

The Application of the Laws of the Indies in the Pacific: the Excavation of Two Old Stone-Based Houses in San Juan, Batangas, Philippines

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Abstract During the Spanish Occupation of the Philippines from the sixteenth to the nineteenth centuries, the Laws of the Indies and ordinances determined where settlements should be established and how structures should be built. These laws radically changed indigeneous settlement patterns and created a hierarchy of space. In this paper, two stone ruins located in the old town of San Juan, Batangas, are investigated to trace the development of the town using the Laws of the Indies and ordinances as framework. The methods of study include integrating excavation results, interviews with local residents, and archival research. This research shows that the ruins were domestic units dating to the late 1800s. The architectural style of the houses and the artifacts recovered indicate that these structures belonged to local elites. These stone-based houses were the first to be archaeologically investigated in the Philippines. The results of the investigation show that the old town of San Juan was most likely a forced resettlement by the Spanish colonists.

Keywords Stone structures · Philippines · Spanish town · Reduccion · Laws of the Indies

Background

In 1573, Philip II of Spain, issued a royal ordinance *Ordenanzas generales de descubrimiento y nueva poblacion* known as the Laws of the Indies which contained specific instructions in establishing towns in Spanish colonies (Lico 2008, pp. 110–112). The idea behind this royal ordinance was the urban transformation of native villages to impose colonial power and provide physical order on the indigenous

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populations through the creation of hierarchical space, with the church and seat of government occupying the center (Lico 2008, pp. 103–104). The establishment of the colonial town occurred either in existing settlements or through a *reduccion*, or forced resettlement of scattered villages. The *reduccion* accelerated conversion to Christianity, prompted rapid culture change, and maximized control of the natives.

The Laws of the Indies specified that towns should be established in vacant places or in areas where the natives allowed them. A new town should be able to defend itself, have sufficient water source, arable land, and be accessible. If it is a seacoast town, the plaza and church should be near the port. The town should be along a “navigable river...on the northern river bank” (Alarcon 1998, p. 76). The streets should follow the cardinal directions and extend on the sides of the main square or plaza. The main street fronting the church is called the Calle Real. The plaza served as the focal public space where people performed religious, political, and social activities (Hart 1955, p. 1). Around the plaza were the church, town hall, hospital, arsenal, tribunal, school, and other public buildings. Elites resided near the plaza and the social statuses of the inhabitants gradually diminished as one move away from the center (Arcilla 1998, p. 64; Hart 1955, p. 1). Succeeding streets ran parallel to the four streets surrounding the plaza, thus forming a rectilinear grid pattern. Grid and symmetry were followed in cases of town expansion. This urban order is also known as the “plaza complex.” Thus, Philippine colonial towns were established according to specific rules stated in the Laws of the Indies.

At the onset, public buildings and residences were made of light, readily available organic materials. These non-permanent construction materials were easily destroyed by human and natural action (Zialcita and Tinio 1980, p. 25). In the 1580s, Governor-General Santiago De Vera ordered edifices to be constructed using stones and tiles (Lico 2008, p. 116). This resulted in the establishment of brick- and tile-making and stone-cutting industries. Stone quarries were found along the Pasig River and later on more quarries were discovered in Marikina, San Mateo, and Meycauyan (Lico 2008, p. 118). In places where tuff was not available, coralline limestones were used instead.

The earliest stone buildings were made of cut volcanic blocks locally known as adobe. These stones were bound using lime mortar. By 1645, an earthquake destroyed many of Manila’s stone buildings. Hence, the introduction of *arquitectura mestiza* by the Jesuit priest Father Alcina in 1668 (Lico 2008, p. 117). This type of architecture, a combination of stone and wood, was designed to withstand fires and earthquakes (Zialcita and Tinio 1980, pp. 28–29, 65–66). Stone was used on the first floor and wood on the second floor. To survive an earthquake, most structures have two floors only and thick walls supported by buttresses. The use of “the indigenous framework, which relied on interlocking beams and house posts, was integrated to support the house effectively” (Lico 2008, p. 117).

Domestic units were referred to as *bahay na bato* (house made of stone). Essentially a *bahay kubo* (*nipa* hut on stilts), the traditional Philippine house, a *bahay na bato* is larger in scale and the house posts are concealed by a wall of stones or bricks. The wooden posts are sometimes incorporated in the stone walls (Zialcita and Tinio 1980, p. 67). The second floor is made of planks of hard wood. Since the whole structure is not made of stone, it is best to refer to them as “stone-based structures.” The first floor was practically unoccupied and the living quarters (receiving areas, bedrooms, dining, kitchen, bathroom, and toilets) were located on the second floor (Zialcita and Tinio

1980, pp. 91–109). The first floor was used as a storage space. The roofs were initially made of tiles because they were fire-resistant, but they caused considerable damage during earthquakes. In the 1880s, the government directed the use of galvanized iron sheets for roofing (Zialcita and Tinio 1980, p. 68). Regional variations of the *bahay na bato* can be observed across the Philippines (Lico 2008, p. 164; Zialcita and Tinio 1980, pp. 70–89, 179–203). The construction materials, size, and decorative elements eventually made the *bahay na bato* into a status symbol (Zialcita and Tinio 1980, pp. 125–128).

This paper investigates two stone ruins in Barangay Pinagbayanan, San Juan, Batangas (Fig. 1a and b) to understand the development of the said town. This research provides data on architectural style, construction technology, and town lay-out that may assist other scholars interested in Spanish colonial structures. Results of this study can be compared with Spanish-established settlements in other Philippine towns and in other Spanish colonies. The objectives of the paper are twofold. The first objective is to contextualize the stone structures in the framework of the plaza complex. The second objective is to examine the nature of the structures, including their construction technology, activity areas, reasons for destruction and abandonment. A chronology of the structures in relation to the datable materials found at the sites is also provided. The proximity to the ruins of the old church of San Juan suggests that both structures were part of the settlement located within the

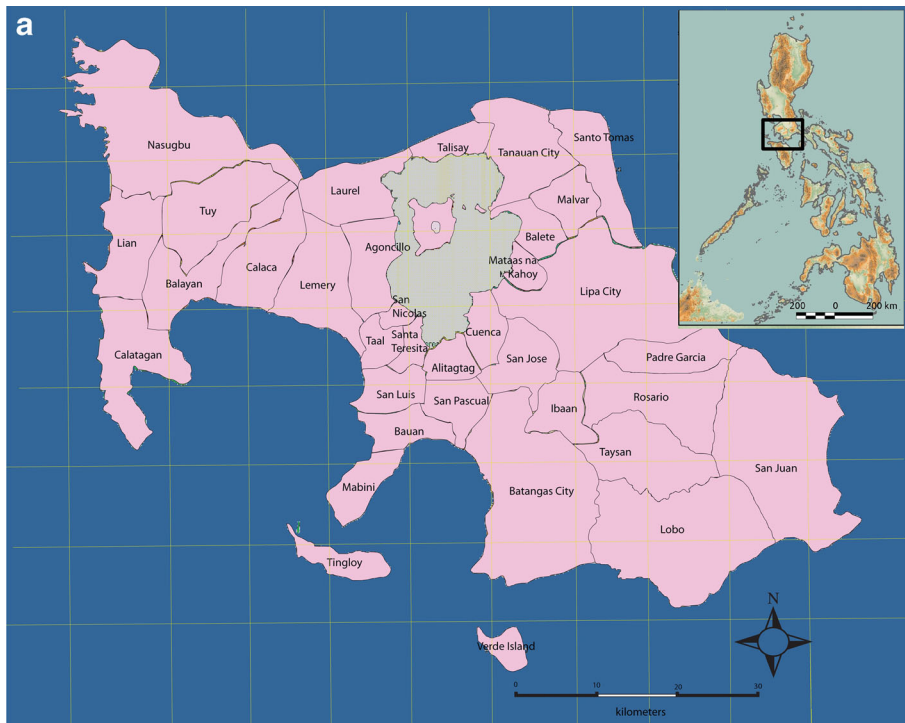


Fig. 1 a Map of Batangas showing the location of San Juan and other towns in Batangas mentioned in the text (Inset: Map of the Philippines). b Map of San Juan showing location of Barangay Pinagbayanan (encircled) located along Tayabas Bay and south of the Malaquing Ilog (river) (Courtesy of the Municipality of San Juan)

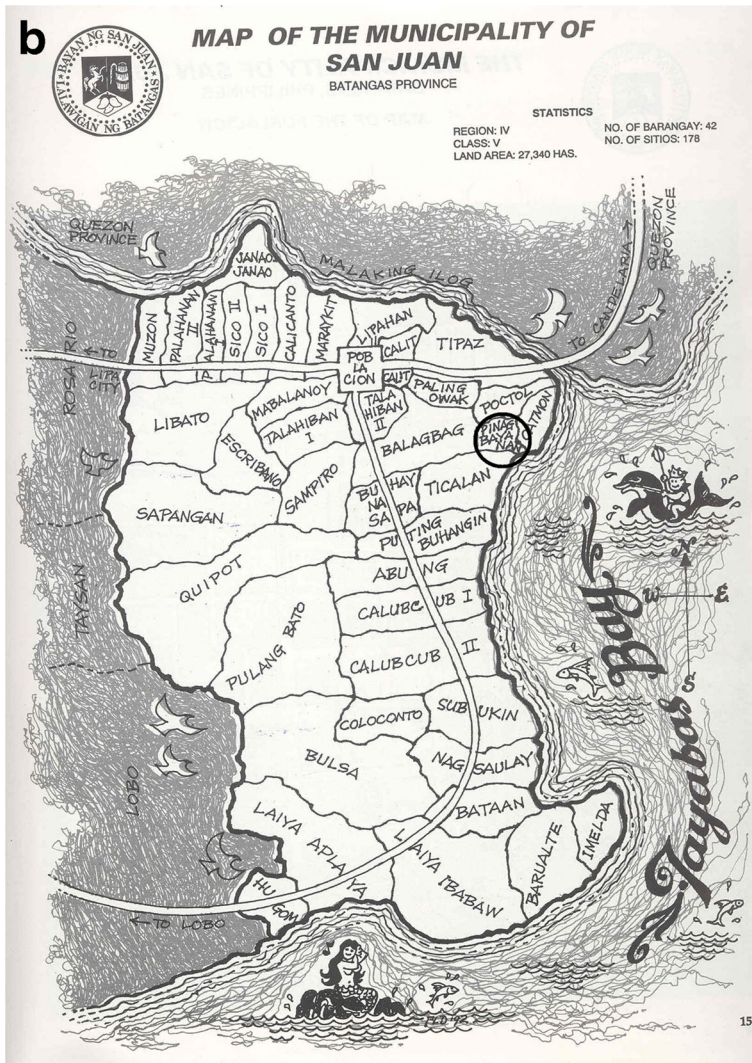


Fig. 1 (continued)

town plaza. Historical documents indicate that people of wealth resided within hearing distance of the church bells (Villegas 1998, p. 226). It is thus likely that the original occupants of the stone structures were local elites.

