter lines of a ruler was placed/ and included on the sample photos. This scale was used for the measurement of the rock inclusions using a free software called ImageJ. The scale was used for the calibration of the actual measurements of the samples through the software. The rock inclusions (especially basaltic fragments) were measured using this software.

The maximum lengths of the basaltic fragments were measured on each of the photo. Furthermore, the total count of the basaltic fragments was also recorded.

Some Parameters

The parameters that were used in the microscopic analysis of the artifacts include the color and general appearance of the ash matrix. Next were the inclusions, which focused on the basaltic fragments because of the color differentiation of this rock vis-avis the grayish ash matrix of tuff. Furthermore, this is the rock fragment which is consistent on all the tuff samples. The identification of the inclusions rest on the presence/ absence of minerals or rocks, relative density (number of inclusions/ frame), and the mean maximum lengths of the inclusions.

The pyroclast/ rock fragment that was analyzed in this study are the basaltic fragments. Basalt is a dark fine-grained volcanic rock that sometimes displays a columnar structure, typically composed largely of plagioclase with pyroxene and olivine. Basically, basalt was arbitrarily selected as basis for the comparisons between the different tuff samples.

Basalt inclusions in a sample from Pinagbayanan
Results of the Pyroclast (Basalt) Analysis

The method of analyzing the pyroclastic composition of the tuff artifacts is an experimental one. The method was tested by analyzing and comparing the pyroclastic composition of samples from an ancestral house in Makati and from the Guadalupe tuff quarry. The stone materials that were used in the house were said to have been taken from Guadalupe (the so-called Guadalupe Tuff). The results show that the mean maximum length and the average number of inclusions per frame of basalt were within the same values. The result of the test indicates that the basaltic fragments could possibly be used as an indicator/parameter in rock comparison and differentiation. However, the chemical and petrographic methods are still recommended to be used in further investigations because of the question of reliability in the method given that tuff from the same formation has lots of varieties. These are attributed to the vast expanse of pyroclastic volcanic formations (Laguna, Taal, and Guadalupe as the major formations near Pinagbayanan), the variability of the composition of the tuff within one formation because of distance from the caldera, and the differences in the size of the pyroclasts depending on the stratigraphic layer of the tuff. These are just some of the variability observed upon surveys of tuff from dealers and from the different tuff deposits.

The analysis of the tuff materials from Pinagbayanan show that these were taken from one common source. The mean maximum lengths of basalt and the average number of inclusions per frame show that the samples from the six trenches were identical (see graph below). This is also supported by the qualitative observations of the properties of the tuff from Pinagbayanan. Although some of the artifacts were weathered, yet the “fresh cuts” were of the same color (grayish) and texture (coarse-grained). The samples that were taken to represent the Pinagbayanan tuff were only 2 (equivalent to 10 frames, 5 frames per sample) for each trench. This was done because of time constraint and it was presumed assumed that the materials were from the same source because of observations in the qualities of the materials during the process of sample preparation.

The five trenches had different ranges of their average number of inclusions per frame. These are the values – Trench 5 (14 – 37 inclusions per frame), T6 (12-27), T7 (16-31), T8 (21-38), T9 (14-37), and T10 (20-25). The tuff samples from Pinagbayanan had an average number of inclusions per frame of 25.33, which is higher compared to that of the ones from the comparative samples – Guadalupe (18.58), Makati Stone House (16.5), Dili man (12.5), and Bulacan (18). Furthermore, the mean maximum lengths of the samples from Pinagbayanan (0.2964 mm) were within the same range with Guadalupe (0.3154 mm) and Makati Stone House (0.3186 mm) and much different to the rest – Dili man (0.3593 mm) and Bulacan (0.3964 mm).

The data generated from the quantification of the basaltic fragments indicate a substantial difference in the mean maximum lengths and average number of inclusions. The difference in the values indicates that the materials from Pinagbayanan were neither from Guadalupe, Bulacan nor Dili man.

The Problem of Sourcing

Tuff Sourcing - A Supplement to Philippine History

Sourcing is often employed to identify the different raw material source. More often than not this approach is used in prehistoric studies and seldom in historical period-based studies. The aims of this type of study are the identification of the exact source of the material(s), and the inference of how the materials were quarried and how were these transported to the archaeological site.

The sourcing of construction materials from Spanish period-built houses is a little problematic because the usual source areas are already mentioned in architectural/historical books. Although these are mentioned, the source of the construction materials for churches and other important structures along the plaza complex are discussed in passing only. No extensive sourcing study of the construction materials was conducted yet. With regard to the tuff material, which is the most common because of its abundance, no extensive study was done yet. The mapping and probably tracing of the tuff materials in the country could be very important as supplement to the histories of the different towns in the Philippines. Their establishments are parallel to the construction of churches, municipal halls, and houses of the middle-class, which could mean that the study of the flow of materials will supplement the histories of most of Philippine towns. Furthermore, this could also provide some insights on how the Spaniards utilized the resources of the islands, and the manpower.

More on Methodology

For the most part of this paper, the focus was on the method. Basically, this was a methodological study that which was aimed at developing a general
The results of the basalt pyroclast analysis of tuff from Structure A Site 1

<table>
<thead>
<tr>
<th>Trench Number</th>
<th>Basaltic Fragment Mean Maximum Length (mm)</th>
<th>Average Number of Inclusions per Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>0.3152</td>
<td>26.4</td>
</tr>
<tr>
<td>6</td>
<td>0.2889</td>
<td>24.2</td>
</tr>
<tr>
<td>7</td>
<td>0.2854</td>
<td>27</td>
</tr>
<tr>
<td>8</td>
<td>0.2609</td>
<td>25.6</td>
</tr>
<tr>
<td>9</td>
<td>0.3122</td>
<td>25.6</td>
</tr>
<tr>
<td>10</td>
<td>0.2134</td>
<td>23.2</td>
</tr>
<tr>
<td>Average</td>
<td>0.2964</td>
<td>25.33</td>
</tr>
</tbody>
</table>

Concentration of Basaltic Fragments in the Samples Analyzed

approach to the raw material sourcing during the historical period in the Philippines. The idea of sourcing is still anchored on the empirical results that were derived in the analysis of the artifacts. It was checked with the historical records, as well as with other studies regarding tuff. With regard to the method of analyzing the pyroclastic composition, the method still needs further tests. It is not definite at this point that the tuff source is identifiable through the analysis of its pyroclasts compositions alone. Furthermore, the identification of the rock/mineral fragments itself is a problematic task because of the similarities in the appearance of some minerals and pyroclasts. Basalt was the primary rock fragment that was used in this study. This type of rock resembles the dark-colored minerals like amphibole, biotite, and pyroxene. The only difference that these have with the basalt fragment is that the basalt is usually rounded in shape and its outline is clearly defined.

