

RECENT ARCHAEOLOGICAL AND EPIGRAPHIC INVESTIGATIONS AT TAMARINDITO, PETEN, GUATEMALA

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Abstract

The present article¹ summarizes several aspects of recent research in the Classic Maya site of Tamarindito, including its archaeology and epigraphy. The archaeological section focuses on results of the 2010 field season of the Tamarindito Archaeological Project, directed by the junior author. An unusual walled group excavated during that season is discussed in greater detail along with the implications it raises for the reconstruction of the borders of Classic Maya centres. In the epigraphy section, the senior author provides new insights into the written history of the site and its hieroglyphic corpus.

Resumen

El artículo presente¹ recapitula varios aspectos de investigaciones recientes en el sitio clásico maya de Tamarindito, incluyendo su arqueología y epigrafía. La parte arqueológica se enfoca en las excavaciones de la temporada 2010 del Proyecto Arqueológico Tamarindito bajo la dirección del segundo autor. Un grupo excepcional y cercado fue excavado durante esa temporada y se trata en más detalle, junto con las implicaciones que este contribuye a la reconstrucción de los límites de los centros mayas del periodo Clásico. En la sección epigráfica el autor mayor proporciona nuevas informaciones acerca de la historia escrita del sitio y su corpus jeroglífico.

INTRODUCTION

The Maya site of Tamarindito is located in the Petexbatun area of the Department of Peten in south-western Guatemala (Figure 1). The geographic position according to the WGS 84 datum is 16° 27' 04" N, 90° 14' 05" W, at an altitude of 203 m above mean sea level (Gall 1999: 32), as referenced in Plaza A, within the eastern group (Figure 2) of the site centre.

The archaeological zone lies within the municipality of Sayaxche that is situated approximately 10.0 km northeast on the southern bank of the Río Pasión. From Tamarindito, it is only 17 km in a fairly straight line to the Río Usumacinta and the border of Mexico, to the west. The archaeological site can be accessed by a dirt road and later a trail from the modern hamlet of Las Maravillas, which is located some 1.5 km to the north, and also by boat on the navigable waters and a trail from the river bank across cultivated land. In both instances, the visitor arrives first at Plaza B.

The closest bodies of water are the Laguna Tamarindito, 1.3 km northeast, and the Laguna Petexbatun, the northernmost bay, which lies 3.0 km to the east. From there, the Laguna drains into

¹ The present article is based in parts on a manuscript prepared for an epigraphic study of the inscriptions of Tamarindito and a catalogue of its monuments (Gronemeyer in prep.).



Fig. 1. Map of the central Petexbatun region. Map by Markus Eberl (2007: Fig. 1.2).

the Río Petexbatun and ultimately the Río Pasión. To the north and east of the site, the terrain is rather level, with seasonal wetlands occurring closer to the rivers and the Laguna Petexbatun.

A number of important Maya sites are located within a short distance of Tamarindito. Arroyo de Piedra is connected to Tamarindito by a network of trails and is approximately 3.5 km to the west. The important Late Classic centre of Dos Pilas lies about 7.0 km in the same direction. Aguateca is located 7.3 km southeast.

The site of Tamarindito is part of the *Reserva Nacional de Dos Pilas*, essentially a rectangular area with some prolongations to the north and south (Eberl *et al.* 2009: 9). Nevertheless, the area around Tamarindito still suffers heavily from illegal deforestation and slash-and-burn agriculture that produces mainly maize and squash (Eberl *et al.* 2009: 9-10, 2010: 77). However, judging from early descriptions in Vanderbilt's *Proyecto Regional Petexbatun* (Houston *et al.* 1992: 155), there were already clearings