We employed four methods in this research. The first is the excavations of two stone structures. Detailed accounts of the excavations are discussed elsewhere (Barretto-Tesoro et al. 2009b, pp. 16–70; UP-ASP 2010, pp. 3–36, 2011, pp. 5–90) and will not be repeated here. Elder residents of Barangay Pinagbayanan were interviewed about the stone ruins. The relatively late establishment of San Juan in the mid-1800s enables older residents to remember stories told by their parents and grandparents. Interviews with locals identified the locations of the old church, municipal hall, cemetery, and other possible settlements. Details of these interviews appear in earlier reports (Barretto-Tesoro et al. 2009b, pp. 70–71; UP-ASP 2010, p. 17, 2011, pp. 127–

136). The third method involved archival research. The fourth method is the survey of extant old stone-based houses. The integrated results of these four methods permit us to address the objectives set above.

Previous Archaeological Work in San Juan

Prior to this study, the only published archaeological research conducted in San Juan was the National Museum of the Philippines' excavation in Barangay Calubcub Segundo in 1979 (Salcedo 1979, p. 1). The Calubcub excavations generated 16 skeletons in jars and open-pit burials associated with earthenware vessels, foreign ceramics, and glass beads. Based on the associated artifacts, Calubcub was dated to around 500 CE and the tenth-fifteenth centuries CE. Although Pinagbayanan is located just north of Calubcub Segundo, materials from the same time periods were not found during excavation.

In terms of archaeological research, the municipality of San Juan has been overlooked in favor of other municipalities mostly located along the western coast of Batangas province, such as Calatagan, Lian, and Nasugbu. Other municipalities where excavations were conducted include Balayan and Lemery, which are also coastal sites located in western Batangas. Calatagan is the most famous of the Batangas sites because of the large number of burials recorded there (De La Torre 2008, p. 6; Fox 1959, pp. 325–390; Ronquillo and Ogawa 1996, pp. 133–147) and because it was one of the earliest sites excavated systematically in the twentieth century. The western coast of Calatagan yielded fifteenth-century CE burials and in the east coast jar burials dating to 1695±20 BP, 2045±20, and 2820±40 BP (De La Torre 2003, p. 32). Burials similar to the fifteenth century CE burials were also excavated on Verde Island located off the southern coast of Batangas (Legaspi 1964). Foreign ceramics and local pots similar to those recovered in Calatagan were also documented in Balayan (Santiago 1961, p. 1). Evidence of food refuse such as shells and faunal fragments were unearthed in Lian (De La Torre 1994, p. 1). The world-famous shipwreck of *San Diego* dated to 1600 CE was recovered off the coast of Nasugbu also in Batangas (Desroches et al. 1996, p. 24). Excavations in Lemery produced lithic materials dating to 4000 BCE, earthenware sherds from 1850 BCE, burials from 2000 years ago, and porcelain and pots dating 1100–1400 CE (Locsin et al. 2008, p. 40). Around Taal Lake, located in the middle of Batangas, old churches dating to the Spanish colonial period (1521–1898) were excavated in the towns of Santa Teresita (Paz 2003a, p. 18), San Nicolas (Dizon et al. 2005, pp. 19–20), and Talisay (Vitales et al. 2011, p. 14). Previous archaeological work in Batangas show that many of the sites documented are mostly found in the western section of the province. The cultural materials are varied in terms of time depth. Many are associated with the Philippine Neolithic period and some extend to the Spanish colonial occupation from the 1600s to the 1800s. Thus, the research in San Juan contributes to the archaeological picture of the entire province by surveying and excavating sites in eastern Batangas.

Considering the presence of a 1500-year old site in Calubcub Segundo, no comprehensive research to investigate the old history of San Juan had been done until 2008 when the town was extensively explored to document archaeological sites (Barretto-Tesoro et al. 2009a, p. 26; Barretto-Tesoro 2013, pp. 14–25). The 2008–10 surveys

resulted in the discovery of 27 sites, including the old town of San Juan in Barangay Pinagbayanan where the remains of stone structures were recorded. “Pinagbayanan” is located along the coast and literally means the “location of the old town.” Local narratives indicate that in 1890, the town was transferred 7 km inland due to flooding. Because of the town’s relatively recent relocation, elder local residents are aware of the significance of the stone ruins in the vicinity.

The stone ruins include parts of walls, pillars, and pillar bases. In one of the stone structures, a disused well locally known as a *koloong* was also documented. The sites are officially recorded as Structures A and B, Site 1 (Edgardo De Villa Salud Property). The structures are located along the main road 100 m south of the Pinagbayanan Elementary School (Barretto-Tesoro et al. 2009b, p.11).

In 2009, only the southern portion of Structure A was excavated (Barretto-Tesoro et al. 2009b, p. 11) and the northern section was opened in 2010 (UP-ASP 2010, p. 1). Structure B was excavated in 2011 (UP-ASP 2011, p. 2). The research aims to identify and interpret the earliest evidence for settlement at San Juan. The project adds significant information on the history of Batangas during the Spanish occupation, and the excavation of the stone ruins will enhance knowledge of Philippine colonial-era construction techniques and provide insights into reasons for abandonment.

The excavation in Barangay Pinagbayanan is part of a larger project that aims to investigate the development of the town of San Juan from the pre-colonial period (pre-sixteenth century) to the Spanish colonial period (post-sixteenth century to 1898). Extensive surveys conducted in San Juan documented the presence of archaeological sites as early as 100–400 CE (Barretto-Tesoro et al. 2009b, p. 45).

To date, most of the archaeological excavations of structures constructed during the Philippine Spanish colonial period (1521–1898) concentrated on religious structures and fortresses (Bautista 2005, p. 34; Bautista and Dalumpines 2010, pp. 21–36; Dizon and Bautista 2000; Dizon et al. 2005, pp. 19–20; Neri et al. 2010, p. 27; Padilla 2013, pp. 38–102; Paz 2003a, p. 18, 2004, pp. 18–20, 2006, p. 29; UP-ASP 2005, p. 7, 2007, pp. 24–27, 2009, p. 31). Exceptions include an industrial structure, most probably a cigarette factory dating to the nineteenth century (KAPI 2006, p. 36); a custom house (Cuevas 1996, p. 6), an old foundry (Orogo 1993, p. 4), and a multi-component site in Maestranza, all in Manila (Bautista 2009, p. 65). Other historical structures, most likely foundations of stone-based houses were unearthed as a result of archaeological impact assessments rather than research-focused excavations (ACECI 2010a, p. 48, 2010b, p. 26; Barretto-Tesoro et al. 2014, p. 61; Paz 2013a, p. 35, 2013b, p. 9). Many have also studied Philippine ethnic architecture and houses, churches, and fortresses from architectural, historical, anthropological, and ethnographical perspectives (Jose 1991, pp. 29–67, 2002, pp. 98–114; Tatel 1998, p.47; Zialcita and Tinio 1980, pp. 65–121). In short, there is little archaeological research directed toward understanding the Spanish colonial settlement. Previous studies on structures built during this era were either 1-time investigations or part of larger archaeological assessments. Prehistoric settlements in the Philippines have also been investigated (Barretto 1999, p. 80; Canilao 2011, p. 119; Jago-on et al. 2003, p. 112; Junker 1999, pp. 43–53; Lacsina 2009, pp. 69–96; Mijares 2003, pp. 69–70; Paz 2003b, p. 21; Paz et al. 1998, p. 27) but their growth and development during later time periods—such as the Spanish colonial occupation—have not been assessed, and existing studies on the development of settlements are

usually from a historical perspective (Villegas 1998, pp. 225–235; Zialcita and Tinio 1980, pp. 65–121).

Historical Accounts on San Juan

The old name of San Juan was Galban (also spelled Galvan) based on a map by Velarde in 1734. Galban's general location was described in several accounts dating from 1574 to 1898 (Barretto-Tesoro 2013, pp. 7–8; Buzeta and Bravo 1903 [1850], p. 283; Dasmariñas 1903 [1591], p. 139; Guerrero 1903 [1636], p. 311; Loarca 1903 [1582], p. 91; Mirandaola 1903 [1574], p. 223; Salazar 1903 [1588], p. 34). These accounts also mention the presence of Indians and gold mines. San Juan was originally under the jurisdiction of the town of Rosario (see Fig. 1) until it became a separate municipality in 1846. The town was established in 1881 along the coast in the lowland area in what is now known as Pinagbayanan. The first families who settled in San Juan were migrants from nearby towns. An 1890 document, *Declaración para Fincas Urbanas*, lists 14 houses and two warehouses in San Juan. The houses were located along Calle Real or the main street. Four houses were made of wood with galvanized iron sheet for roofing; five houses were made of wood with cogon roofs; one was made of wood, galvanized iron sheet, and shell; two were made of stone; and two were wood, stone, and cement. Don Claudio Sales owned one of the stone houses; the other belonged to Don Nicomedes Peres [sic]. Nicomedes Perez was the grandson of Camilo Perez, the first *gobernadorcillo* of San Juan in 1848 (Pineda 1992, p. 162).

The two river channels bounding the town on the north and south and the town's low elevation meant that it suffered from seasonal flooding (Sastron 1895, p. 236). Stagnant water from irrigation caused serious health problems among the villagers. In 1883, the town experienced a huge flood damaging many of the houses including the church and the convent. In 1886, it was decided that the town be transferred to a safer location. Initially, the elites were not in favor of the move because they did not want to abandon their houses, which were constructed from high-quality materials (Batangas 1767–1896). Finally, in 1891, the town center was officially transferred to its current location in Calit-calit, 7 km inland. The old town center is now known as Pinagbayanan.