Where did this Tuff come from? – A Conclusion

Based on the pyroclastic composition analysis, the tuff artifacts from Structure A Site 1 in Brgy. Pinagbayanan came from one source. The evidences suggest that the tuff deposits could either come from the Laguna or Batangas deposits. Although there were no samples taken from the Laguna, and the samples from Taal Batangas were still unprocessed because of time constraint, yet the evidences point out that these are the possible areas basing on the mean maximum lengths of the basaltic

On the other hand, a historical fact counters the above arguments because the cut stones used in the construction of the church in San Juan de Bocboc (Brgy. Pinagbayanan) in the later part of the 1800s were from Bulacan (Villegas, ed. 2002: 108). With this in mind, it was also possible that the materials used in the construction Structure A Site 1 were from Bulacan (Meycauayan or any other cities/towns). For recommendation, given that the historical record is accurate, samples from structure A Site 1, Bulacan, and from the church should be compared – geochemically and petrographically. This will definitely identify the source of the tuff artifacts from the structure.

Finally, the study of tuff sourcing has been explored in this paper. The definite source of the tuff from Structure A Site 1 is still an open question. At the start of the research it was presumed that the source is identifiable through comparisons, however, as the research progressed and as data from published studies were taken into account, it became clear that the sourcing of tuff materials as a construction material during the Spanish period is a much more complex than expected. It was demonstrated in this study that sourcing of a material used during the Spanish-period-Philippines is not an easy task, especially when we are dealing with a structure other than the church.
REVIEWs

Critique of “The People of Ancient Banton: Assemblage Composition, Population Features, and Health through Osteological Analysis”

Jessica A. Peña

“The People of Ancient Banton: Assemblage Composition, Population Features, and Health through Osteological Analysis” is a masteral thesis submitted and successfully defended by Jack L. Medrana in October 2005 for his Masters of Science degree in Archaeology being offered by the Archaeological Studies Program at the University of the Philippines, Diliman. The skeletal assemblages he worked on were from the Guyangan caves, Banton island, Romblon, excavated in the 1960’s by a team from the National Museum of the Philippines headed by Alfredo Evangelista. The burial cave was initially discovered in 1937 by locals and it was reported to house wooden coffins with zoomorphic or anthropomorphic designs. There were also porcelain wares and gold ornaments, most probably as accompanying grave goods. Evangelista believed this to be a secondary burial site. Unfortunately as in most archaeological sites, the caves have been looted by treasure hunters, with the skeletal remains moved around and not in their original contexts anymore. However, the archaeological team was still able to recover the assemblage including surface finds such as earthenware sherds, gold ornaments, wooden coffins, and tradeware ceramics from the Sung, Yuan, and Ming dynasties (A.D. 960 – 1644).

Medrana’s research sought to answer two-fold questions - “What is the composition of a human skeletal assemblage from a secondary burial”? and “What are the characteristics of the Guyangan population based on data from skeletal remains”? As in any bioarchaeological study, the primary goal is to reconstruct possible past lifeways by examining the human remains themselves. He broke this down into five specific objectives - to determine the composition of the human bones and teeth in the assemblage, to get the number of individuals, including a palaeodemographic record, to describe the past population through osteometric features, to look for pathological conditions and cultural modifications on bones and teeth, and lastly, to determine aspects of their cultural system based on the data results. In order to accomplish this, he used both quantitative and qualitative analytical methods. He compiled an inventory of all bones and teeth by identifying elements and from this, obtained the Minimum Number of Individuals (MNI) of the assemblage. This is especially important due to the disarticulated and commingled state of the remains from the site and because of the nature of secondary burials plus the loss of original archaeological burial contexts from past looting and ransacking of the site. Next, he obtained estimates
of age-at-death, sex, skeletal measurements, and identified and recorded pathologies from bone such as the arthritis, osteoporosis, ante-mortem fractures, cranial lesions and reformatations and from teeth such as dental caries, enamel hypoplasia, and tooth attrition. He recorded morphological measurements of the crania and other non-metric traits from the skull, teeth, and post-cranial elements. He presented all of his data results systematically in numerous charts, graphs, and tables. Lastly, he integrated all his data in order to assess cultural aspects such as the past population's health, diet, adaptation to their environment, behavior, and incorporated mortuary analysis based on the grave goods recovered to assess status. He aptly ended his thesis with recommendations for future research.

It is evident in the collation of his data that Medrana did a lot of in-depth analysis and because of this he was able to answer the research questions he asked in the beginning of this thesis and attained all the objectives he set out to do. He discussed skeletal elements present and most frequently found in secondary burial contexts. On the other hand, he elaborated what elements were not present and the possible reasons behind this. He was also able to compile important data on quantitative and qualitative osteological and odontological characteristics of this past Guyangan population. He has a section on taphonomic processes on bone. Although not mentioned in his thesis, it would have been interesting to know the conditions of the assemblage such as its storage and preservation, especially so after being stored for almost 40 years, and after being transferred to different storage areas several times over the course of the National Museum's change of office locations.

Medrana's thesis is significant in so many ways. It is one of the first, if not the first, exhaustive compilation of data of any archaeological skeletal assemblage in the Philippines. It is now an important reference that can be used for comparisons with other bioarcheological data from other Philippine skeletal assemblages. It is also a sign that the discipline of archaeology in the Philippines has come a long way. Human remains from sites are treated nowadays as an important component of the site and is a sub-discipline on its own. Medrana has paved the way for more bioarchaeological studies in the Philippines, which is needed, in order to contribute to the search for past identities and past lifeways of our ancestors.

Review: Underwater Archaeology (The NAS Guide to Principles and Practice)
Sidney William P. Macalinao

This book is a compelling guide to students studying underwater archaeology for the first time, as it is comprehensive and user-friendly. It is structured to assist learning frequently used archaeological methods, concepts and approaches. Its many illustrations, photographs and visual representations of excavation sites, methodologies, tools and equipment were a plus.

