

Using 3D technology in pottery analysis: excavations of Building J at the Ta'ab Nuk Na salt works, Belize

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Artifact analysis benefits from 3D digital scanning in the field for later study, especially for field research in foreign countries where artifact export is limited or restricted. In this study, some of the artifacts from excavations in Building J at Ta'ab Nuk Na were studied in Belize, whereas others were 3D imaged for later study. The 3D imaged pottery was identified as Punta Ycacos Unslipped and consisted of briquetage, pottery vessels used to boil brine over fires to make salt. A variety of observations and measurements of the 3D scans was carried out, including rim diameter, vessel shape, and wall thickness. The measurements indicate the pots were standardized, which supports their use in mass production of salt, as previously found at other salt works (McKillop 2002:54, 2021; Sills and McKillop 2018).

Survey and excavation at Ta'ab Nuk Na in 2019 revealed variability in building use at the site, including residences and salt kitchens (McKillop and Sills 2022). The buildings are demarcated by wooden posts preserved in mangrove peat below the seafloor. Building B was identified as a residence by the absence of briquetage and the variety of other pottery types and stone tools typical of household use (McKillop and

Sills 2022: Fig. 6). In contrast, Buildings G, H, I, and J were identified as salt kitchens, by the abundance of briquetage (McKillop and Sills 2022: Fig. 6). Previous excavations of salt kitchens at other sites at the Paynes Creek Salt Works revealed that 80–98% of the pottery was briquetage, indicating a focused and dedicated activity took place (McKillop 2021; McKillop and Sills 2016).

The salt making vessels include jars and bowls with thin walls, thick rims, and rough exteriors (McKillop 2002:54–72). Also included in this type are solid clay cylinder vessel supports, with sockets at the top where the vessel rested, bases at the bottom of the cylinders, and spacers placed between pots (Fig. 2; McKillop 2002: Fig. 3.1). A significant amount of the briquetage consists of amorphous clay clumps (ACL), which are the unrecognizable fragments of sockets and other briquetage.

The ceramics for household use include the Belize Red, Warrie Red, and Mangrove Unslipped types (McKillop 2002). Belize Red ceramics include bowls or dishes with a red slip and a fine yellow paste, both which are easily eroded (McKillop 2002:86–90). As the Belize Red ceramics contained volcanic ash in the paste, they were considered trade items and would not have been used in the salt-production process. Instead, they were likely used in rituals associated with salt production. Warrie Red ceramics include jars or bowls with red slip and a medium to fine paste, most often used for water storage at the Paynes Creek Salt Works (McKillop 2002:77–86). The Warrie Red ceramics were likely acquired from inland trade. Mangrove Unslipped ceramics include jars or bowls with smooth, but unslipped exteriors and interiors and would have been used for utilitarian functions, including water storage (McKillop 2002:72–77).

In 2002, McKillop analyzed briquetage from Stingray Lagoon, David Westby, and Orlando's sites at the Paynes Creek Salt Works to evaluate whether the pots were standardized, which would indicate mass-production (McKillop 2002:127–134). The briquetage was compared with household pots from Wild Cane Cay. The diameter of jar and bowl openings and

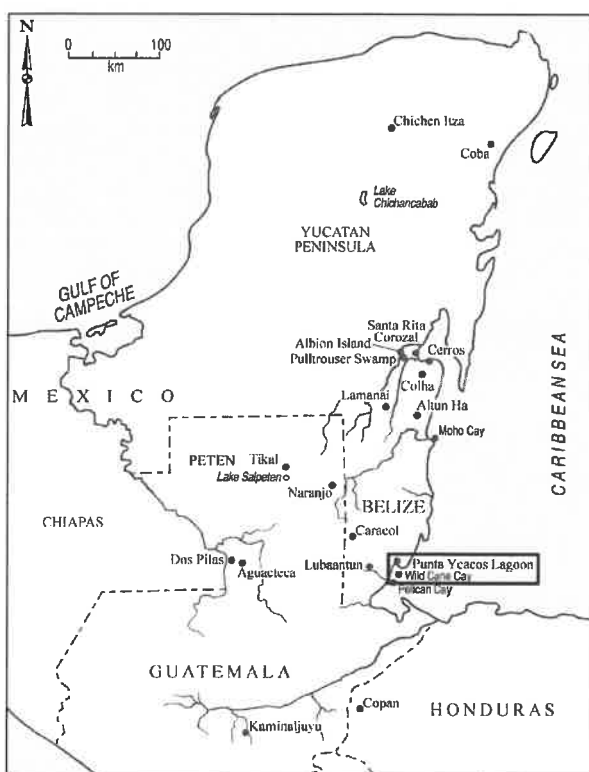


Figure 1. Map of the Maya area showing the location of Punta Ycacos Lagoon, Belize.