The Stone-Based Houses

Structure A

Twelve trenches were opened in Structure A. The investigation revealed that Structure A was a *bahay na bato* (stone house) with a total first floor area of 438.08 m². The structure is oriented in a north–south direction and is 29.60 m long and 13.90 m wide along the northern portion.

The house was built using tuff and conglomerate blocks bounded by lime mortar for the walls and pillars. Most of the foundations were made of solid lime mortar, but excavation revealed that tuff blocks cemented with lime mortar were also used. Instead of using wooden posts, closely spaced stone pillars and arches were used to support the second floor. A minimum of 27 stone pillars was recorded in Structure A. More stone

pillars may extend further to the east (UP-ASP 2011, pp. 120–127). The stone pillars were constructed by arranging tuff blocks in a square formation and cementing them with lime mortar. The hollow part was then filled with lime mortar. Parts of the house were identified using floor plan, features, and artifacts. On the ground floor, we recorded the main entrance, *zagan* (entrance hall), patio, *kamalig* (granary), *koloong* (water well), *bodega* (storage room), and the general location of the kitchen (Fig. 2).

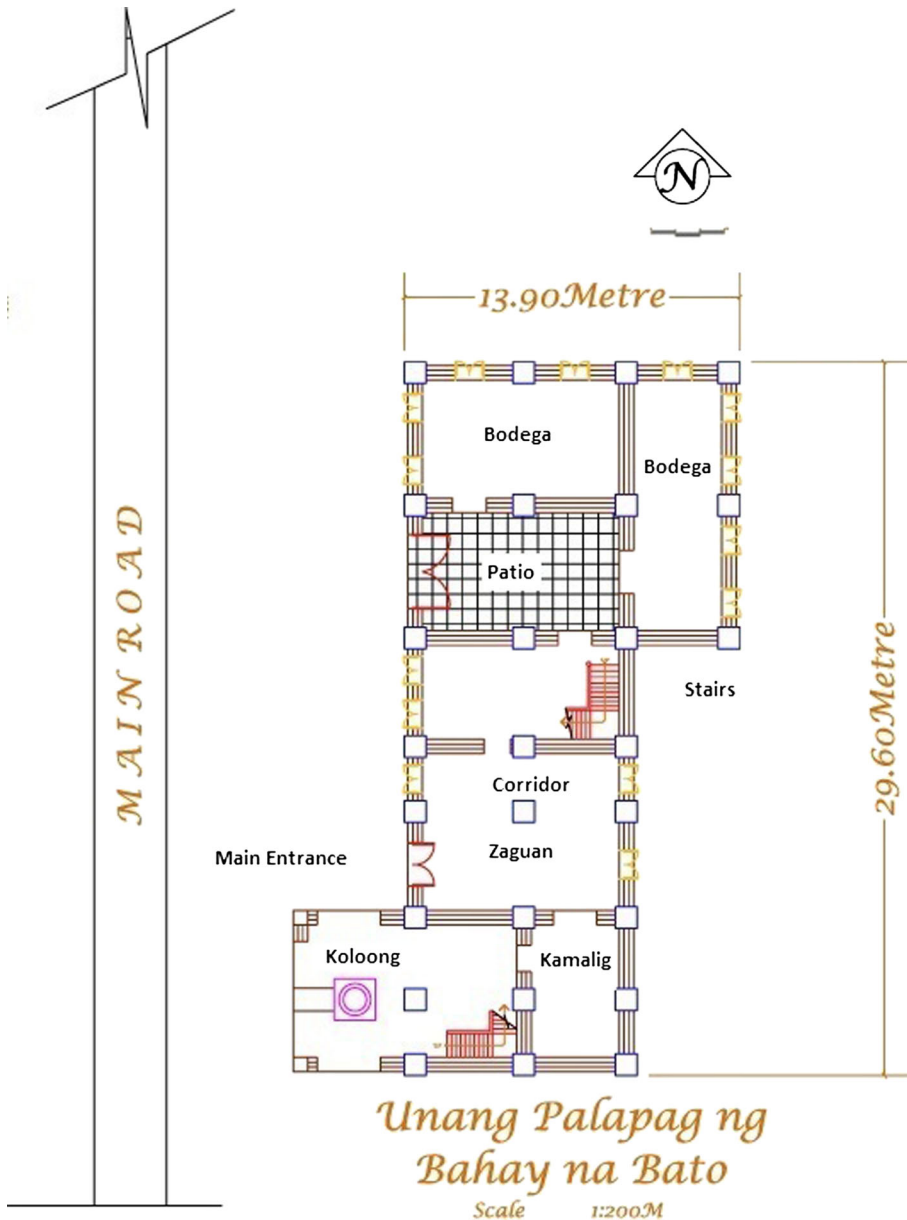


Fig. 2 First floor plan of Structure A (after Sales in UP-ASP 2010 p. 32)

The kitchen on the second floor was above the *koloong*. East of the *koloong* we found a floor of tuff blocks that may have functioned as a *kamalig*. The floor of the *kamalig* was fully exposed in 2011 after its initial excavation in 2009 (Pineda et al. 2011, pp. 122–123). Mortar was found on the edges of the tuff blocks forming the boundary of the *kamalig* (Fig. 3). It appears that something was attached to these blocks with lime mortar. The width of the objects placed on top of the tuff floor on the south side was 16–23 cm, while the width of the object on top of the tuff blocks on the north side was 28–33 cm. A 26-cm diameter posthole appeared in the middle of the floor.

Adjoining the *zaguán* is the patio, a room with clay floor tiles (Fig. 4). To the north and east of the patio were dirt floors interpreted as *bodegas*. Old stone-based houses often had two *bodegas* (Zialcita and Tinio 1980, p. 251). Two passageways, both measuring 1.4 m wide were identified in the patio, one leading to one of the *bodegas* and the other leading to the *zaguán* (Figs. 5 and 6). Comparison with two existing stone-based houses in the greater Manila area display flooring similar to the tiled floor and the adjoining compact dirt floor (Fig. 7). We also found the base of the stairs (Fig. 8) (Pineda et al. 2011, pp. 120–122).

The round *koloong* is bordered by tuff stones. The border of the well measures 1.54×0.63 m. The maximum diameter of the *koloong* is 131 cm. The excavated height of the well is 73 cm. A mortar border appears at the base of the well. West of the *koloong* is a mortared platform, measuring 94 cm wide and 170 cm long. Stone voids appear on the platform. Local accounts indicate that the well reached the second floor of the house, and evidence suggests that this platform was the remains of a wall supporting the *koloong*. According to Cesar Chavez (65 years old in 2009), as a 12-year-old boy he climbed the stones to go to the top of the *koloong*, hence, the original height of the well was higher than what we had recorded (Fig. 9). Two existing water wells surveyed in Pinagbayanan are almost 2 m high and access is from the second floor of the house and can be used as an analogy.

A 2 m- wide entrance appeared along the west side of the house leading into the *zaguán* (Fig. 10, see also Fig. 4). It is comparable in terms of size to the oblique main



Fig. 3 The tuff block floor of the *kamalig* (granary)

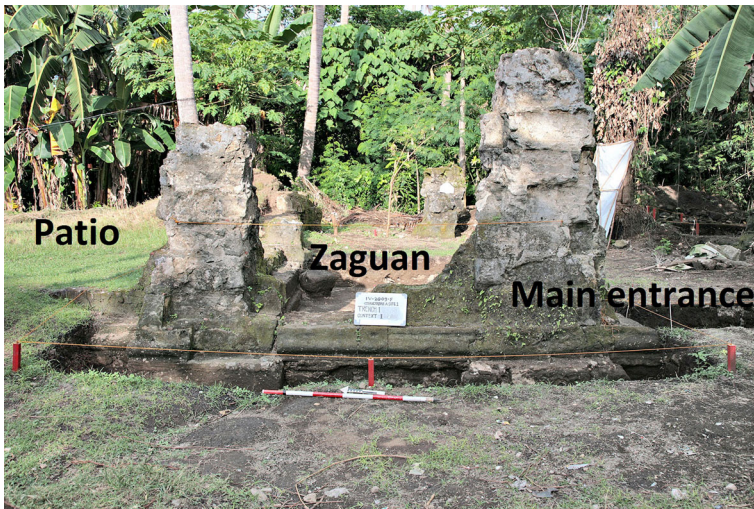


Fig. 4 Southwest side of Structure A showing the location of the main entrance which leads to the zaguan (passage way from the entrance to the patio) and the patio on the north

entrance of the Bahay na Tisa in Pasig City that also measures 2 m at its narrowest and 2.53 m at its widest (see Fig. 7). The entrance to another stone house we surveyed in Makati City is 2.18 m wide. Calculation of an entrance width based on a colonial house plan was also 2 m (Zialcita and Tinio 1980, p. 251). The excavated entryway faces the main road. According to UP Architecture Professor, Emilio Ozaeta (pers. comm.), “Main entrances or *puertas* would have simply faced the street for easy manoeuvring of the *carroza* (carriage). It may face either a main street around a plaza or a side street. There really is no definitive article in the Laws of the Indies mandating the positions of the

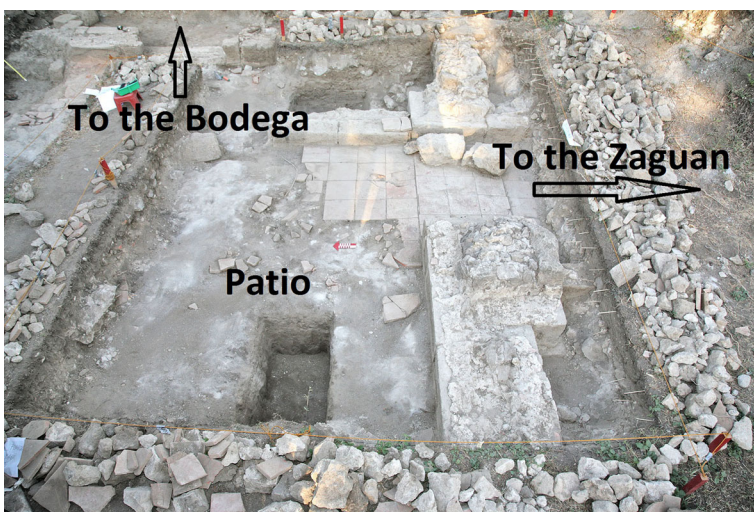


Fig. 5 The tiled patio showing two entry ways, one leading to the zaguan and the other to the bodega (store room)



Fig. 6 A close-up of the entryway between the patio and the bodega

puerta viz a viz the plaza.” Based on comparative measurements and location, we considered the excavated entryway the main entrance to the house.