But before going into a full review, let us first open the door to NAS, or The Nautical Archaeology Society. NAS is a non-government organization based in the United Kingdom that was formed to further interest in underwater cultural heritage. The NAS aims to increase awareness and advance nautical archaeology in all levels by improving excavation and conservation techniques, reporting, and engaging members of the public at all stages. Membership is made up of a wide range of people: from divers and non-divers, scientists and historians, who wish to promote and be involved in the preservation of their coastal and underwater heritage. In order to preserve a record of the past and their activities, they published The International Journal of Nautical Archaeology.

Now that you have been introduced to NAS, let us unwrap their handbook titled, Underwater Archaeology: The NAS Guide to Principles and Practice.
It is a trustworthy and comprehensive source for underwater archaeology. It is composed of extensive advice and timely information about everything from fundamental principles, essential techniques and approaches, project planning and execution, and publishing and presenting outputs. Furthermore, it includes additional chapters on geophysics, historical research, photography and video, monitoring and maintenance, and conservation. Aside from giving the right tools to handle a wide array of sites in different environments, the handbook also emphasizes that archaeology is not just a set of techniques; it is also crafted by fundamental principles and theoretical parameters.

Format-wise, the start of every chapter is very appealing and informative because of the use of a text box containing an outline of the chapter's topics.

As this is the second edition of the handbook (it was first published in 1992), it also contains new material on conservation of underwater cultural resources, and a brief review of different nation-states' legislative frameworks for protection of Underwater Cultural Heritage, commonly known as Submerged (or Marine) Cultural Resource Management in the USA.

While this handbook, as a guide, is a comprehensive source of practical information, it is not a complete reference book and it will not transform the readership into underwater archaeologists. But at the very least, it can provide an awareness of the responsibilities that go with any form of fieldwork while outlining what is involved in achieving an acceptable standard of archaeological work in what can often be a challenging physical environment.

A Review of “The Archaeology of Calatagan, Batangas: An Evaluation For the Institution of a Cultural Resource Management Programme In the Locality”

Nanette Roa

Giovanni G. Bautista works at the Cultural Properties Division of the National Museum of the Philippines, the office whose work is mainly for the protection, preservation and conservation of the archaeological and cultural resources of the country. Bautista’s thesis is in line with his work which I think has also become his advocacy and it is providential that he is with the National Museum which is the principal cultural resource manager of the Philippines.

Bautista begins with the declaration that – the safeguarding of our archaeological heritage calls for a sound management of archaeological resources towards their protection, preservation and conservation (p.1). He said that the government has adopted its Cultural Resource Management program from Presidential Decree 374 with an amendment to certain sections of Republic Act No. 4846 otherwise known as the Cultural Properties and Protection Act (National Commission for Culture and the Arts 2001 and National Museum of the Philippines 1977).

This law is the guide and basis for all transactions concerning the archaeological and cultural properties of the nation. Overall, he cited 18 laws that dealt also with the environmental and historical aspects, some of which I never heard before like the 1978 Presidential Decree No. 1492 – amending P.D. No. 260 to include the Petroglyphs in the Cave at the Tau’t Bato Area in Barangay Ransang, Quezon, Palawan. So for me, this means that these laws are varied, far ranging and that many important sites around the country has been taken into account.

To archaeologists, prehistorians and historians alike, the province of Batangas is considered one of the most important archaeological and cultural areas in the Philippines. Since the 1920s, stone tools, metal artifacts, earthenware, and tradeware ceramics has been discovered in that province. From 1932 – 1941, the Batangas Archaeological Survey was made all throughout the province by the eminent Prof. H. Otley Beyer and his associates. They conducted exploration of prehistoric sites and collected various artifacts. From then on, through the following decades, many researches, fieldworks, reports and writings added more data and information about Batangas.

Because of this, the main thrust of Bautista’s research is his concern in helping to save the archaeological resources of Calatagan and herein are the three research problems that he posed:

1. Why has the Cultural Resource Management (CRM) practice in the Philippines, before and until the present, not been able to address the needed protection, preservation, and conservation of the archaeological resources of Calatagan?
2. What are the needed strategies to carry out an affective Cultural Resource Management programme in Calatagan, Batangas and why these strategies (sic)?
3. How would this CRM programme be carried out to answer the protection, preservation and conservation of the archaeological resources of Calatagan?

This study has the following objectives:
1. To formulate a CRM programme that will effectively protect, preserve, and conserve the archaeological resources of Calatagan, Batangas.
2. To realize a preventive and sustainable CRM programme that would safeguard the archaeological resources of Calatagan.
3. To consolidate and evaluate the archaeological history of the locality in order to generate a clearer picture of the archaeology of Calatagan.

The methodology of this study (p.9) mainly rests in conducting researches of published and unpublished articles, reports and records relating to the subject matter. This is shown by a big number references published in this study. Bautista wrote that aside from the research material, he also made numerous site inspections and all these were undertaken to help outline the CRM programme.

The focus of Bautista’s thesis is on the municipality of Calatagan in Batangas province. This is located on the southwestern part of Luzon and is 110 kms. south of Manila. The town is bounded on the north by the municipalities of Lian and Balayan, on the south by the Verde Island Passage on the east by the Pagaspar and Balayan Bays and on the west by the South China Sea (p.39). The proximity of the town to the two bays and the South China Sea is the big reason why it is a significant archaeological area where several habitation and burial sites have been discovered. This is evidence of the peopling of the area thousands of years ago and it puts Calatagan in a significant place in Philippine prehistory. Below is the list of the five most important archaeological finds discovered in several areas within Calatagan that date back to the prehistoric period:

1. The Calatagan Pot is considered a National Cultural Treasure. It was recovered in Barangay Talisay during an unauthorized excavation. There is a syllabic script that is etched around the shoulder of the pot.
2. Clay medallion was recovered by Dr. Robert Fox in Karitunan. It is of Buddha-Siamese design and is between 12th to 13th centuries.
3. Carved figures from brain coral and stone from Palapit. It could be unique grave markers though no exact explanations could be made about these.

4. Jade bead from Kay Daing Hill. This was found by the team from the Archaeological Studies Program of the University of the Philippines in 1997. Studies showed that it is 3,000 years old and it came from Fengtian, Taiwan.
5. Jade adze around 800 B.C. from Ulliang Bundok. This was part of a unique and specialized craft production and was used as a tool before the Metal Age.

Calatagan is part of a peninsula and it is near the island of Mindoro, which is identified from the ancient Chinese imperial records as Ma-i or Ma-yi (Scott 1984). There is a great possibility that the people of Mindoro had regular trade relations and contact with the inhabitants of Calatagan, hundreds or even thousands of years ago (p.104). Calatagan could be a big market for trade wares from the 14th to the 16th centuries based on the grave goods found in burial sites excavations in said place.