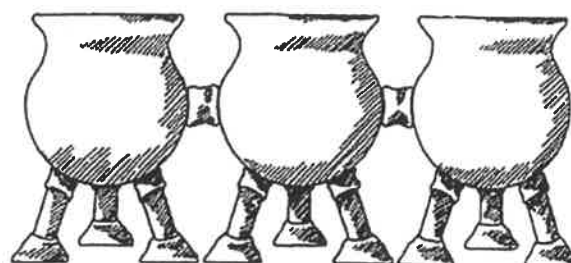


Figure 2. Ceramics used to boil brine (From McKillop 2002: Fig. 3.1).

the diameter of clay cylinders were measured. The average median variation was calculated for each. This statistic reduces “the effect of outlying values in a distribution compared to the coefficient of variation” (McKillop 2002:129). Results from that study indicate that the Punta Ycacos ceramics were standardized in comparison to household pottery from nearby Wild Cane Cay. A subsequent study of briquetage from Chan bi, another site at the Paynes Creek Salt Works, found the pottery at that site also was standardized (Sills and McKillop 2018:465).

Background

The 110 known sites in Punta Ycacos Lagoon make up the Paynes Creek Salt Works in southern Belize (Figure 3). The Paynes Creek Salt Works were used by the ancient Maya during the Classic period (300–900 CE) until their abandonment in the Postclassic period (900–1500 CE); (McKillop 2002, 2005, 2019; McKillop and Aoyama 2018; McKillop et al. 2019; McKillop and Sills 2021, 2022). After abandonment, sea levels rose, flooding the sites and preserving the wooden architecture and artifacts in red mangrove (*Rhizophora mangle*) peat below the seafloor (McKillop et al. 2010). Sites in Punta Ycacos Lagoon have wooden buildings identified as salt kitchens (McKillop and Sills 2022). During the occupation at these sites, the ancient Maya used Punta Ycacos Unslipped bowls and jars to boil brine in salt kitchens to produce salt cakes for trade and purchase of other goods (McKillop 2021).

Some of the sites at the Paynes Creek Salt Works, such as Ta’ab Nuk Na and Ek Way Nal, each have 10 separate wooden buildings, including residences and dedicated salt kitchens (McKillop and Sills 2022, 2023). During the 2019 field season, the Underwater Maya Project excavated several buildings at Ta’ab Nuk Na to investigate their function. This paper describes excavations and analyses of artifacts from one of the excavations, the J-line, which extended north from Building J into a plaza to the north (Fig. 4). Construction dates for the ten buildings at Ta’ab Nuk Na were obtained from radiocarbon-dated wooden posts from each building (McKillop and Sills 2022: Fig. 1). There are three building phases at Ta’ab Nuk Na. Building J is part of the second building phase, dated to 650–780 CE (McKillop and Sills 2022:1242).

The goals of the J-line analyses are to determine the function of building J and whether the salt-boiling pottery was standardized. If building J was used as a salt kitchen, the artifact assemblage would consist of salt-making ceramics and, with few other artifacts (see McKillop and Sills 2021: Table 4). In contrast, if the building was used as a residence, there would be no briquetage, but a higher diversity of ceramics including Belize Red (McKillop and Sills 2023: Table 4; Watson and McKillop 2019). Furthermore, other artifacts, such as lithics, ritual items, or botanical remains would be expected. To evaluate whether there was standardization of the salt production, scanned Punta Ycacos rim sherds from the J-Line transect were analyzed.

This research builds on findings from Ek Way Nal, another large, submerged site with wooden pole and thatch buildings located in another area of the lagoon system (McKillop and Sills 2023). The function of the wooden structures at the site were estimated using artifact analysis, spatial pat-

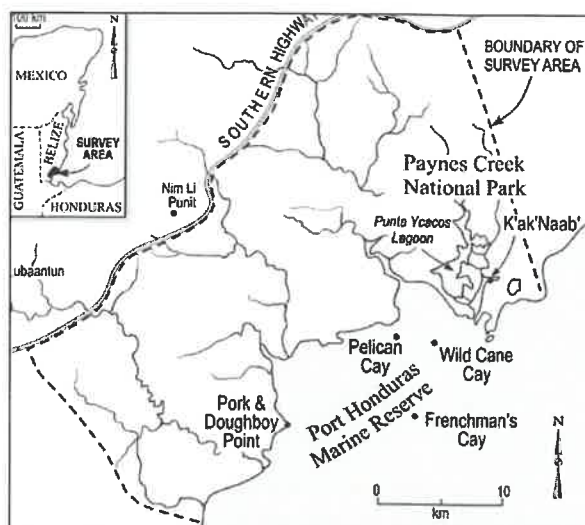


Figure 3. Map of Belize showing location of Paynes Creek National Park (Map: Mary Lee Eggart, LSU).