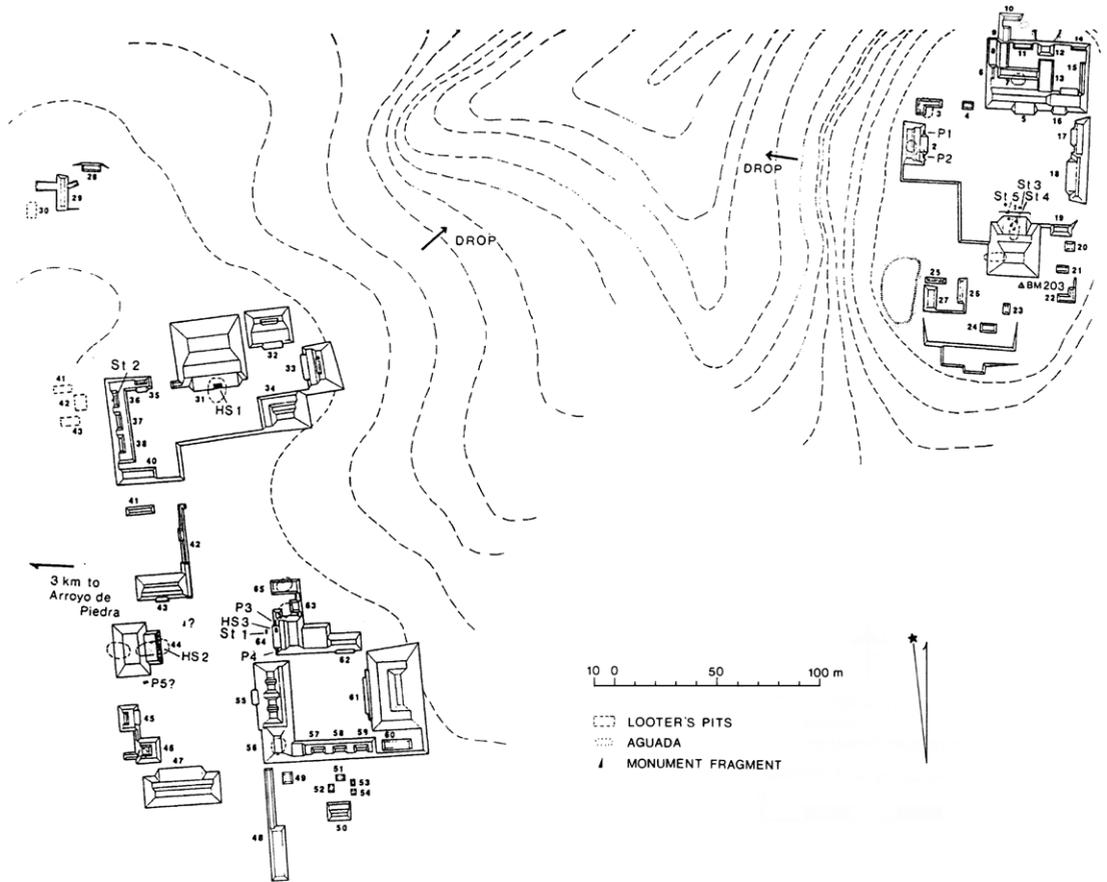


Fig. 2. Map of the centre of Tamarindito. Group A is to the northeast, Group B to the southwest. The position of monuments known in 1984 at the time of the mapping is included. Survey by Boyd Dixon, Stephen Houston and Alejandro Córdoba (Houston 1993: Fig. 2-13).

for milpa agriculture in the early 1990s. The destruction of the rainforest has increased (Eberl *et al.* 2010: 77), leaving now only small isolated allotments of about 100 to 200 m² of rainforest. The areas north of the site centre are the most affected. Already by 2009, the logging had approached to within about 350 m of Group B, leaving only a small belt of original rainforest around the site centre. It is likely due only to the fact that Tamarindito is constantly supervised by two IDAEH guards that the cutting has not overtaken the entirety of the site centre. The deforestation has not just involved slash-and-burn agriculture, but also the logging of timber used for house construction, furniture, and firewood.