When I went through this study, this line “...for the protection, preservation and conservation of the archaeological resources of Calatagan,” frequently appeared in several pages. Bautista could have intentionally done this in order to stress his point on the subject of his thesis. This calls to mind what Wilfredo P. Ronquillo of the National Museum (1992:65) said that our archaeological resources have an intrinsic qualitative values for they act as tangible symbols of past Philippine cultural communities with their potentials as a source of knowledge.

However, this source of knowledge taken from the past, notably the prehistoric past, are mostly fragmented and under constant threat because of the longstanding problem of looting and treasure hunting in numerous areas in Calatagan for many decades.

Bautista traced the beginning of the rampant looting and treasure hunting activities to year 1959, when Dr. Robert Fox published his report titled “The Calatagan Excavations” in Philippine Studies. People then started excavating and what is lamentable was the fact that some of the laborers of Fox looted the archaeological sites that they once worked on.

Many valuable materials especially trade ware ceramics were recovered from these unauthorized excavations and sold for a high price. Encouraged by the high profits that they got, a group of persons who made money from this illegal and clandestine enterprise around Calatagan, started to expand their “business” by financing excavations of this kind around the country.
It is interesting to note that Bautista mentioned the case of Mr. Antero "Terry" Baylosis, whom I met personally years ago as he was a good friend of my late brother. I went several times to his house across Paco Park and spent quite a time viewing his antique collection that were all over his place. It is only now that I learned that Baylosis built his fortune from pothunting.

Another problem that was cited by Bautista is what I describe as the government’s indifference and pathetic attitude towards the archaeological sites in Calatagan. This is practically the same thing that is happening in many areas around the country.

On April, 2005, Bautista together with Dr. Grace Barretto – Tesoro and Mr. Ernesto Firme conducted an inspection and exploration of archaeological sites in Calatagan that were excavated by Dr. Robert Fox in the late 1950s to the 1960s namely Talisay, Karitunan, Punta Sunog, Layon, Kay Tomas, Pulong Bakaw, Santa Ana and Parola. Most of these areas are privately owned and some of these were developed without the benefit of an Archaeological Impact Assessment or AIA.

The Kay Tomas is a major archaeological site excavated by Fox. It is now a first class resort owned by Mr. Ricardo “Ricky” Reyes, a well known hairdresser. He was granted an Environmental Compliance Certificate or ECC on September 6, 2005 by the Department of Environment and Natural Resources (DENR) – Environmental Management Bureau (EMB), Calabarzon Region (Appendix M) upon “complying” with all the necessary requirements (p.113). No AIA was conducted in said area before the resort was constructed. This is the case where an important archaeological site was destroyed through land development brought about by earthmoving activities.

Bautista pointed to five persons and entities as the ones who are liable in the loss and destruction of this archaeological site (p.114-115). Like the DENR – EMB-Calabarzon Region is guilty for issuing Mr. Reyes an ECC probably out of sheer ignorance of the cultural significance of the area. Then there is Mr. Reyes and the consultant that he hired for failing to conduct a thorough research on the land even though he personally knew that many broken artifacts were found there by his workers. And surprise – the National Museum was held liable by Bautista for failing to monitor the Kay Tomas site.

On the other hand, he also considered the fact that the Cultural Properties division where he belongs does not have a sizeable staff or an adequate budget to do a monitoring job on all the archaeological sites including the potential ones around the country. He also saw the need for his office to increase its networking and regular communication with other government agencies and LGUs so it can effectively do its work.

When Bautista together with Dr. Grace Barretto-Tesoro and Mr. Ernesto P. Firme, conducted an inspection and exploration of the archaeological sites in Calatagan that were excavated by Dr. Fox, they found out that it had different owners. One was converted into a resthouse, the other became a farmland and the Kay Tomas, a first class resort. Why is it that these individual owners were granted land titles by the government?

For me, Dr. Fox and even H. Otley Beyer are both liable for the destruction and loss of the sites. They could have coordinated with the LGU for the preservation of the sites after they did their excavations. They could have conducted public archaeology and educate their workers and the townspeople about their work and the valuable contributions it gave to national history.

Beyer and Fox excavated then closed their sites with the thought that their finds were not for public consumption but only for the academic and scientific community. No thought was given on the future state of those excavated areas whether it will be destroyed or remain as is. What mattered most to them were their published studies and the artifacts that they recovered.

Aside from the comprehensive research on Calatagan, Bautista is also very proactive in helping to “protect, preserve and conserve” the archaeological resources of the town. First, he was able to explain fully and convince the Municipal Planning Coordinator (MPDC), Engr. Miguel E. Duman, the importance of an Archaeological Impact Assessment (AIA) and to make this an integral part for the requirements for developers when seeking clearance from the municipal government. Today, it is the policy of MPDC to require the developers to secure an archaeological clearance from the National Museum.

Secondly, he personally informed Mr. Reyes that his resort was excavated by Dr. Fox in the late 1950s, and showed him the publication of the findings of Kay Tomas. The result of the talk was very fruitful as this spurred Reyes to sign a Memorandum of Agreement in January 15, 2007 with the National Museum, where he constructed an exhibit gallery at the Golden Sunset Resort featuring replicas of the artifacts taken from his land and other relevant data. The gallery was formally inaugurated on March 10, 2007 with key National Museum and NCCA officials in attendance.
Let me give a brief comment on the different cultural, environmental and other laws that are similar in nature, that are found in Chapter four. Bautista said that we have a big number of laws passed for the protection, preservation and conservation of our natural resources. But it is sad to know that these laws are virtually unknown to most of us especially the LGUs. And even if the local officials are aware of these, majority of them do not enforce them or take it seriously.

There are still rampant pot hunting and treasure hunting activities and even unauthorized salvaging of shipwrecks. Nobody goes to jail for it. Cultural stakeholders are helpless for these laws are mere scraps of paper and do not have police powers. Bautista himself commented (p.126) that despite the various legal measures provided by the national government, the management of the cultural resources has not been fully achieved due to its various problems and issues.

However, in this seemingly grim scenario, rays of hope can be seen that might vanquish the cultural demons in the near future. Bautista notes the growth of the archaeological community with the establishment of the Archaeological Studies Program at the University of the Philippines in 1995, producing many degree holders in graduate studies in Archaeology. The founding and advocacy of the Katipunan ng Arkeologista ng Pilipinas Inc. (KAPI) on June, 1999. This is a guild of professional archaeologists that promote Philippine archaeology in various ways. The popularity of heritage tourism contributed to the economic growth as well as the appreciation of local culture in many parts of the country.