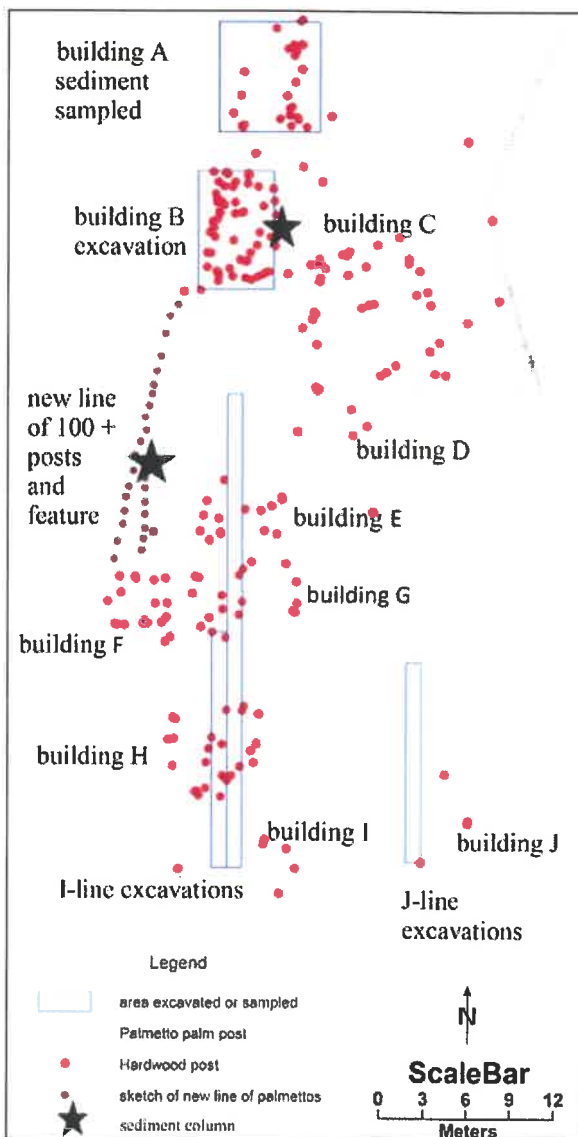


Figure 4. Site map of Ta’ab Nuk Na 2019 field research showing location of J-Line excavation (Map: Heather McKillop).