DESCRIPTION OF THE SITE

The centre of Tamarindito consists of two major groups (Figure 2), built across natural hilltops. Group A crowns a hill, facing northeast, also known as the Cerro de Cartografía (Houston *et al.* 1992: 154). The plain to the east with the Laguna Tamarindito extends out about 85 m below the elevation of the Cerro de Cartografía (Vinson 1960a: 6). Group A is atop the highest elevation of the many ridges that run along a fairly north-south direction and form an escarpment to the plains in the north and the

Laguna in the east. To the west, Group A also faces a considerable gully in the terrain, before it rises again and Group B is reached to the south-west.

Four larger structures² and architectural compounds are located around a large plaza of Group A. To the south is Str. A1, a large pyramidal structure that had at least three stelae (TAM St. 3, 4, 5, likely also St. 2) erected at its base. A compound to the north (Str. A5 through A16) is accessible via stairs from the plaza. By its layout, it can be considered a palace with individual structures and interspersed courts (Valdés 1997: 322) on an elevated platform. A few other structures and patio groups are located adjacent to the main plaza.

Excavation work has shown that the construction of Group A began during the Early Classic period (Valdés *et al.* 1995: 417-419; Valdés 1997: 324-325), and that larger scale remodelling took place in the Late Classic. Most notable in this respect are Structures A7 (Valdés *et al.* 1995: 418) and A13 (Valdés *et al.* 1994: 370, Fig. 3; Valdés 1997: 323-324). Test pitting revealed at least two construction phases in Str. A5, which also may be the oldest building in this group (Valdés *et al.* 1995: 418). The structures of this compound with their corbelled vaults and stone benches further testify to its elite use. There is also evidence that Str. A1 served as an important ceremonial pivot in the Early Classic, as all Tamarindito monuments dating to the 6th century AD have been found in front of it.

Group B lies approximately 260 m to the west of the Cerro de Cartografía, separated from it by a drop in the landscape. It comprises several plazas and various architectural groups fulfilling ritual and residential functions (Valdés 1997: 325). A *sacbe* originally ran in a north-south direction (Valdés 1997: 325), west of the palace compound (Str. B55) in the south-eastern sector of the group.

The highest elevation in this group is Str. B31, the main pyramidal structure at the northernmost end of the group. Its summit is 11.2 m above the plaza level (Vinson 1960a: 6). The lower part of its stair once contained four carved steps with depictions of captives and accompanying hieroglyphic captions (TAM HS. 1). Of great importance is Str. B44 at the west side of the south-western plaza. With an elevation of 10.0 m (Valdés *et al.* 1995: 420), it has a considerable height. Furthermore, the first four steps of its staircase comprised TAM HS. 2 (Valdés *et al.* 1995: 420). In the construction core of Str. B44, Burial 6 was discovered (Valdés 1994, 1997: Figs. 8-11; Valdés *et al.* 1995: Figs. 15-17). It likely contained the remains of ruler *Chanal Bahlam* who is said to have ousted and eventually killed the last king of Dos Pilas, *K'awiil Chan K'inich*, in AD 761 (Valdés *et al.* 1995: 420; Martin and Grube 2000: 63; Demarest 2006: 122). The burial was laid down on a layer of obsidian flakes and the tomb was covered by several layers of flint and obsidian (Valdés 1994: 51, 1997: 329; Valdés *et al.* 1995: 421) in a termination rite also seen with other materials or contexts (Wagner 2006a).

Notable is the palace compound to the east of the plaza, facing Str. B44. It consists of several individual structures aligned around a huge courtyard. This compound can almost be called an acropolis by its size, but has thus far not been archaeologically investigated (Valdés *et al.* 1995: 419). Previous researchers assumed that it may have served residential purposes. The entrance to the inner court consists of a small passage between Str. B64 and Str. B55. The largest building in this compound is Str. 61 to the east of the court. Structure B64, north of the entrance, once contained TAM HS. 3 (Houston *et al.* 1992: 157), which was flanked by two carved panels (TAM P. 3, 4) still *in situ* in the collapse debris.

Previous research at palace-like structures in the northern area of Group B (Str. B32 and B33) concluded that these were not used for residential purposes (Valdés *et al.* 1994: 373, Fig. 4; Valdés *et al.* 1995: 419), but rather served as administrative buildings (Valdés 1997: 325). Without further excavation in the acropolis of Group B, it cannot be ascertained whether the royal household continued to live in Group A or resettled to Group B in Late Classic times.