In Structure A, beneath the unearthed *moldura* or moldings base on the exterior walls, the top portions of the foundations are visible (Fig. 11). The moldings range from 47 to 81 cm in length and average 28 cm wide. The matrix of the foundation was relatively absent of rubble and was compact compared to sediments above it. The original occupation surface appear as sediment below the moldings found on top of the foundations and floors. The



Fig. 7 The *Bahay na Tisa* in Pasig City showing the main entrance, the tiled floor, and the adjacent dirt floor. The floors are similar to those recorded in Structure A



Fig. 8 The stair base in Structure A

dirt floors and the in situ clay floor tiles were relatively of the same elevations.

Artifacts collected from Structure A include bricks, floor tiles, and roof tile fragments, earthenware vessel sherds, porcelain fragments, beads, buttons, processed capiz shells (*Placuna placenta*), glass shards, square nails, metal bolts, coins, metal fragments, tuff blocks, shells, and animal bones. The glass sherds came from windows and bottles. The foreign ceramics were Chinese, American, and European wares. The Chinese blue-and-white porcelains sherds were from the Qing Dynasty, while the European flow blue and transfer-printed sherds were common since the nineteenth century. The American sherds date from the 1920s until the Second World War. A bone



Fig. 9 The *koloong* (water well) with a border as its base resting on a mortar floor and the platform immediately to its west



Fig. 10 Main entrance of Structure A showing postholes for door posts

toothbrush inscribed with “German Dispensary” corresponds to the mid-1800s and early 1900s (Barretto-Tesoro 2011, pp. 14–15). The assorted glass fragments recovered from inside the *koloong* were bottles from the 1970s, thus indicating intermittent use of Structure A. Although numerous clay roofing tiles were observed in Structure A, a fragment of a corrugated metal roof was recovered on top of the original dirt floor in one of the trenches.

Apart from the modern coins found in the topsoil, two coins dated to 1833 (or 1807) and 1847 were recovered from a rubble layer in Structure A. These are Spanish copper Maravedis coins. One had “Isabella II” inscribed on it and minted in 1847 in Jubia, Spain. The second coin was inscribed with “Fernando II” and minted in 1833 in Segovia or 1818 in Jubia. The lime mortar found adhering to one side of each coin suggests they were attached to something, most probably the floor near an entryway. The coins predate the construction of Structure A and so may be heirloom pieces.

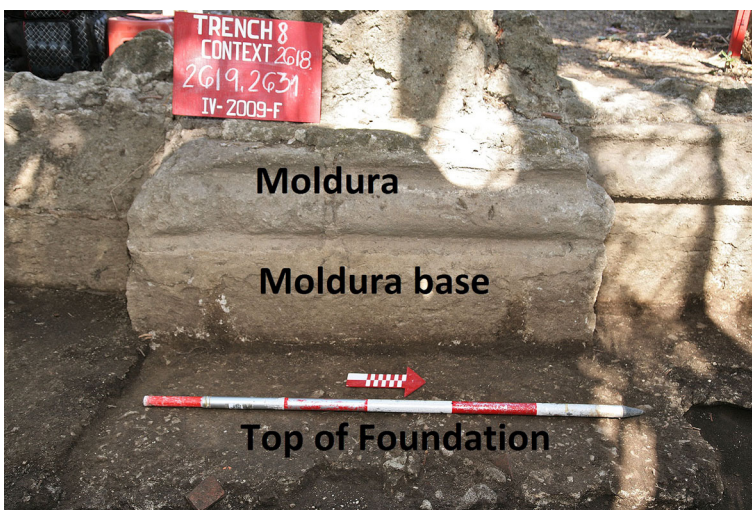


Fig. 11 *Moldura* (moulding) on the exterior east wall of Structure A. Just below the *moldura* base is the top of the foundation

Embedding coins on lime mortar or cement near entryways is commonly practiced in the Philippines to invite good fortune.

Analysis of the square nails show that their lengths clustered in particular values when converted into inches, the common measure used in the 1800s (Amano 2010, p. 77). Many nails measured 1–4 in (2.5–10.2 cm) long. The largest nail was 7.5 in (19.1 cm) long and was covered with mortar. Most nails have a “missing or bent tip, missing or ‘clinched’ head or a bent shaft” (Amano 2010, p. 78) indicating that they have been used. Other nails were covered with mortar or decayed wood. Amano (2010, p. 84) compared the nails recovered from Structure A with nails observed in an existing old stone house in Makati, and hypothesized that the square nails found in the trenches located inside Structure A were probably used to secure the wooden planks in the second floor. Local residents in Barangay Pinagbayanan recounted how the wooden planks from Structure A were dismantled and recycled, thus explaining the difference in the number of square nails found in the interior and exterior of Structure A. Eighty-seven percent of the square nails recovered in the northern part of the structure were found in the interior of the house. The mortar-covered nails were probably used to attach wood to a plastered feature such as columns and walls. The nails can also be used as hooks or hangers.

Apart from the square nails, metal items collected from the northern section of Structure A are bolts, belt, buckle, can opener, axe head, possible window grill fragments, door latch with hinge, bottle caps, a heavy bar (possibly part of a fender), a circular metal object (probably a cover for a container), and a metal blade.

At least three phases of occupation before the modern layer appear in Structure A. In the *zagan* area, the first occupation coincided with the building of the pillars. The second occupation was the compact sediment that came after the original occupation. Another deposit of compact sediment was documented just below the first destruction phase which is based on the tuff rubble found in this layer. In the *koloong* area, the first occupation was the mortar floor upon which the base of the well and the north wall rest. On top of this mortar floor was another mortar floor and above this was a dirt floor. No impressions on top of the mortar floors indicate tuff blocks or floor tiles. The first living floor, east of the *koloong*, was the dirt floor, followed on top by the mortar floor; above it was another dirt floor. Another mortar floor was found on top of the second dirt floor. All the identified floors were under the rubble layer.

Structure B

Structure B is oriented in an east–west direction and measures approximately 24.4 m long from east to west and 9.35 m wide from north to south (Fig. 12). Four standing stone pillars were recorded in the east section of the house. Six column bases with postholes as part of the perimeter walls were found west of the stone pillars. The column bases range from 90×100 to 110×115 cm. According to local residents, the posts were most probably *mulawin* or *molave* wood (*Vitex parviflora*). Based on the postholes found on the column bases, the wooden columns were encased in the walls, meaning they were hidden from view. The posthole dimensions suggest that the posts were around 40 cm in diameter. Column bases on the north and south walls of Structure B were aligned with each other. The indirect evidence of molave posts in Structure B

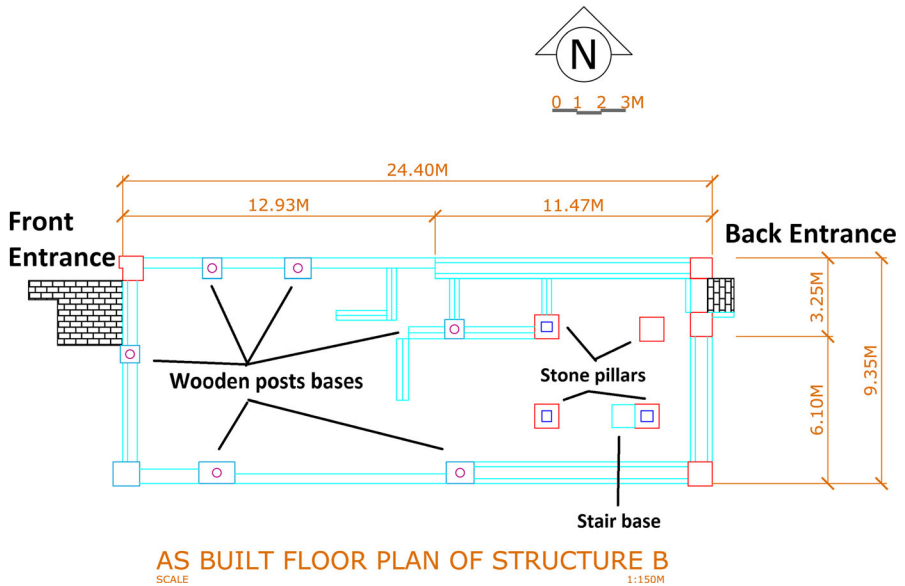


Fig. 12 First floor plan of Structure B (modified after plan prepared by Angel Sales)

support architectural documents on stone houses during the colonial period (Alarcon 1998, p. 72).

Tuff and conglomerate blocks were the main components of the stone walls. Structure B’s foundation were made of tuff blocks and the binding agent was a combination of lime mortar and cement mixed with aggregates. The column bases foundation in the west portion of the north wall had no binding agent, indicating that dry laying was the method of construction (Figs. 13 and 14).



Fig. 13 The column base foundation along the western portion of the north wall of Structure B measuring 140 cm thick compared to the foundation of the wall which is 50–58 cm thick



Fig. 14 The foundation of the southwest corner of Structure B

The stone pillars were made of stone blocks in a square arrangement with mortar mixed with aggregates poured into the hollow middle section. Aggregates included roof tile fragments, porcelain and earthenware sherds, shells, and gravel. The stone blocks were removed in the past, leaving the remains of the pillar fill. The pillars' heights range 206–230 cm, except for the northeast pillar, measuring 70 cm above the topsoil. A double-wall method was used for the perimeter walls, which measure 70–90 cm wide. Tuff and conglomerate blocks were laid parallel to one another thus creating interior and exterior walls. The space between the parallel stone blocks was filled with a combination of lime mortar and cement with aggregates of the same materials mentioned above. In the northwest section of Structure B, some of the walls in the interior forming enclosed spaces were single walls measuring 20–50 cm wide.