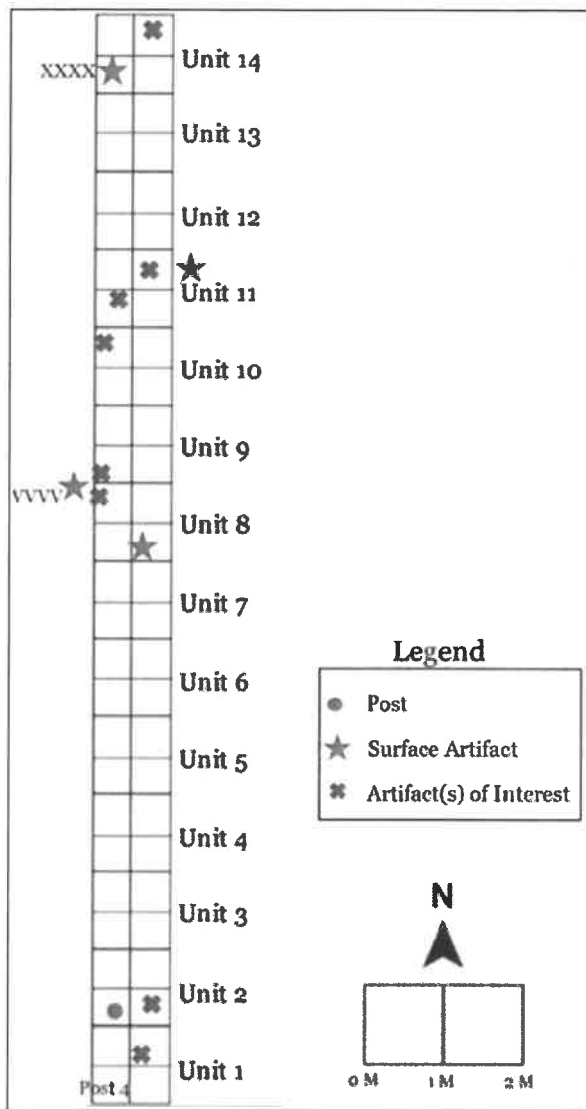


Figure 5. Map of J-Line excavation. Map by Cheryl Foster

tering, and ethnographic comparisons (McKillop and Sills 2023). During the site survey, artifacts and wooden posts were mapped using a total station. Each artifact was classified using the type-variety method of ceramic classification. The researchers examined spatial patterns of salt-making ceramics versus household ceramics associated with the ten wooden structures. The recovery of artifacts such as manos, metates, chert and obsidian tools, botanical remains, and ritual items (ocarinas and censers) distinguished residences from salt kitchens. Results indicated that six of the 10 buildings were used as salt kitchens.

Building J excavations at Ta'ab Nuk Na

Excavations of Building J included a 14 meter-long transect from the north side of building J that extends north into the plaza. The transect, referred to as "the J-line," consisted of 14 units. Each 1x1m unit was subdivided into four subunits, a-d (Fig. 4). A yellow, 1x1m metal grid frame was used as a guide to excavate. The frame was moved along the 14 m long transect that was marked by a ½" PVC pipe with short lengths of ½" PVC pipe marking each meter. The yellow grid frame was visible through the sediment and silt above the firm peat of the sea floor. The excavation information was written in permanent marker on a plastic bag. The bag was placed inside another sealed plastic bag and placed in a sandbag with the excavated artifacts.

The transect was excavated to 10 cm depth by scooping the mangrove sediment, sand, and artifacts by hand into open sandbags floating on the water surface in Marine Transport Devices (MTDs) (Fig. 6a). The MTDs were moved using a rope pulley system to a location off-site. Each sandbag was emptied into a wooden excavation screen where the sediment is washed away using a water-screening process (Fig. 6b). The artifacts were returned to the original sandbag with the excavation information written inside a sealed plastic bag.

The artifacts were transported by boat to the field station, where they were sorted into categories based on material class and type, weighed, counted, and photographed. Most of the artifacts were Punta Ycacos rims, body, and cylinders. Select-

Unit	PY rim #	PY body #	Cylinder #	Warrie rim #	Warrie body #	Incised Warrie #	Belize Red #	Mang. body #	Botanical #	Charcoal g	Obsidian #	Chert #
1	3	47	9	0	7	0	0	3	4	117	0	0
2	0	37	7	1	9	1	0	1	6	95	1	0
3	0	54	5	0	6	0	0	1	12	117	0	1
4	0	59	3	0	3	0	0	0	5	222	0	2
5	0	30	5	0	4	0	0	2	8	186	0	2
6	2	49	0	0	5	0	0	2	27	257	0	0
7	5	53	0	0	2	0	0	0	22	255	0	0
8	13	82	1	0	4	1	0	0	7	332	0	0
9	10	65	0	0	3	0	0	0	13	364	0	0
10	6	89	0	0	2	0	0	0	9	317	0	0
11	2	105	5	0	3	0	0	1	17	613	1	0
12	4	107	3	1	3	0	0	0	14	480	0	0
13	4	63	4	0	2	0	0	1	15	464	0	0
14	0	36	4	1	2	0	2	0	17	393	0	0

Table 1. Total artifact amounts per unit (PY = Punta Ycacos; Mang. = Mangrove Unslipped; Warrie = Warrie Red).

ed artifacts, such as Warrie Red, Belize Red, Mangrove Unslipped rim sherds, and some briquetage, other rim sherds or decorated body sherds), and lithics were photographed and weighed individually, and assigned catalog numbers. Table 1 shows the artifact counts for each unit.

Building J artifacts

Density maps were made to show the concentrations of different types of artifacts in the Building J transect (Figs. 7 and 8).

The Punta Yacacos ceramics map includes Punta Yacacos body and rim sherds, cylinders, sockets, spacers, and Amorphous Clay Lumps (ACL). Building J is located on the southern end of the transect, that extends outside the building into an open area to the north (Figs. 4–5). The Punta Yacacos ceramics have two medium to high density areas: one just to the southern edge of building J and one in the plaza to the north of the building. These high-density areas are mirrored by medium to high density areas for Warrie Red ceramics. The areas with little Punta Yacacos or Warrie Red ceramics correspond to a high-density area of botanical remains. The stone density map shows obsidian and chert associated with building J, except for one piece of obsidian in the plaza to the north. The highest charcoal density is in the plaza to the north of building J, with a relative absence of charcoal in the building.