As an archaeologist and an employee of the National Museum, Bautista is aware of the great need for Calatagan to save its archaeological resources before it will be completely lost because of human greed, ignorance and infrastructure development. He proposed an eight point CRM Programme including the set up of a heritage ceter in the area.

Bautista’s suggestion of setting up a heritage center or a museum is an excellent idea because it will showcase the artifacts taken from different sites around Calatagan. They will see material evidences that are thousands of years old and this is the right venue to teach the people about their cultural heritage and the town’s significant position in Philippine prehistory. This will also give them a sense of pride, self worth and identity as a people.

Once the Calatagan museum is established, everything will then fall in to place – it will be easy to get the people’s commitment and the cooperation of the municipal government to safeguard their archaeological resources and to develop their own brand of heritage tourism. I agree with the opinion that this museum must be under the national government so that it will not be a victim to the whims of the local politicos.

Lastly, it is wise for us to be aware that: “Conservation is an active process that does not simply happen – it has to be made to happen and someone has to pay for it to happen.” (Aplin, G. 2002) The thesis of Giovanni G. Bautista is a landmark one for cultural resource managers in the Philippines. This can be used as a reference and guide for those areas that are encountering similar cultural problems and threats like those in Calatagan. What is needed is commitment and dedication to make it happen so that this can be a great legacy that can be passed on to succeeding generations.

References:
ESSAYS

Are Archaeologists Desecrators of the Dead?
Marian Reyes

Archaeologists excavate human remains as part of their discipline’s practice. The remains are studied for the range of information they can provide. Handling human remains in archaeological research is sometimes problematic, when interest groups contest this practice of subjecting remains to scientific inquiry for they deem it a form of desecration. But is this really the case: Do archaeologists desecrate the dead? By reviewing the available literature on the reburial issue and ethics concerned with the treatment of the dead, as well as by presenting scenarios that involve the so-called sacred dead, it is argued in this paper that archaeologists, while dealing with human remains, are not desecrators.

Introduction

Human remains are common in archaeological excavations. They can provide important information on past mortuary practices, diet and nutrition, pathological conditions, demographics and population structures. Part of doing archaeology is the physical as well as chemical analyses of human remains found in sites (White 2005; Renfrew & Bahn 2008). Thus, archaeologists are sometimes depicted as desecrators of the dead. In search of tombs, they take the sacred treasures that accompany the dead, and take these items for display in museums (Feder 1999:45). But is this really the way of archaeologists?

Indigenous groups from all over the world are expressing their disagreement over the excavation of their buried ancestors by archaeologists. They view archaeological excavations as desecration of their ancestors: disturbing the dead for profit or as objects of scientific inquiry. The ongoing controversy in the United States over the excavation of burials from Native American sites is a case in point of indigenous groups rallying against archaeologists and anthropologists on how they handle human remains (Grimes 1986). A line was drawn in the US when the Native American Graves Protection and Repatriation Act (NAGPRA) was enacted, giving Native Americans more say on the matter. In different parts of the world, different policies are being implemented in response to complaints from different indigenous groups, with results varying in different cases.

Politics of Archaeological Human Remains

Jones and Harris (1998) discuss the situations in New Zealand, Australia, America and South Africa wherein hundreds to thousands of human skeletons are being brought back from the shelves of laboratories and museums to communities taking claim over the remains. In Australia, a policy issued by the Australian Archaeological Association is recommending the transfer of post-1788 human remains of known individuals to their communities (Meehan 1984). In New Zealand, a policy dictates that management of human remains from tribal areas is to be reinstated to the iwi or tribe in-charge. In addition, it is preferred that burials remain in situ whenever possible to preserve their integrity. The policy recognizes the potential for research of human remains, but reserves the right of the tribe over this decision (Gillies and O’Regan 1994). NAGPRA in the US asserts the rights of descendants over their dead, with criteria given on how to assess cultural affiliation of the dead. In response to this, institutions are required to provide an inventory of the collection of human remains that they have. Consultation with the community is proposed, but banning of excavation is not necessarily suggested. Custodianship principle is being promoted in both Australia and South Africa whereby the indigenous groups act as custodians instead of owners of the remains. There is a proposal of community-run museums in the excavation sites where scientists may also study the skeletal remains with the community’s permission (Jones & Harris 1998).

The issues over how and who should handle human remains spring from the parties’ various viewpoints. According to Naranio (1995), this arises from differences in worldviews between tribal and nontribal people. She says Native Americans have an integrated system of relationships wherein there is honor and respect for all elements of life. Pullar (1994) is cited by Jones & Harris (1998) as seeing the core differences between the indigenous groups and the scientific community in worldviews of time, death and self-identity, especially evident in the Maori’s concept of time. If science is a constructed concept depending on one’s worldview, then Jones and Harris (1998) sees the debate as at times centering on a clash between approaches to science. To some scholars, it is a problem of ethics, thus it is a conflict in cultural
values (Goldstein & Kintigh 1990). Grimes (1986:307) described the conflict as involving two different languages, religious and scientific, and the resulting clash being of conflicting religions between the Native American inter-tribalism and Western humanism (Grimes 1981). The Native Americans see the burial ground as a “church” and bemoans the lack of respect for their dead, with non-relatives unearthing their ancestors. The archaeologists see the ground as “disposal area” and are interested with the universal impact of death and the mortuary data that they could collect (Grimes 1981:307). To the Native Americans, the remains represent their “cultural ancestors”, while to scientists; they are “tools of education” (Mihesuah 1996:232). What scientists deem human is the expansion of scientific understanding (Grimes 1981:311) as opposed to the Native Americans valuing their dead. Whether in America or New Zealand or in other places where treatment of human remains in archaeology is an issue, it is always the same stakeholders involved – the scientists and the communities affiliated with the dead.

Sacredness and Desecration

Sacred is defined in Oxford Universal Dictionary as consecrated, esteemed generally especially dear or accepted to a deity, dedicated, set apart and exclusively appropriated to some person or special purpose, especially religious. Sacred objects are said to be regarded with reverence and respect similar to that which attaches to holy things. According to Pargament (2005), sacred is a moral property, moral behavior is a part of honoring and observing sacred duties and taboos. He further adds that the sacred is absolute. It demands a special attention for detail as contrasted to profane acts which are justifiable objectively. The sacred is a unique quality and association of religion (2005). Durkheim was cited by Marshall (2010) as seeing sacred having such a power as restraining conduct automatically regardless of any functional results, whether helpful or harmful. By extension, sacredness is the state of being sacred.