The stone pillars most likely supported a second floor. The south pillars are 2 m away from the south wall of Structure B. Similarly the northeast pillar is 2 m west of the northeast corner of the structure. The location and the distance of the pillars from the stone walls clearly indicate that the pillars were in the interior of Structure B. No evidence of stone pillars was found in the western section of the house. Similarly, no column bases were found in the eastern part or where the stone pillars were found. All the column bases, except for one, were part of the perimeter walls. One column base was found just west of the northwest stone pillar, and is interpreted to have supported the top of the main staircase.

The foundations of the walls were shallower compared to the foundations of the column bases and stone pillars (see Fig. 13). The foundations of double walls range 50–74 cm thick while the foundation of single walls was 25 cm thick. The column bases foundations were 92 and 140 cm thick. The stone pillar foundation forming the southwest corner of Structure B is 116 cm thick (see Fig. 14). The foundations of the stone pillars found inside the house averaged about 60 cm thick.

The distribution of the conglomerate and tuff blocks indicates that the foundations were mostly composed of tuff blocks, while the walls and the molds for the pillars were a mixture of conglomerate and tuff blocks. Locals refer to conglomerate blocks as *mahunang* adobe (weak tuff block) or *magaspang na* adobe (rough tuff block).

The main entrance to Structure B was in the northwestern section of the house and, like Structure A, it faces the main road. A stone pavement composed of 11 rows of aligned conglomerate blocks oriented in an east–west direction leads to the main entrance (Fig. 15).

The blocks were laid in a Flemish bond pattern. The center section of this pavement was worn and depressed, perhaps indicating foot traffic or the travel of single horse-drawn carriages. Immediately east of the pavement is a lime mortar bed with stone block impressions. This lime mortar bed does not extend further east, meaning that it was part of the entrance. This stone pavement measures 2.48 m wide and 4 m long and corresponds to the width of the entrances mentioned above. More evidence supporting the idea that the stone pavers led to the main entrance in the northwestern section of the house appears in the northwest corner of this feature. It probably formed one side of the entrance because of its smooth finished and tilting in a northeast-southwest direction, where the minimum width of the entryway was at the exterior and the maximum width in the interior. The same feature was noted in the main entrance of Structure A. Another entrance was found in the northeast section of Structure B directly opposite the main entrance (Fig. 16). It was composed of four rows of parallel stone blocks measuring 140x110 cm. The stone pavement associated with the northeast entrance is inclined where the stone blocks near the entrance are elevated compared to the pavers further



Fig. 15 The pavers at the main entrance of Structure B at the northwest side



Fig. 16 The pavers at the northeast entrance of Structure B

east. The northeast entrance was blocked off at a later time perhaps because of the local superstition that entrances directly opposite one another bring misfortune to the residents of the house.

The original floor of Structure B was probably just above the extruded mortar joint found on top of the stone foundation. The first stone blocks forming the bottom part of the walls were laid on this mortar bed. Floor tiles, though present, were not found in situ. Nothing suggested that the ground floor had been tiled since no tile impressions were discovered unlike in Structure A (UP-ASP 2010, p. 13). Interviews with locals indicate that the first floor had a cement floor. A layer of mortar was found in the southwestern interior section of the house but not elsewhere. Floor tiles found in this area could have been redeposited here during the destruction phase.

The enclosed space along the northern wall is 3.30 m from east to west and 2 m from north to south. The top of the stone walls showed mortar, indicating that at least another row of stone blocks was placed on top. Two column bases were found on the north and south of the wall. The north column base was part of the north wall of Structure B, whereas the south column base connected two walls. Our present interpretation is that this enclosed space was the area under the staircase and that the south column base most probably had a wooden post supporting the top of the stair. This enclosed space corresponds to local accounts that indicate that the main stairway was on the left side as one entered the house (Cardeno and Luga 2011, p. 128). According to another informant, the second floor, was only found from the top of the main staircase, extending to the east of the house (Cardeno and Luga 2011, p. 129), meaning that the entire second floor was located above the stone pillars which could explain why stone pillars are found only in the east.

A square, lime mortar feature, which can only be accessed from inside the house, was found directly west of the southeast stone pillar in the east section of Structure B (Fig. 17).

It measured 90×90 cm. This feature is 20 cm higher than the other foundations. The difference in elevation suggests that this could not have functioned as a foundation. Comparison with old house plans (Zialcita and Tinio 1980, p. 61) and an existing stone house in Calamba, a town south of Manila, indicate that the lime mortar feature could have been a stair base.

We recorded midden pits in the middle of the stone pillars. A local belief holds that treasure was usually buried underneath staircases (Zialcita and Tinio 1980, p. 92). Several residents interviewed stated that their older relations were involved in clandestine diggings in hopes of finding treasure in Structure B. This activity could explain the presence of the pits, which were later transformed into middens, and hint at the square lime mortar feature's purpose.

All four corners of Structure B were investigated. Both the northeast and northwest corners showed evidence of being entrances. The southeast and southwest corners were constructed differently (Figs. 17 and 18). The point where the east and south walls of Structure B intersect forms the southeast corner. Additional stone blocks were added on the south side to make it appear that the corner juts out. The southwest corner was formed separately from the west and south walls of Structure B, and was constructed similar to the stone pillars, such that stone blocks were used as molds with the center filled with lime mortar.

The wall west of the column base in the southern wall of Structure B is thinner compared to the wall found on the east of the same column base (Fig. 19). The west side is 32–55 cm thick while the east side is 93 cm thick. In addition, the foundation of the west side is shallower compared to both the east side and the column. The west side contained conglomerate blocks and the east side tuff blocks. The difference may be evidence for the later construction of the west



Fig. 17 The east portion of Structure B which is the back part of the house showing the four stone pillars, the stair base, and the southeast corner



Fig. 18 The southwest corner of Structure B constructed differently from the southeast corner

side. Construction can take 3 to 5 years because builders must wait for the availability of tuff blocks to be transported from quarries (Zialcita and Tinio 1980, p. 35). Some stone-based houses were built in phases, with extensions added later (Mojares 1983, p. 92).



Fig. 19 The south wall of Structure B showing the difference in wall thickness, materials used, and foundation depths of the west side and east side

During the excavation and prior to the analysis of the artifacts, the presence of cement was used to determine when Structure B was constructed. Lime mortar was whiter than the gray cement. Shades of gray and white were observed in Structure B. After a heavy rain one afternoon during the excavation, these colors became distinct; thus, we were able to pinpoint which sections of Structure B were made with cement or lime mortar. Cement was used as a binding agent and to fill in all trenches including foundations. Cement was also probably used in combination with lime.

Archival sources reveal that cement was not part of the 1867 list of imported items, though it was mentioned in documents dating 1876–80 (*Estadística Mercantil 1877*, p. 15, *Estadística Mercantil 1879*, p. 42, *Estadística Mercantil 1880*, p. 12, *Estadística Mercantil 1881*, p. 16). In addition, galvanized iron sheets for roofing were also used around the mid-1850s. We found a fragment of galvanized iron sheet in Structure B. These construction materials could be used to provide a relative date for the house. Apart from the building materials, artifacts could also date the site. Porcelain and glass sherds correspond to the mid-1800s and early 1900s. European wares mostly exhibiting transfer-printed designs date to 1840–90 and Chinese wares with block-printed decorations date to the 1880s and 1900s. Ceramics from Structure B were similar to those recovered in Structure A (Barretto-Tesoro et al. 2009a, pp. 65–69; UP-ASP 2010, p. 122). Fragments of bottles exhibited Roman letters indicating brand names or contents. Their technological attributes indicate that most bottles date 1840–1909 (UP-ASP 2011, p. 101). Although one ceramic sherd dates to 1820–30 (recovered from the destruction phase), no cultural deposits were recovered that would point to an earlier occupation of Pinagbayanan. The lack of earlier cultural materials suggests that Pinagbayanan was a *reduccion* site.

Discussion

Nature and Extent of the Structures

The rectangular lay-out of the structures (Alarcon 1998, p.71), identified activity areas (Alarcon 1998, p. 71), and the domestic artifacts recovered support the hypothesis that Structures A and B were stone-based houses. The dominant construction materials are the tuff blocks and lime mortar. Square nails were used to fasten wooden boards in the second floor, and capiz shells and glass were used for windows. The ceramics were mostly utilitarian in nature and can be classified as food storage objects or containers.

Construction Technology

The excavation revealed that the builders used fragments of roof tiles and bricks, ceramic sherds, shells, and gravel as aggregates of the lime mortar. The use of plaster and mortar was introduced by the Spanish (Alarcon 1998, p. 72). Tuff blocks arranged in a square formation were used as molds for lime mortar and functioned as pillars supporting a second floor. It appears that Structure A's first floor was entirely made of stones. Structure B also contained stone pillars constructed in the same manner located

at the back (east) section of the house. Column bases with wooden posts were used to support the second floor walls of Structure B. The walls of the house were large enough to require foundations as deep as 1 m below the original floor surfaces. The currently available measurements for the first floor area of the houses, the deep foundation, and the use of stone pillars point to the extensiveness and the large size of both structures.

The pillar bases and their foundations were made of the same materials. For the pillar bases, the tuff blocks were used to form a square and cemented with lime mortar, leaving the hollow middle to be filled with lime mortar.

The foundation construction ditches were difficult to investigate. We observed that sediments adhered to the mortar foundation, so the ditches may have been the exact width of the foundations. Tuff blocks were placed at the bottom of the ditch then filled with cement and/or lime mortar. The process was repeated until two to three layers of tuff blocks formed the foundation. The top of the foundation was again filled with mortar, creating a mortar spill or extruded mortar joints that spread horizontally on the construction surface. This evidence established the construction matrices and occupation layers. In some cases, the foundation ditch was filled with lime mortar only.

Architecture

A stone house during the Spanish colonial period was basically a *nipa* hut on stilts wherein the first floor is bordered by stone walls. The ground floor can be used as a storage area. We observed pieces of corrugated metal or galvanized iron sheets that could have been used as roofing material in both structures during later occupation phases. Roof tiles in Structure A were probably used earlier (owing to intact and/or large pieces we observed in the site) or even simultaneously with galvanized iron sheets. The use of cheaper and lighter galvanized iron roofs was in place after 1880 because roof tiles were deemed an earthquake hazard (Zialcita and Tinio 1980, p. 68). This suggests that both houses were most likely completed after 1880. If we compare the archaeological results with the list of houses in San Juan documented in 1890 described above, these stone-based houses could have been the houses made of stone (Barretto-Tesoro 2013, p. 11). Both structures are of the *arquitectura mestiza* style that employed tuff stones on the ground floor, wooden boards on the second floor, and wooden posts hidden in the walls.