3D digital imaging and measuring

An Artec Space Spider was used to make 3D digital images of 24 artifacts from the J-Line excavation. Each artifact was placed on a black turntable, which was manually rotated while the Space Spider was held stationary. The Space Spider was moved around the artifact as needed to scan areas not captured. After an artifact was scanned, the Artec software autopilot function was used to remove unwanted data, to align, and fuse the scan.

The raw scan data from the 2019 laboratory work was post-processed in the DIVA Lab (Digital Imaging and Visualization in Archaeology) at Louisiana State University. Once the STL and OBJ files were saved, 3D printed replicas of the artifacts were made on the Dimension Elite 3D printer, using ABS+ plastic. This material is useful for printing archaeological artifacts as it is durable. The printed replicas can be transported and studied without being damaged or broken. The digital images of the artifacts were digitally measured using Netfabb software.

The length, width, and thickness were digitally measured for each artifact. The measurements included three separate thickness measurements of the sherd (one at the top of the sherd under the rim, one 4 cm below the top of the sherd, and one 7 cm below the top of the sherd if the sherd was long enough), three separate thickness measurements of the rim (right, middle, left), and the angle of curvature (Fig. 9). The measurements for the sherd thickness were taken in those three places to examine variability in vessel wall thickness. The 7 cm mark was chosen as the lowest measurement because half of the sherds were at least that long. The measurements were recorded in an Excel spreadsheet (Tables 2 and 3).



Figure 6. a) Cheryl Foster with Marine Transport Device (MTD) (Photo: Heather McKillop); b. John Young water screening artifacts (Photo: Heather McKillop).

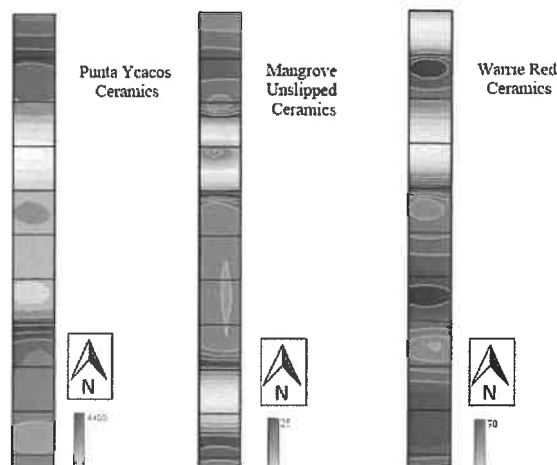


Figure 7. J-Line excavation ceramic density maps by weight (g) for Punta Yacacos Unslipped, Mangrove Unslipped, and Warrie Red (Maps: Cheryl Foster).

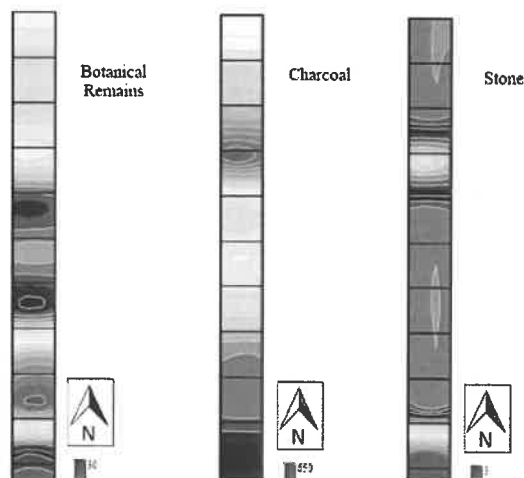


Figure 8. J-Line excavation density maps for botanical remains (coyol, cohune, crabbo) by count, charcoal by weight (g), and stone (chert and obsidian) by count (Maps: Cheryl Foster).

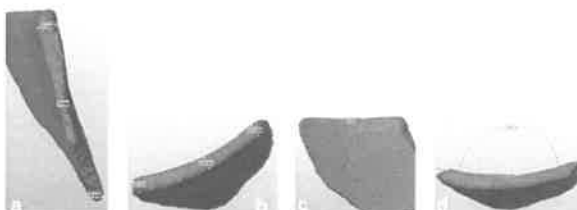


Figure 9. Examples of different measurements: (a) thickness of sherd, (b) thickness of rim, (c) length of rim, (d) angle of curvature.