Sacredness, as suggested by Marshall, is a projected property of people, actions, places, objects and ideas. It is a property not inherent to the object but is perceived by observers on the object (2010:64). In effect, what one may deem as sacred may not necessarily be sacred for another. For those who would assert a sacred status to an object, they would treat this object differently in that they would preserve and protect it (Pargament and Mahoney 2002). Desecration, as suggested by the Grimes, is “an inter-religious violation in which one discounts or ignores the sacredness of what is violated (1981:314).” It is said to be a ritual blunder, regardless of the perpetrators’ intention, and happens due to ignorance of ritual consecration, or refusal in admitting the sacred as a relevant category. To desecrate means to take away the sacred character from an object; to profane it, to dedicate and devote it to something evil (Oxford University Dictionary). Are archaeologists then treating the human remains which they study with disrespect and contempt?

The Dead as Sacred

In various places like New Zealand, Canada, Australia, USA where indigenous groups thrive, there is a belief that the dead “can be affected for good or ill” by treatment of the remains (Scarr 2006). In the Jewish tradition, desecration or humiliation of the dead is likened to a form of murder as cited in the Chazal statements. Being disrespectful to a corpse, as in disinterment, also implies the belief that death is final and irreversible. Even Jews not observant of the halacha observe dignity and respect for the dead (Breitowitz n.d.).

In the Philippines, the local people of the Cordilleras celebrated the return of the 500-year old mummy, Apo Annu, taken more than eighty years ago. The ibalois believed the absence of the mighty hunter who was half-human, half-deity, caused natural calamities in the area (Lackey 2006).

Death and Obligations to the Dead

Death is a notion seen with finality by archaeologists, anthropologists and museum curators. It is the cessation of existence, and as such, the termination of the ability of the body to be harmed (Scarr 2006). The dead, according to the UK Human Rights Act 1988, is not vulnerable to harm because one must be alive to be a rights abuse victim. Moreover, Fuchs (1991) was cited as noting that existence of self is necessary in order to be helped or harmed (Scarr 2006). On the other hand, Tarlow (2006) says that injury or harm is done when an attack on the integrity or peace of the remains is made, and more than to the dead, harm is done to the living (Tarlow 2006; Wisniewski 2009). A good point of Brecher cited by Winewski (2009) is that dead persons are members of a community, a community which is a necessary facet of one’s own identity, so by extension, this is where the cry for proper treatment of human remains is
coming from. No harm is wished upon the remains of the dead as they are members of a community who do not wish harm upon their selves as well. With regards to the living and obligations to the dead, Wilkinson (2002) says that the wishes of a person regarding his interests on reputation, bodily integrity, privacy and desecration of remains while still alive may or may not be satisfied. Wisnewski thinks that we have at least some obligations to the dead (2009), but he draws attention to point that value does not equate to obligation, meaning not because one values the dead that s/he is obligated to it, or one may have an obligation to a dead person whom s/he does not value at all. Barilan (2006) believes that we have moral duties to the dead, at least formal duties including respecting and honoring them, and the need for informed consent from them as to the disposition of their bodies. He points out however that in research, use of human remains is not conditioned by utility, but due to values and goals more important than our formal and substantial duties to the dead. It is like pushing one value or duty for another, with the duties to the dead continuously existing.

"...respect for the dead is culturally situated"

Respect

The Vermillion Accord states that it is a right of the dead to be treated with respect. But what exactly does that mean? Scarre (2006) notes that in some cultures, any type of disturbance of the dead is deemed as disrespectful. He further adds that respect is given to the dead for their sake and as way of showing respect to the community. Honoring and respecting the dead is said to be part of the living’s moral duties (Barilan 2006). Wineski (2009) points out that the Kantian question whether the dead are owed respect or not if on the basis of vulnerability to postmortem harm may be explained by the Epicurean argument that it is humanity that is deserving respect and not any human per se. Tarlow (2006) accounts respect as relating to the concern of present-day people to how human remains may inappropriately be treated. She notes that respect for the dead is culturally situated. Some cultures may adapt seriousness and solemnity, as in the west, while some attend to the dead with festive music as in Latin America. In laboratories as in excavations, the culture dictates handling the remains with care and using them only in scholarly contexts (Tarlow 2006). In essence, the ways of showing respect to the dead is really dependent on the culture practicing it.

Consent

Of concern in the issue of treatment of human remains in archaeological research (and other scientific investigations) is consent. Consent is necessary as it places importance on the interests of the dead as owners of their bodies and/or the kin as proxy to the dead (Tarlow 2006).

According to Goldstein & Kintigh (1990), there should be no ethical dilemma concerned with the study of human material as long as consent is gained. The future of the remains will depend on the discussion of the closest kin or indigenous group, scientist and/or government whether the remains are to be studied, kept in a safe place pending study, or reburied. However, the problem lies with remains that are really old or those with unidentifiable relatives or cultural affiliations in the area wherein consent is difficult to get hold of. National versus ethnic identity and ownership is contested (Jones 1997). In cases such as those, the state regulations will come in to facilitate and decide on the dilemma. In the Philippines, the National Museum is mandated by law to be the repository of all archaeological properties (KAPI, 2008). Wilkinson (2002) sees the posthumous interests of the dead as symmetrical to that of the living, and so must be protected. Research projects are permissible if consent is available from the dead, or closest kin, or if population-based research, a committee decides on the distribution of attitude and acts according to the most acceptable practice of the culture from which the dead was from; otherwise research is impermissible.

Beneficence

As suggested in the Vermillion Accord, value of the research is also weighed against the wishes of the dead and its descendants. Value refers to the potential contribution of the study. Jones & Harris 1998 argued that more often than not, scientific studies do not benefit the descendants directly. Jones & Harris also cited Elson (1989) as saying that the information accomplished from studies are not passed to communities in that this withholding becomes a form of colonialism. Although this much is a point of contention, there are cases proving that research on human remains benefit the descendant communities. For instance, research findings are being used by the indigents of Tasmania in Australia to support land claims. Ubelaker (1990) was able to identify Native American victims in the Pine Ridge reservation through the use of comparative collections from modern Native Americans (White 2005). Studies on human remains would cast less doubt in the communities concerned if the results are shared (Jones & Harris 1998).
It is the responsibility of archaeologists to regard human remains with respect.