Datable Materials

The construction technology and architectural style of the house—the use of square nails, capiz shells for windows, and roof and floor tiles—indicate that it was built during the Spanish Period. Most of the materials collected from both structures correspond with the establishment of the old town of San Juan in the mid-1800s and its later occupation. The Chinese porcelain sherds and European porcelain fragments fall within the time range when both stone-based houses were originally occupied (the late nineteenth-early twentieth centuries) and they were found in layers beneath the tuff rubble. Integrating the data on recovered artifacts and the archival record indicates that both stone-based houses were constructed in the late 1800s and occupied intermittently until the first half of the 1900s.

Archaeological Deposits Older than Both Structures

In several trenches in both structures, excavations reached the sediment deposits just below the bottom of the foundation or the pre-construction deposits. Excavating beneath the stone-based houses was designed to check if older deposits were present prior to house construction. We did not find any cultural materials older than the 1800s that would suggest an older cultural phase in Pinagbayanan. The absence of older materials in the excavated area suggests that the old town of San Juan was a *reduccion*. *Reduccion* was a common practice during the Spanish colonial administration in which natives were forced to resettle in or near newly established towns. This forced resettlement enabled the colonial state to control the lives of the natives and also facilitated conversion to Christianity. Previous archaeological surveys on the coast of San Juan demonstrated that older sites dating to 100 to 400 CE and to the fifteenth century CE were usually located in the south and north of Pinagbayanan, suggesting that these areas were first settled prior to Spanish arrival (Barretto-Tesoro 2013, pp. 29–30).

Reasons for Destruction and Abandonment

The major reason for the abandonment of the old town of San Juan was attributed to the great flood in 1883 (Pineda 1992, p. 18). However, interviews with local residents supported by archaeological data demonstrate that both structures were still intact in the 1920s and until the 1950s. Structure A even functioned as a school prior to the establishment of the Pinagbayanan Elementary School in its current location in 1957 (Manjares 2015, p. 1). Investigation of the stone walls reveals many clean voids on the current wall surfaces, suggesting that the stone blocks were deliberately taken. The destruction of both stone-based houses was due to the owner's order to collect the stone blocks to be recycled for the construction of fish ponds in the 1950s. The stone blocks were also collected by the locals to be used either as a *tungko* (stove), bench stand, for gardening, and other domestic purposes. During the town's centennial celebration of its transfer in the 1990s, the remaining standing walls and arches of Structure A were leveled to make room for the procession. The remains of an arch in Structure A was found on the topsoil suggesting that it collapsed recently while another arch rested on the tiled floor (Figs. 20 and 21).

The contexts on which the two arches were found indicate more than one destruction phase of the structure. The northern section, where the arch on the tiled floor was recorded, appears to have been demolished first, thus corresponding to the initial phase of destruction.

Evidence of Flooding

If a great flood was the major reason for the transfer of the town, evidence of flood deposits should have been found on top of the original house floors. Remarkably, we found no evidence of flooding inside the structures. Likewise, the trenches provided no evidence of sediments that would indicate severe flooding. Even a trench excavated outside Structure A, deliberately positioned to discover flood deposits, did not reveal evidence of a "great flood." The lack of flood evidence does not suggest that the structures contain anti-flooding features or perhaps the residents cleaned up after a major flood.



Fig. 20 The remains of an arch found in the *koloong* area in Structure A

According to geologist Eligio Obille Jr. of the University of the Philippines, no alternating soil layers appeared in the thick sediments to indicate seasonal flooding. He stated that perhaps the site was too close to the sea or that bioturbation may have disturbed thin soil layers. Local residents reported that floods in the northern part of Barangay Pinagbayanan were usually *lagpas tao na dito sa Ibaba ay kalahating metro lang* (flood water level is higher than a man but in the south is only half a meter high). There was a possibility that flood waters did not reach this high in Structures A and B



Fig. 21 The remains of an arch found on the tiled patio in Structure A associated with a different destruction phase. It collapsed between a passageway indicating that the arch could be part of an entryway

because they were located slightly higher than the area of the town near the Bancuro River north of the town.

During a survey in northern Pinagbayanan in 2010, flood deposits locally known as *banlik* were observed along the edge of the river just below the 3–4 m dike constructed in the last decades to prevent flooding. This means that flood deposits exist in the north but not in the area where the stone-based houses were built. In 2012, flood deposits were recorded in the church complex located just north of the stone-based houses (UP-ASP 2012, p. 139). Archaeological evidence suggests that flooding was not the main reason for the town's transfer. The differential deposits of flood sediments found in the church and the structures is discussed elsewhere (Barretto-Tesoro and Hernandez, Power and Resilience: Flooding and Occupation in a Late 19th-Century Philippine Town, unpublished; UP-ASP 2012, pp. 17–118).

Although no flooding deposits were recorded in both Structures A and B, repeated flooding may have influenced floor repairs. A series of mortar and dirt floors were recorded in the south section of Structure A.

The Stone-Based Structures in the Plaza Complex of Pinagbayanan

Barangay Pinagbayanan, the old town of San Juan, is along Tayabas Bay, making it a seacoast town (see Fig. 1). The town was established in 1881 but the construction of the church and the convent, using bamboo and *nipa*, begun in 1848, the same year it officially became a separate municipality from Rosario. Despite its relatively late establishment in the Spanish colonial period, light construction materials were used for the church and convent. By sixteenth century, public buildings were typically made of stone. I hypothesize that the stone church would have only been constructed around 1881 when the town was officially established, when sufficient population existed for both forced labor and the requisite taxes to build the church. The stone-based houses were most likely built around 1881 because the original rectilinear grid lay-out of the town, following the Laws of the Indies, would only be in place when the locations of the church, municipal hall, and plaza were identified. The locations of Structures A and B in relation to the ruins of the old church and stone foundation of the old municipal hall suggests that both structures were located along the main road and that both were on the southern side of the plaza. Based on local accounts of the locations of old roads, it appears that Structures A and B were both situated within a rectilinear grid. Elder residents mentioned that roads were to be found south and east of the stone-based structures where roads are now reclaimed by nature. The distribution and locations of the ruins of the stone-based structures and the church constitute the archaeological evidence for the essential buildings of a Spanish town, including what was supposed to be the municipal hall within the rectilinear grid (Fig. 22). We can infer the location of the plaza based on this lay-out. The Pinagbayanan Elementary School was only established in 1957 on government property (Manjares 2015, p. 1). Thus, the area was an open space before the town was transferred to Calit-calit in 1890. The location of the school could have been in the old plaza. The ruins of the old church are found on the west side of the proposed plaza and the stone foundation of the probable old tribunal appears on the east. The proximity of the stone-based structures to the church ruins indicates that the occupants had an elite status (Villegas 1998, p. 226).

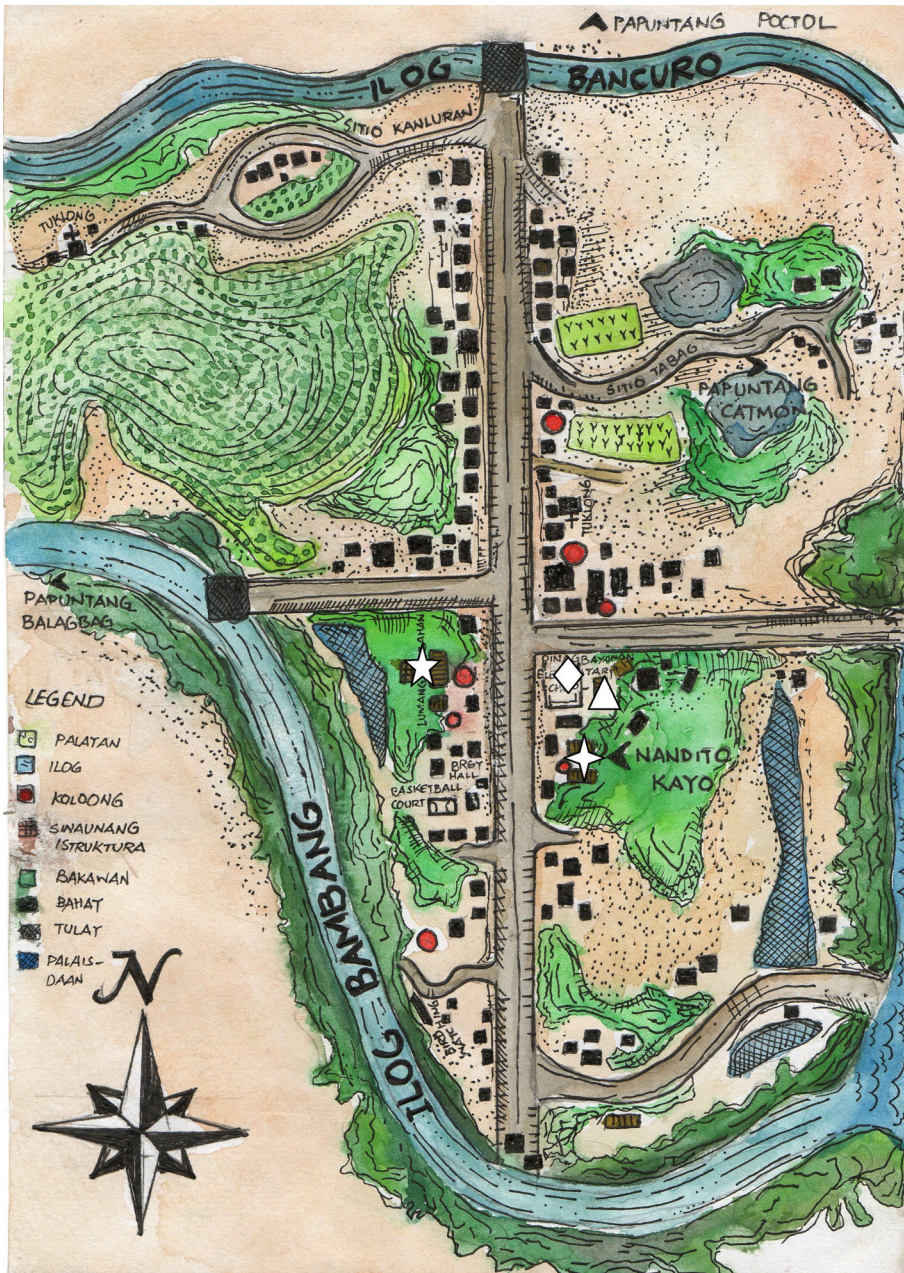


Fig. 22 A mud map showing the locations of the old church ruins (5-point star), Structures A and B (4-point star), stone ruins of what could be the old municipal hall (triangle), and current Pinagbayanan Elementary School (diamond) which could have been the old plaza (Modified after the mud map prepared by N. Amano in UP-ASP 2010 p. 33)