Artifact #	Thick-ness @ Top Under Rim (cm)	Devi-ation from Median	ABS* Value	Value / Median	Thick-ness @ 4cm from Top (cm)	Devi-ation from Median	ABS Value	Value / Median	Thick-ness @ 7cm from Top (cm)	Devi-ation from Median	ABS Value	Value / Median	Length (cm)
826/1-1	0.9	0.1	0.1	0.1	0.7	0.0	0.0	0.0					6.2
828/1-1	0.8	0.0	0.0	0.0	0.6	-0.1	0.1	0.1	0.6	0.0	0.0	0.0	8.4
828/1-2	0.8	0.0	0.0	0.0	0.4	-0.3	0.3	0.4	0.6	0.0	0.0	0.0	8.0
834/1-1	0.6	-0.2	0.2	0.3	0.5	-0.2	0.2	0.3	0.5	-0.1	0.1	0.2	7.0
838/1-1	0.9	0.1	0.1	0.1	0.7	0.0	0.0	0.0	0.7	0.1	0.1	0.2	10.8
838/1-2	0.6	-0.2	0.2	0.3	0.6	-0.1	0.1	0.1	0.6	0.0	0.0	0.0	7.2
838/1-3	0.7	-0.1	0.1	0.1	0.8	0.1	0.1	0.1					4.4
838/1-4	0.7	-0.1	0.1	0.1	0.6	-0.1	0.1	0.1					4.9
838/1-5	0.9	0.1	0.1	0.1	1.0	0.3	0.3	0.4					4.5
844/1-1	0.8	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.5	-0.1	0.1	0.2	7.0
844/1-2	0.8	0.0	0.0	0.0	0.7	0.0	0.0	0.0					6.3
845/1-1	1.0	0.2	0.2	0.3	1.0	0.3	0.3	0.4					5.5
845/1-2	0.8	0.0	0.0	0.0	0.6	-0.1	0.1	0.1					5.8
Total	10.3		1.1	1.4	8.9		1.6	2.3	3.5		0.3	0.5	
Median	0.8		0.1	0.1	0.7		0.1	0.2	0.6		0.1	0.1	
AMV**				10.6				18.0				8.6	

Table 2. Sherd Thickness and Length Measurements for Punta Ycacos Basin Rims. *= Absolute **= Average Median Variation

Artifact #	Average of Rim Thicknesses (cm)	Deviation from Median	ABS* Value	Value / Median	Length of Rim (cm)	Angle degree	Deviation from Median	ABS Value	Value / Median	Width (cm)
826/1-1	0.8	0.1	0.1	0.1	5.8	134.1	-24.8	24.8	0.2	6.1
828/1-1	0.6	-0.1	0.1	0.1	7.6	153.5	153.5	153.5	1.0	8.0
828/1-2	0.6	-0.1	0.1	0.1	7.1	161.8	161.8	161.8	1.0	7.0
834/1-1	0.5	-0.2	0.2	0.3	1.7	158.4	158.4	158.4	1.0	5.1
838/1-1	0.8	0.1	0.1	0.1	2.4	160.3	160.3	160.3	1.0	7.4
838/1-2	0.6	-0.1	0.1	0.1	8.3	150.0	150.0	150.0	0.9	8.7
838/1-3	0.7	0.0	0.0	0.0	4.8	157.3	157.3	157.3	1.0	5.5
838/1-4	0.7	0.0	0.0	0.0	3.9	168.7	168.7	168.7	1.1	4.2
838/1-5	0.9	0.2	0.2	0.3	4.8	170.4	170.4	170.4	1.1	4.8
844/1-1	0.6	-0.1	0.1	0.1	6.0	166.5	166.5	166.5	1.0	6.6
844/1-2	0.8	0.1	0.1	0.1	7.6	162.5	162.5	162.5	1.0	7.8
845/1-1	1.0	0.3	0.3	0.4	8.7	156.5	156.5	156.5	1.0	9.3
845/1-2	0.8	0.1	0.1	0.1	6.4	165.9	165.9	165.9	1.0	7.5
Total	9.4		1.5	2.1		2065.9		1956.6	12.3	
Median	0.7		0.1	0.2		158.9		150.5	0.9	
AMV**				16.0					94.7	

Table 3. Other Sherd Measurements for Punta Ycacos Basin Rims. *= Absolute. **= Average Median Variation

The average median variation for sherd thickness, angle of curvature, and average rim thickness was calculated for each of the Punta Ycacos basin rims. The calculations followed those found in McKillop (2002:129). The average median variation was used to evaluate whether the Punta Ycacos basin vessels were standardized. After the measurements were complete, the sherd thicknesses were analyzed with regard to the overall height of the sherd. This was done in order to assess whether the length of the sherd correlates with the thickness of the sherd. In other words, do longer sherds have a greater range of variation in thickness than do shorter sherds).