1. Respect for the mortal remains of the dead shall be accorded to all, irrespective of origin, race, religion, nationality, custom and tradition;
2. Respect for the wishes of the dead concerning disposition shall be accorded whenever possible, reasonable and lawful, when they are known or can reasonably inferred;
3. Respect for the wishes of the local community and of relatives and guardians of the dead shall be accorded whenever possible, reasonable and lawful;
4. Respect for scientific research value of skeletal, mummified and other human remains (including fossil hominids) shall be accorded when such value is demonstrated to exist.

Laws, Policies, and Code of Ethics

Respect for the dead is a common practice throughout history, and it is a basis of criminal laws regarding burial grounds, human remains and funerary objects (Murray 2000). All persons, including paupers and prisoners have the right to a decent burial for the principle of sanctity of the dead is a “right of the dead” (Murray 2000:1). In the US, state laws charge violators for crimes against the dead, which include abandonment of a corpse; disturbance of the dead by any person, corporation, partnership, or organization on a marked or unmarked burial site; trafficking for sales and profit of human remains without the right to possession to the remains; destruction or removal of any tomb, monument or gravestone, or other structure places in a cemetery, or burial ground, or place of burial of any human being. The billion dollar per annum business of looting American Indian burial sites has been so common that Native American sites have been called “endangered species” (Murray 2000:2). NAGPRA has accorded fines depending on degree and frequency of violations regarding human remains and funerary objects (Murray 2000:7).

In archaeology and research, one of the most-cited ethical codes is The Vermillion Accord on Human Remains, (cited by Scarre, G. 2006:181; Pearson 1999). The following is part of six points raised in the Accord. Though it has ambiguities in certain sections, the Accord has been a foundation for reconciliation and negotiation with indigenous communities laying claim to excavated human remains.

It is clear that the Vermillion Accord states the need for respect on handling human remains, in addition to taking into account the wishes of the descendants. However, it also recognizes the value of research studies on human remains.

In the Philippines, archaeologists are guided by the KAPI (Katipunan Arkeologist ng Pilipinas) Code of Ethics (2008) when dealing with archaeological human remains. KAPI’s Accountability Principle states that The archaeologist, when encountering human remains, especially burials, and/or shrines or sacred places, must and should observe good behavior and give due and proper respect before and during the conduct of any archaeological investigation.

Although code of ethics exist to set the standard for proper treatment of human remains, Tarlow believes that ethics is situational; it cannot be final or fixed (2006). There may be times when codes of ethics may be applied to a certain area, depending on the political air, but then there is still no code encompassing geographic or “timeless ethical truth” (Tarlow 2006:216).

How to Handle the Dead

For starters, being aware of existing codes of ethics will arm archaeologists and other researchers with the knowledge on how to go about handling human remains. When all the necessary legal steps and
procedures have been has been made, obtaining consent becomes of utmost importance. If consent is given and excavation permitted, extensive recording of remains in situ should be made. Besides being an archaeological practice, this is also in anticipation of occurrences where the human remains may not be retrieved for further study. While doing so, proper reverence must also be shown. The remains must be regarded with same respect observed at any grave or burial place (Jones and Harris 1998). When indigenous groups are concerned, Grimes suggests “ritual responsibility” (1986:315-16).

With human remains already stored in laboratories and universities, research is needed to justify storage (Jones & Harris 1998). Ames and colleagues mentioned that “human material can be kept ethically if the purposes for which it is being kept have ethical justification” (Jones & Harris 1998:262). When direct descendants are unidentifiable, interests of humanity should take primacy and remains be made available for study (Jones & Harris 1998). As mentioned earlier, it is also important to share the results of the scientific investigation to the communities involved. It is evident that a cooperative relationship between scientists and communities is critical in cases where indigenous groups are concerned. Human remains must be treated in such a way that the spiritual, cultural, scientific and educational importances are recognized (Jones & Harris 1998).

Are archaeologists desecrators of the dead?

As previously discussed, sacredness is a concept dictated by a particular group of people on a certain object which they perceive as having a revered status. What may be sacred to one person or group may not be to others. Sacredness is culture-specific. If desecration is defined by a culture as disturbing the dead, then archaeologists are in some ways desecrators. But based on the definition of desecration as treating something sacred with contempt, and debasing it to an unworthy use, archaeologists are not. As Jones & Harris (1998) pointed out, archaeologists are custodians of the past. They supplement existing knowledge by studying human remains, and the research that they do offers the possibility to enrich and protect human heritage. As long as there is respect for the sensibilities of other people, recognition that there are sets of values and beliefs different from those held by scientists and archaeologists, and as long as scientists and archaeologists acknowledge that some things cannot be imposed to others, such as the truth, then compromise is possible.

This is perhaps where rapport and public involvement is necessary. Through having an open communication with the local community of the excavations site, the intensity of the archaeologists are extended to the public, and in turn, feedback from the public is directed to the archaeologists. This way, both the archaeologists’ and the locals’ sentiments are addressed before the plans of actions are made. As White (2005) suggests, parties need to redirect their energies into a concerted effort to protect and save the past before it disappears. Academic work can still be done with collaborative efforts on the part of scientists and the local communities. Archaeology’s goal, more than anything, is directed to the living.

References:
Archaeological San Remigio and Beyond
Charmaine Ledesma

Weeks before the San Remigio, Cebu Field School, at the beginning of my Introduction to Archaeology class, Dr. Stephen Acabado already warned us of the romanticisms in archaeology. He made sure the idea was drilled in our minds by making us read numerous articles regarding that very same topic. Unfortunately, neither Indiana Jones nor Lara Croft made the cut as real-life archaeologists, although they definitely amazed all of us with their adventures, solving the mysteries surrounding archaeological artifacts, and inspired us into working out in the field while dodging bad guys (or bullets) or rival archaeologists all over the world. So we left Guam with an outlook of having to “tough it up” in Cebu, but exactly how tough, we did not know. Some say we had it easy the first time, and maybe so, but the experience was certainly different and quite fun.

The San Remigio field school in Cebu was the first archaeological field school conducted by the Anthropology Program, University of Guam (UOG). Hoping for a more hands-on approach in archaeology, we UOG anthropology students were all very eager to learn everything we could on this excavation.