We can assess the cost of constructing a stone-based structure in the late 1800s by comparing the materials found at the site with a list of expenditures for a residential building in central Philippines at around the same time

(Mojares 1983, pp. 60–61). The listed items include the costs of tuff stones, bricks, stone-and-gravel, sacks of lime, roofing tiles, *molave* posts, floor boards, and galvanized iron sheet. It also lists the labor costs for carpenters, stonecutters, sawyers, and painters. Using this as a guide, Fuentes (2010, p. 117) computed the cost of building Structure A—based on the tuff blocks, floor tiles, roof tiles, and wooden boards—as 1043.025 in Philippine pesos. This figure represents a large outlay of funds. To put this cost into perspective, a hectare of land in southern Luzon, where San Juan is located, costs about Php 85–170 in the nineteenth century (Diokno 1998, p. 36).

Assessing the stone-based houses' locations, the materials used for their construction, the imported artifacts found within them, and more importantly, their position within this plaza complex strongly indicate that these were occupied by elite residents (Zialcita and Tinio 1980, pp. 132–133).

Summary and Conclusion

The essential elements of a colonial town are all archaeologically present in Barangay Pinagbayanan such as the ruins of stone-based houses, a church, and a municipal hall. This research highlights the significance of Pinagbayanan as the first archaeologically investigated plaza complex in the Philippines. Assessing the locations of the stone structures, we have inferred the location of the plaza by integrating the archaeological findings, historical accounts, and ethnographic surveys in Pinagbayanan, and concluded that both stone-based houses owned by local elites were located along Calle Real, the current main road. The results of the investigation highlight the contribution of archaeology to the study of Spanish-period settlements established in the Philippines.

The structures were primarily household units constructed from tuff blocks, mortar, roof tiles, galvanized iron sheets, with capiz window, and probably wooden boards. Lime, sometimes combined with cement, was used as a binding agent and fill to make the foundations, stone walls, and stone pillars. The houses contained a patio, storerooms, an entrance hall, and a kitchen. Most of the artifacts collected were construction materials and household items. The similar artifacts recovered from the structures suggest they were contemporaneous. The construction materials and locations of the two stone-based houses, as well as their position within this plaza complex, strongly indicate that these were occupied by elites. The residents clearly had access to imported European and Chinese ceramics and Western medicines. The absence of cultural materials dating earlier than the 1800s indicates that Barangay Pinagbayanan was a forced resettlement or *reduccion* area.

Using the Laws of the Indies as a guide assisted in identifying the locations of the old plaza, Calle Real, and the old roads. The archaeological excavations in the old town of San Juan contributed to understanding San Juan history, enhance our knowledge of Spanish colonial construction, and provide insights into reasons for abandonment and destruction. This research also adds significant data to the history of Batangas during the Spanish occupation in terms of population movement and settlement during the colonial period.

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References

- ACECI (Archaeological, Cultural and Environmental Consultancy, Inc.) (2010). *Archaeological Impact Assessment of the SM Prime Holdings Inc. Property Site, No 2333, Pedro Gil St., Sta. Ana, Manila*, Archaeological Studies Program, University of the Philippines, Quezon City.
- ACECI. (Archaeological, Cultural and Environmental Consultancy, Inc.) (2010). *Archaeological Impact Assessment of the Cosing Property Site: 2442 Pedro Gil St., Santa Ana, Manila*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Alarcon, N. I. (1998). *Philippine Architecture During the Pre-Spanish and Spanish Periods*, UST Publishing House, Manila.
- Amano, N. (2010). Analysis of nail artifacts recovered from the excavation of the northern part of Structure A in Pinagbayanan, San Juan, Batangas. In *An Archaeological Investigation of "Structure A" in San Juan, Batangas: The Second Season*. Archaeological Studies Program, University of the Philippines, Quezon City, pp. 69–88.
- Arcilla, S. J. (1998). Organizing a colony. In Arcilla, F. J. (ed.), *The Spanish Conquest*, vol. 3, Kasaysayan: The Story of the Filipino People, Asia Publishing Company Limited, Hong Kong, pp. 60–83.
- Barretto, G. (1999). *Ijangs: Mountain Fortresses of Batanes*, Katipon Lecture Series, College of Social Sciences and Philosophy. University of the Philippines, Quezon City, pp. 65–87.
- Barretto-Tesoro, G. (2011). Lost in and on Manila: what do I know about Manila? Understanding the materiality of Manila. In de Viana, L. D. C. (ed.), *Manila: Selected Papers of the 19th Annual Manila Studies Conference August 31-September 1, 2010*, Manila Studies Association and National Commission for Culture and the Arts, Manila, pp. 1–19.
- Barretto-Tesoro, G. (2013). Early settlements in San Juan, Batangas, Philippines: some hypotheses. *Journal of History* 59: 6–37.
- Barretto-Tesoro, G., Campos, F., and Pineda, A. (2009a). New sites in southeastern Batangas, Philippines: report on the survey conducted by the UP-Archaeological Studies Program in 2008. *Arqueologia Iberoamericana* 4: 25–48.
- Barretto-Tesoro, G., Piper, P., Pineda, A. C., Basilia, P. G., Ceron, J., Reyes, T., Lim, E., Maguire, K., Manalo, K. A. B., Sioco, L., and Ramirez Jr., A. (2009b). *An archaeological Investigation of "Structure A" in San Juan, Batangas*, Archaeological Studies Program, University of the Philippines, Quezon City.

- Barretto-Tesoro, G., Ochoa, J., Lim, K., Villaluz, A., Satumbaga, D., Fernando, A. G., Recto, E., and Robles, E. (2014). *Archaeological Impact Assessment of the LDV Construction Site, 2091 Pedro Gil St Sta. Ana, Manila*. Archaeological Studies Program, University of the Philippines, Quezon City.
- Bautista, A. P. (2005). Archeological Excavation at San Raymundo de Peñaforte Church Complex, Rizal, Cagayan Valley. *Proceedings of the Society of Philippine Archaeologists* 3: 28–52.
- Bautista, A. P. (2009). The archaeology of the Maestranza Site, Intramuros, Manila. In Churchill, B. R. (ed.), *Manila: Selected Papers of the 17th Annual Manila Studies Conference August 13–14, 2008*, Manila Studies Association, Inc. and National Commission for Culture and the Arts, Manila, pp. 36–68.
- Bautista, A. P., and Dalumpines, M. K. C. (2010). Archaeological excavation at the Iglesia de San Ignacio Site, Intramuros, Manila. In de Viana, L. D. C. (ed.), *Manila: Selected Papers of the 18th Annual Manila Studies Conference, Manila, Manila Studies Association, Inc.* and National Commission for Culture and the Arts Committee on Historical Research, Manila, pp. 1–40.
- Buzeta, M., and Bravo, F. (1903). The ecclesiastical system in the Philippines. In Blair, E. H., and Robertson, J. A. (eds.), *The Philippine Islands 1493–1898*, vol. 28, Arthur H. Clark, Cleveland, pp. 266–289.
- Canilao, M. A. P. (2011). *Of Gold, Spanish Conquistadors, and Ibaloi Generational Memory*. Cordillera Studies Center, Baguio.
- Cardeno, C. E., and Luga, E. A. (2011). Interviews with locals regarding Structure B, Barangay Pinagbayanan, San Juan. In *An Archaeological Investigation of “Structure B” in San Juan, Batangas*. Archaeological Studies Program, University of the Philippines, Quezon City, pp. 127–128.
- Cuevas, N. T. (1996). *Archaeological Assessment of Aduana Building, Aduana St., Intramuros, Manila*, National Museum of the Philippines, Manila.
- Dasmariñas, G. P. (1903). Account of the encomiendas in the Philipinas Islands. In Blair, E. H., and Robertson, J. A. (eds.), *The Philippine Islands 1591–1593*, vol. 8, Arthur H. Clark, Cleveland, pp. 96–141.
- De La Torre, A. A. (1994). *Brief Report: Trip to Balibago, Lian, Batangas and Calatagan, Batangas (June 13–14, 1994)*, National Museum, Manila.
- De La Torre, A. A. (2003). Ulilang Bundok: Secondary Jar Burials at Calatagan. In Valdes, C. O. (ed.), *Pangalay: Ritual Pottery in Ancient Philippines*, Ayala Museum, Makati, pp. 29–32.
- De La Torre, A. A. (2008). *The Secondary Burial in Pottery Vessels at Ulilang Bundok Site in Calatagan, Batangas: A Case Study*. Master’s thesis, University of the Philippines, Quezon City.
- Declaración para (1890). *Declaración para Fincas Urbanas*, National Archives, Manila.
- Desroches, J.-P., Casal, G., and Goddio, F. (eds.) (1996). *Treasures of the San Diego*, National Museum, Manila.
- Diokno, M. S. I. (1998). In Diokno, M. S. I., and Villegas, R. N. (eds.), *Life in the Colony*, vol. 4, Kasaysayan: The Story of the Filipino People, Asia Publishing Company Limited, Hong Kong, pp. 27–43.
- Dizon, E. Z., and Bautista, A. P. (2000). Archaeological assessment (additional documentation for the restoration of the San Agustin Church at Paoay Ilocos Norte). *National Museum Papers* 10: 1–25.
- Dizon, E. Z., Jagoon, S. C., Cuevas, N. T., and De Leon, A. S. (2005). Archaeological report on the Old Taal Church Ruins, San Nicolas, Batangas. *Proceedings of the Society of Philippine Archaeologists* 3: 13–27.
- Erecciones de los pueblos: Batangas, 1767–1896. National Archives, Manila.
- Fox, R. B. (1959). The Calatagan excavations: two fifteenth century burial sites in Batangas, Philippines. *Philippine Studies* 7: 325–390.
- Fuentes, R. B. (2010). Searching for the source: preliminary analysis of tuff/adobe artefacts from Structure A Site 1 in Brgy. Pinagbayanan, San Juan, Batangas. In *An Archaeological Investigation of ‘Structure A’ in San Juan, Batangas: The Second Season*. Archaeological Studies Program, University of the Philippines, Quezon City, pp. 107–120.
- Guerrero, H. D. (1903). List of prominent ecclesiastics in Manila and the islands. In Blair, E. H., and Robertson, J. A. (eds.), *The Philippine Islands 1493–1898*, vol. 25, Arthur H. Clark, Cleveland, pp. 305–320.
- Hart, D. V. (1955). *The Philippine Plaza Complex, Southeast Asia Studies*, Yale University, New Haven.
- Jago-on, S. C. B., Cuevas, N. T., and Belmonte, J. G. (2003). Mehan garden archaeology. *Proceedings of the Society of Philippine Archaeologists* 1: 110–114.
- Jose, R. T. (1991). *Simbahan: Church Art in Colonial Philippines 1565–1898*. Ayala Museum, Makati.
- Jose, R. T. (2002). Lumang Simbahan: ancestral churches in Batangas. In Villegas, R. N. (ed.), *Batangas: Forged in Fire*, Filipinas Heritage Library, Makati City, pp. 98–114.
- Junker, L. L. (1999). *Raiding, Trading, and Feasting: The Political Economy of Philippine Chiefdoms*, University of Hawai’i Press, Honolulu.
- KAPI (Katipunan Arkeologist ng Pilipinas, Inc.) (2006). Arroceros Forest Park rescue archaeology project. *Proceedings of the Society of Philippine Archaeologists* 4: 1–55.