The function of Building J

Although the wooden posts outlining building J are not well defined, building J likely fell within units 1 through 5, based on the locations of the posts in Figure 5. The highest densities of Punta Ycacos and Warrie Red ceramics fall within the limits of the building (Fig. 7). A concentration of Mangrove Unslipped ceramics just north of building J indicates that the ancient Maya were using Mangrove Unslipped vessels along the northern wall of the building. Alternatively, the presence of the Mangrove Unslipped sherds along the north wall may indicate that the ancient Maya swept the floor of the building

in that direction (McKillop 2007; McKillop and Sills 2016; Sills and McKillop 2013; Sills et al. 2016).

If building J was used as a salt kitchen, briquetage would be present in the artifact assemblage inside or near the building (McKillop and Sills 2023:19). If the building was used as a brine enrichment site, brine storage jars and clay funnels (to direct enriched brine into jars) would be present outside the building. If building J was a residence, a diverse array of pottery forms would be present in and around the building. All three pottery types associated with building J are used in the salt making process, including Punta Ycacos for boiling the brine and Warrie Red and Mangrove Unslipped for storage. No other forms of pottery were found within building J, meaning the building was likely not used as a residence. The presence of storage jars (Mangrove Unslipped and Warrie Red) near the exterior walls of the building could indicate storage of brine or loose salt within the building, as documented ethnographically at Sacapulas, a salt-making community in the Maya highlands of Guatemala (Reina and Monaghan 1981).

The highest concentration of botanical remains occurs just outside the northern wall of building J (Fig. 8). Food remains would be present in the artifact assemblage if building J was used as a residence or a salt kitchen (McKillop and Sills 2021:19). The presence of stone tools, including chert and obsidian, within building J (Fig. 8) could indicate the building was used in several ways, including fish processing or as a residence (McKillop and Aoyama 2018; McKillop and Sills 2023:19). However, the chert artifacts found within the J-Line excavation were either flakes or chunks, not formal tools. The charcoal density is highest outside of building J (Fig. 8). Charcoal would be expected within a building used for salt production or as a residence. However, the ancient Maya may have swept the building clean of charcoal or transported it away from the building to another location just prior to abandoning the site.

The locations and densities of the artifacts and botanical remains within the J-Line excavation suggest that building J was used as a salt kitchen. The presence of briquetage (broken Punta Ycacos Unslipped and vessel supports: Fig. 7) inside the building, storage vessels (Mangrove Unslipped and Warrie Red: Fig. 7) both inside and on the exterior of the building, and limited food remains (botanical: Figure 9) all fit within the model for archaeological correlates of salt kitchens (McKillop and Sills 2023: Table 4).

Pottery analysis

The 3D analysis of the scanned Punta Ycacos basin rim artifacts from the J-Line excavation indicates there may have been some standardization during manufacturing. The average median variations for the sherd thicknesses are 10.6 (top under rim), 18 (4 cm from top of sherd), and 8.6 (7 cm from top of sherd). The 10.6 and 8.6 values are similar to the value of 9.6 from the Punta Ycacos salt jars (McKillop 2002:129). The average median variation of 18 for the Punta Ycacos basin rims from Ta'ab Nuk Na is similar to the value of household pottery from Wild Cane Cay. The differences in the top, middle, and bottom values from the Ta'ab Nuk Na sherds could be indicative of some degree of standardization, either from a single manufacturing process at Ta'ab Nuk Na, or from similar manufacturing processes in a small

geographical area surrounding the site. Alternatively, the difference between the lower values from the top and bottom of the sherds and the higher value from the middle of the sherds could simply be a result of the small sample size and the fact that only six of the 13 sherds could be measured at the 7 cm mark. There does not seem to be any correlation between the height of the sherd and the overall thickness of the sherd.

Conclusions

Study of the J-Line excavated and sea-floor artifacts from the submerged salt works site of Ta'ab Nuk Na, Belize reveals the function of building J and possible inferences regarding the manufacturing process of the Punta Ycacos basins. Through an analysis of the artifact assemblage compared with the spatial distribution of the artifacts, the function of building J was identified as a salt kitchen. The assemblage contains salt-making pottery and storage vessels, as well as limited food remains.

The analysis of the 3D-scanned briquetage from the J-Line excavation may reveal a degree of standardization during the manufacturing process. The measurements of the tops and bottoms of the sherds indicate more standardization than the middle measurements. The value of 3D digital imaging of pottery is underscored by the ability to study and measure artifacts that are salt-waterlogged.