The excavation was able to unearth four burials, the most fascinating of which was the burial of a male individual, laid with six different types of earthenware pottery at its feet. To add more to the intrigue of who this person could be, the skeleton had an iron tool near its chest and the jaws of a wild pig near its left wrist. According to Dr. Acabado, the earthenware jars were carinated or had angle-shaped hips representative of the Sa Hyunh-Kalanay Pottery Complex, “in reference to a site in Vietnam and in Masbate which yielded many type specimens now used for comparative purposes.” With the upcoming results, hopefully, studies regarding this time period could finally enlighten us with the culture and history of the people buried in San Remigio.

Being out in the field was serious work. I had not fully appreciated how significant it was until the pressure was on to us as the deadline was coming to a close. I learned that field school was not only about digging in the dirt, but was about paper work as well. Tons (or kilos) of them, actually. I could only imagine how the professors dealt with logistics. Patience was one of the important virtues I learned in the field. Frustrations ran high when some of us came up with empty trenches the first few days of the excavation. Some were lucky enough to be in trenches where the burials were. And some found that they were more interested in the archaeological-technical aspect, like site mapping, of the excavation. As students of anthropology, the field school has also made us become more aware of our surroundings, especially the people. We were never alone during excavation. Locals came in droves, with questions and stories on hand; sometimes, they would just stand there and watch us work. And yet, their tales were just as essential for the archaeologists. It was just a matter of figuring out which sounded more plausible. Nevertheless, ethnography never missed out.
For me, the UOG field school was not only about the San Remigio excavation, but it was also an introductory class to Philippine history and culture. Being a Filipino living in Guam, I realized that I have not taken the time to marvel on the depth and richness of the history and the enormity of diversity of the Filipino culture. Being at the University of the Philippines-Diliman, meeting the Archaeological Studies Program students, having the privilege of participating in an archaeological excavation in Cebu, trekking the rice terraces of Ifugao, and experiencing life in the highlands even just for a few days, make studying Philippine anthropology more meaningful. I know that there are still many archaeological sites waiting to be discovered all over the country, and that through archaeology we will be able to finally answer the questions of our past, know who we were, and maybe even relate archaeological findings to the changes in the present. As Bronislaw Malinowski, one of the pioneers of the discipline, wrote, “Perhaps through realising human nature in a shape very distant and foreign to us, we shall have our light shed on our own.” I do not mean that we should go to places and study people different from our norms, but we can infer that by “immersing” ourselves in the distant past, and we shall be able to learn from it, and hopefully enlighten the present. After all, archaeology today is not just about the past anymore, but about the present as well.

Prehistory, Heritage and Foie Gras
A Reflection of an Archaeology Newbie

Mylene Q. Lising

On May 29th 2012, I boarded a bus in Bordeaux, France that was headed for the medieval village of Les Eyzies-de-Tayac in the Vezere valley 150 kilometers away for the two week Erasmus Intensive Program, “Prehistory at the Crossroads of Science and Conservation”. In the bus with me were around 70 other people—a mixture of students in Masters and PhD programs in prehistory, archaeology, geology and other related fields, and professors among whom were the most distinguished names in archaeology in Europe and the world. Halfway through the six-hour trip it dawned upon me, I was the only one in the entire bus without a background in science. Here I was, a graduate student of Fine Arts, sitting with a bus full of experts in archaeology—I had never felt so intimidated before.

To any student of prehistory, the village of Les Eyzies could very well be heaven on earth. In the village and in adjacent areas around it are some of the world’s most significant Paleolithic sites that have lent their names to major cultures such as the Micoquian, Mousterian and Magadalenian.

The centerpiece of the village is the Musee National de Prehistoire, a beautifully executed and well-managed museum that retraces the last 400,000 years of human history. It was in the auditorium of this museum that we had majority of the lectures of the intensive program.

The program had 47 students from about a dozen countries worldwide. For the next thirteen days, we listened to and interacted with 60 professors and specialists in fields related to prehistory. Lectures encompassed topics, among others, on paleontological sites, quaternary records and hominids history, early sites in western Eurasia, sites and museums, permanent and temporary exhibitions, conservation and study of human remains, human evolution in southeast Asia, rock art and of course, cultural heritage and conservation in prehistory. Aside from the lectures, we also had 2 days of excursions to some of the most important archaeological sites including some decorated caves and rock art sites within the area. During this period, we were as well expected to engage in group
reports of those activities to the whole class, in the presence of the professors. The main basis of the grade was to be a final presentation — individual or in pairs — that would showcase a concrete application embodying a synthesis of what we had learned from the intensive program. The whole course was worth 6 ects units.

Salvation (for this newcomer in archaeology) came in the form of an announcement from Professor Margherita Mussi stressing that the final reports were not to be scientific, rather they should focus on heritage conservation. The most inspiring factor about the entire IP was the emphasis on the involvement and integration of the public into cultural heritage resource conservation. Here was the answer to the question that had hounded me since I got into archaeology recently — what were all of these efforts and research for and to whom was it relevant anyway?

It is imperative to have a sustained program for archaeological research and excavation. The alternative is risking the loss of information relevant to the study of human evolution, culture and heritage forever due to treasure and pothunting activities, and agriculture, deforestation and urban development, among other things. In the Philippine context, a huge amount of research and data gathering has been carried out since even as early as the mid-twentieth century. Efforts that were started out by such names as Beyer, Fox, Evangelista and Peralta have been continued by the likes of Ronquillo, Dizon, Salcedo; and later on by Mijares, Paz, Baretto-Tesoro and others who continue to persist in this field. As a result, there is a significant amount of scientific data now available. The challenge that exists today is how to make all this research data relevant to the people, especially the locals who live within the vicinity of archaeological sites and who are most affected by the activities of archaeology.

At the end of the IP, I came away with the realization that science cannot exist for science alone. It needs to serve a bigger purpose rather than just be a form of intellectual self-gratification among experts. It has to have meaning to and impact on the people whose culture and heritage are being studied. This can be done by involving them in the process of discovery, educating them about the value of archaeology, providing them with opportunities to train and become participants in this process on different levels, and allowing them to enjoy the benefits of archaeology to increase their appreciation of this field.

By the time the two weeks was up, I was able to develop a vision of how cultural heritage conservation might be effectively carried out in the Philippine context. As the big question of implementation looms, I look back at the two-week experience in France and derive inspiration from it for the task ahead. The feeling of intimidation at the start was gone. I arrived in Les Eyzies knowing more about the foie gras and the wine the region is so well known for; and yet, I left armed with some knowledge that could be of use not just for myself, not just for the country, but also for humanity in general.

I hope.