² All structures of Tamarindito have been numbered consecutively, beginning with 1 in Group A and continuing with 31 in Group B. We will nevertheless prefix either 'A' or 'B' to make it easier to locate any structure in the site.

Residential groups were mainly explored in two areas outside the site centre: Twelve groups were investigated by the *Proyecto Regional Petexbatun* in an area east and north-east of Group A (Valdés *et al.* 1994: 377; Valdés *et al.* 1995: 415-417) along the hill slopes as far as the Lagunita Tamarindito. Forty-one groups were investigated between 2009 and 2011 by the ongoing Tamarindito Archaeological Project, mainly to the west and southwest of Group B (Eberl *et al.* 2009, 2010, 2011a, 2011b). Most of these groups feature four buildings or platforms encircling a patio, and they are fairly consistent in layout and configuration, conforming in large measure to *plazuela* groups so common in the Maya area.

One of the major results of the mapping and excavations in the residential complexes east of Group A was the detection of agricultural ‘box terraces’ (Houston *et al.* 1992: 159-162; Valdés *et al.* 1994: 376; Valdés *et al.* 1995: 329-333; Dunning *et al.* 1997: 258-259, Fig. 4; see also Chase and Chase 1983; Healy *et al.* 1983). The terraces are made of low stone murals to enclose rectangular plots, guided by the natural incline. Their construction prevented soil erosion and took care of drainage. Dikes were also erected to control the water flow and create reservoirs (Valdés 1997: 333). These terraces date to the Late and Terminal Classic periods (Houston *et al.* 1992: 162).

HISTORY OF EXPLORATION

Tamarindito was discovered in 1958 during a helicopter reconnaissance by George Vinson, an American geologist who was working for Esso Standard Inc. (Vinson 1960a: 4, 1960b: 119). He spotted the ruins on his return journey to Sayaxche. The ruins were first entered in September 1958 by George Vinson and Esso geologist R. Talbert; it was then that TAM HS. 1 was discovered (Vinson 1960b: 119). Tamarindito was re-visited in June and August 1960 by Vinson and Terence Grieder, then from Connecticut College, New London (Vinson 1960a: 6; Grieder 1960: 10, 14). In their reports, Vinson and Grieder describe a number of structures and monuments. It is also very likely that some photos of the monuments were taken (Grieder 1960: 10). This is further implied by an exchange of letters between Vinson and Heinrich Berlin (Sebastian Matteo, pers. comm., 2010). Vinson requested readings of the glyphs, but the photos were not considered suitable by Berlin. Grieder’s brief report on Tamarindito contained no illustrations (Grieder 1960).

Over the following decades, the site was visited by a number of scholars, among them Ian Graham (2010: 323-324) and Merle Greene Robertson (2006: 68-69). Graham’s photos are now stored in the archive of the Corpus of Maya Hieroglyphic Inscriptions project (Cambridge), and Merle Greene Robertson’s rubbings are in the Latin American Library at Tulane University (New Orleans).

The first thorough mapping of the site centre was conducted in 1984, as part of a Yale University project (Houston 1993: 17) by Boyd Dixon, Stephen Houston and Alejandro Córdoba, who also recorded the position of visible monuments and established an initial nomenclature (Figure 2). This expedition also recovered TAM HS. 3 (Houston *et al.* 1992: 155).

No further work was conducted in the site until 1990, when further mapping and the first test excavations took place as part of Vanderbilt University’s *Proyecto Regional Petexbatun* (Houston *et al.* 1992) under the direction of Stephen Houston and Oswaldo Chinchilla. Field seasons continued between 1991 and 1994 under co-director Juan Antonio Valdés (cf. Valdés *et al.* 1994, 1995; Valdés 1997; Demarest 2006: 121) and mainly focused on excavations in the site centre, namely Groups A and B, and further mapping of residential groups adjacent to the centre (Valdés *et al.* 1994: 377; Valdés *et al.* 1995: 415-417; Demarest 2006: 82, 121). Within the Vanderbilt project (Demarest 1997, 2006), which aimed at a large scale and interdisciplinary investigation of the Petexbatun region at specific sites as well as by large transects, Tamarindito formed its own sub-project.