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ABSTRACT: The identification of building J's function at Ta'ab Nuk Na, a salt works site in southern Belize and information regarding any potential standardization during the manufacture of certain ceramics, involved examining artifacts taken from the excavation of the J-Line, a 14m-long transect through building J and into the empty space to the north of the building, and an analysis of the artifacts' spatial distribution in relation to the building. The samples included ceramics, lithics, and botanical remains. Analyzing all the available artifact data, including quantities, spatial distribution, and

function, determined that building J was likely a food processing structure. The in-depth, digital analysis of Punta Ycacos (PY) vertical wall rim sherds provides some evidence for standardization during manufacturing. This may indicate the vessels were mass-produced either at Ta'ab Nuk Na, or at nearby sites that all shared similar manufacturing technology and methodologies.

RESUMEN: La identificación de la función del edificio J en Ta'ab Nuk Na, un sitio de trabajo de sal en el sur de Belice y la información sobre cualquier estandarización potencial durante la fabricación de ciertas cerámicas, involucró el examen de artefactos tomados de la excavación de J-Line, un transecto de 14 m de longitud que atraviesa el edificio J y se adentra en el espacio vacío situado al norte del edificio, y un análisis de la distribución espacial de los artefactos en relación con el edificio. Las muestras incluyeron cerámica, lítica y restos botánicos. El análisis de todos los datos de artefactos disponibles, incluidas las cantidades, la distribución espacial y la función, determinó que el edificio J era probablemente una estructura de procesamiento de alimentos. El análisis digital en profundidad de los tuestos del borde de la pared vertical de Punta Ycacos (PY) proporciona alguna evidencia para la estandarización durante la fabricación. Esto puede indicar que las vasijas se produjeron en masa en Ta'ab Nuk Na o en sitios cercanos que compartían tecnologías y metodologías de fabricación similares.

ZUSAMMENFASSUNG: Um die Funktion des Gebäudes J in Ta'ab Nuk Na, einer Salzgewinnungsstätte im Süden von Belize, zu erforschen und Informationen über eine mögliche Standardisierung bei der Herstellung bestimmter Keramiken zu sammeln, wurden Artefakte aus der J-Linie, eines 14 Meter langen Ausgrabungsschnitts, untersucht. Dabei wurden Artefakte sowohl innerhalb des Gebäudes als auch im umliegenden Leerraum nördlich davon analysiert, um die räumliche Verteilung der Fundstücke im Verhältnis zum Gebäude zu untersuchen. Die Proben umfassten Keramik, Steinzeug und botanische Überreste. Die Auswertung sämtlicher verfügbarer Artefaktdaten, einschließlich ihrer Menge, Verteilung im Raum und vermuteten Funktion, deutete darauf hin, dass Gebäude J höchstwahrscheinlich zur Lebensmittelverarbeitung genutzt wurde. Eine detaillierte digitale Analyse von Keramikscherven entlang der vertikalen Wand in Punta Ycacos (PY) ergab einige Anhaltspunkte für eine Standardisierung während der Herstellung. Dies deutet darauf hin, dass die Gefäße entweder in Ta'ab Nuk Na oder in nahegelegenen Standorten mit ähnlichen Technologien und Herstellungsverfahren in großem Umfang produziert wurden.

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A ruler's face revealed: a new look at Monument 3 from Chinkultic

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At the site of Chinkultic in Chiapas, Mexico, archaeologists and investigators have recovered over 40 carved stone sculptures, including at least 20 from the Late Classic period (c. 600–900 CE; Navarrete 1984, 2020). Located at the foot of Structure 21 in Group C, Monument 3 stands approximately 2.2 m tall and 30 cm wide. It depicts three individuals: a standing primary figure, presumably a ruler, and two subordinates. Visitors to the site today will notice that the face of the standing ruler is missing (Fig. 1). Recent research, however, has uncovered a 1945 photograph that shows the missing section of the sculpture.

In the following pages, I present a drawing and interpretation of Monument 3, based on new photography, archival

research, and visual analysis. I argue that Monument 3 is consistent with the sculptural themes of Chinkultic, particularly the pervasive interest in warfare, but that it also connects to artistic traits characteristic of the Comitán area of Chiapas. This analysis enables a more robust understanding of the Chinkultic artistic corpus and suggests shared artistic practices between communities in the Comitán area. The recognition of a regional Comitán style complements the study of lowland Maya artistic traditions and indicates diverse regional approaches to widespread iconographic themes. I begin with an account of the recovery of Monument 3 and the 1945 photograph, and then present a new analysis of the sculpture and its place within the art of Chinkultic and the Comitán Valley.