- Lacsina, L. S. P. (2009). *The Ijang Sites of Batanes, Northern Philippines An Archaeological Study of the Fortified Hilltop Settlements*. Master's thesis, Archaeological Studies Program, University of the Philippines, Quezon City.
- Legaspi, A. M. (1964). *A Brief Archaeological Excavation in Verde Island, Batangas. Philippines*, National Museum, Manila.
- Lico, G. (2008). *Arkitekturang Filipino: A History of Architecture and Urbanism in the Philippines*, University of the Philippines Press, Quezon City.
- Loarca, M. D. (1903). Relation of the Filipinas Islands. In Blair, E. H., and Robertson, J. A. (eds.), *The Philippine Islands 1582–1583*, vol. 5, Arthur H. Clark, Cleveland, pp. 34–187.
- Locsin, C. Y., Ongpin, M. I. G., and Paterno, S. P. P. (2008). *A Lemery Archaeological Sequence*, Ateneo De Manila University Press, Quezon City.
- Manjares, L. C. (2015). *Kasaysayan ng Paaralang Elementarya ng Pinagbayanan, Paaralang Elementarya ng Pinagbayanan, Pinagbayanan*.
- Estadística Mercantil (1877). *Estadística Mercantil del Comercio Exterior De Las Islas Filipinas Correspondiente al Año de 1876*, Imprenta De Los Amigos Del Pais. Calle De Anda Núm 10, Manila, National Archives, Manila.
- Estadística Mercantil (1879). *Estadística Mercantil del Comercio Exterior De Las Islas Filipinas Correspondiente al Año de 1878*, Imprenta De Los Amigos Del Pais. Calle De Anda Núm 10, Manila, National Archives, Manila.
- Estadística Mercantil (1880). *Estadística Mercantil del Comercio Exterior De Las Islas Filipinas Correspondiente al Año de 1879*, Imprenta De M. Perez, Hijo. Calle de Anloague Núm 6, Binondo, National Archives, Manila.
- Estadística Mercantil (1881). *Estadística Mercantil del Comercio Exterior De Las Islas Filipinas Correspondiente al Año de 1880*, Establecimiento Tipográfico de Ramirez y Giraudier. Calle de Magallanes Núm 3, Esquina a la del Beaterio, Manila, National Archives, Manila.
- Mijares, A. (2003). The complexity of pre-Hispanic Ivatan society. *Proceedings of the Society of Philippine Archaeologists* 1: 68–76.
- Mirandaola, A. D. (1903). Letter from Andres De Mirandaola to Felipe II. In Blair, E. H., and Robertson, J. A. (eds.), *The Philippine Islands 1493–1898*, vol. 3, Arthur H. Clark, Cleveland, pp. 223–229.
- Mojares, R. B. (1983). *Casa Gorordo In Cebu: Urban Residence in a Philippine Province*, Ramon Aboitiz Foundation and Resil B. Mojares, Cebu City.
- Neri, L. A. M., Ragragio, A. M. M., Wright, M. E., Roa, A. P. R., Mijares, A. S. B., and Tandog, T. K. (2010). *The Archaeology of Karaang Jasaan*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Orogo, A. (1993). *Progress Report on Inter-agency Archaeological Project, Part III: Summary Report of the Archaeological Excavation Conducted at Sta. Barbara Site in Fort Santiago, Intramuros, Manila*. National Museum of the Philippines, Manila.
- Padilla, R. G. (2013). *Investigating the Features of Stone-Based Churches in Eastern Mindoro Within the 18th and 19th Centuries*. Master's thesis, Quezon City, University of the Philippines, Quezon City.
- Paz, V. (2003a). *Preliminary Report on the excavation of Lumang Bayan Site, Batangas*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Paz, V. (2003b). *Advancing Settlement Archaeology Study through Archaeobotany: Preliminary Report*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Paz, V. (2004). *Panimulang Ulat sa Isang Pag-aaral Pang-Kasaysayan sa Bancuro, Naujan, Mindoro Oriental*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Paz, V. (2006). *Advancing History and Heritage Through the Study of Excavated Early Spanish Structures in Oriental Mindoro: Report on the Bulalacao Initiative*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Paz, V. (2013a). *The Santa Ana Residential Apartments Construction Site, No. 2568 Lamayan St., Santa Ana, Manila*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Paz, V. (2013b). *Archaeological Impact Assessment Report on the Tang Property Site, 2248 P. Roman St., Corner Lamayan St., Santa Ana, Manila*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Paz, V., Mijares, A., Barretto, G., Cayron, J., Hara, Y., and Galang, D. (1998). *Batanes Expedition Report*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Pineda, F. (ed.). (1992). *In Celebration of the 100 Years of San Juan, Batangas 1890–1990*. Residents of San Juan with the cooperation of the San Juan Municipal Government through the initiative of Mayor Abelardo S. De Villa and his staff, Manila.

- Pineda, A., Lim, E. S., Basilia, P., and Barretto-Tesoro, G. (2011). Appendix C: update on Structure A (IV-2009-F). In *An Archaeological Investigation of "Structure B"*. In *San Juan, Batangas*. Archaeological Studies Program, University of the Philippines, Quezon City, pp. 120–127.
- Ronquillo, W. P., and Ogawa, H. (1996). The Calatagan Archaeological Project: a summary report. *Journal of Southeast Asian Archaeology* 15: 133–147.
- Salazar, D. D. (1903). Relation of the Philipinas Islands. In Blair, E. H., and Robertson, J. A. (eds.), *The Philippine Islands 1493–1898*, vol. 7, Arthur H. Clark, Cleveland, pp. 29–51.
- Salcedo, C. G. (1979). *Prehistoric Burials in Calubcub Segundo, San Juan, Batangas*, National Museum of the Philippines, Manila.
- Santiago, M. (1961). *Archaeological Survey in Sampaga, Balayan, Batangas*, National Museum, Manila.
- Sastron, M. (1895). *Filipinas: Pequeños Estudios, Batangas y su Provincia*, Imprenta del Asilo de Huerfanos, Malabong.
- Tatel Jr., C. (1998). Ang paghuhukay sa mga labi ng pader ng Porta Vaga. *Hukay* 1: 41–53.
- UP-ASP (University of the Philippines Archaeological Studies Program). (2005). *Ulat Tungkol sa Isang Pag-aaral Pang-Kasaysayan sa Sitio Cuta, Barangay Anilao, Bongabong, Oriental Mindoro*, Archaeological Studies Program, University of the Philippines, Quezon City.
- UP-ASP (University of the Philippines Archaeological Studies Program). (2007). *Mindoro Island Archaeological Project: Report on the Archaeological Field Season of 2007, San Teodoro, Oriental Mindoro*, Archaeological Studies Program, University of the Philippines, Quezon City.
- UP-ASP (University of the Philippines Archaeological Studies Program). (2009). *Cagayan De Oro River Valley Archaeological Project*, Archaeological Studies Program, University of the Philippines, Quezon City.
- UP-ASP (University of the Philippines Archaeological Studies Program). (2010). *An Archaeological Investigation of "Structure A"*. In *San Juan, Batangas: The Second Season*. Archaeological Studies Program, University of the Philippines, Quezon City.
- UP-ASP (University of the Philippines Archaeological Studies Program). (2011). *An Archaeological Investigation of "Structure B" in San Juan, Batangas*, Archaeological Studies Program, University of the Philippines, Quezon City.
- UP-ASP (University of the Philippines Archaeological Studies Program). (2012). *An Archaeological Investigation of the Old Church Complex in San Juan, Batangas 20 April - 27 May 2012*, Archaeological Studies Program, University of the Philippines, Quezon City.
- Velarde, P. M. (1734). Map of the Philippines. Source: <http://www.wdl.org/en/item/10089/view/1/1/>.
- Villegas, R. N. (1998). In Diokno, M. S. I., and Villegas, R. N. (eds.), *Life in the Colony*, vol. 4, Kasaysayan: The Story of the Filipino People, Asia Publishing Company Limited, Hong Kong, pp. 225–249.
- Vitales, T. J., Bautista, R., and Pagulayan, P. (2011). *Report on the Archaeological Excavation of the Spanish Period Colonial Ruins in Club Balai Isabel, Talisay, Batangas (28 February - 19 March 2011)*, National Museum, Manila.
- Zialcita, F. N., and Tinio Jr., M. I. (1980). *Philippine Ancestral Houses (1810–1930)*, GCF Books, Quezon City.