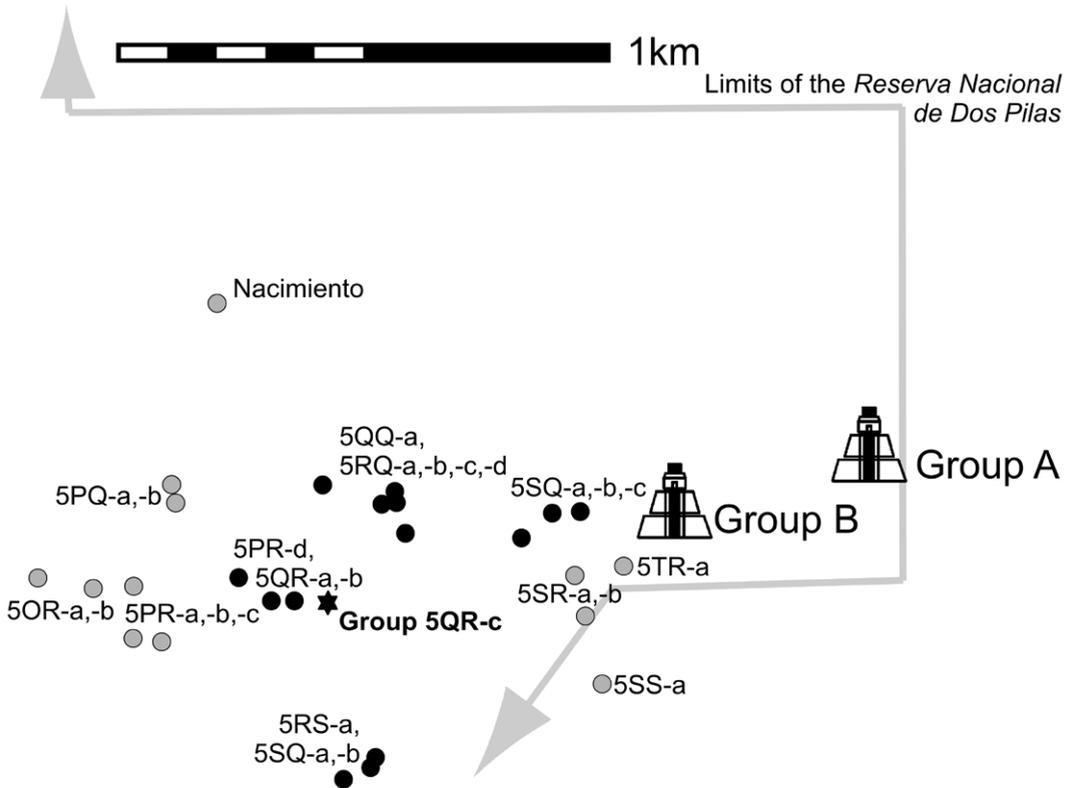


Fig. 3. Map indicating the position of the groups excavated during the 2009 and 2010 PAT field seasons. Grey: groups excavated in 2009, black: groups excavated in 2010, asterisk: indicates the position of Group 5QR-c. Map by Sven Gronemeyer, redrawn after a map by Markus Eberl (Eberl *et al.* 2009: Fig. 2, 2010: Fig. 2).

THE *PROYECTO ARQUEOLÓGICO TAMARINDITO*

Operations in the site were resumed in 2009 (Eberl *et al.* 2009) with the *Proyecto Arqueológico Tamarindito* (PAT), again carried out by Vanderbilt University, and continued in 2010 (Eberl *et al.* 2010; Eberl *et al.* 2011b) and 2011 (Eberl *et al.* 2011a). The current project concentrates on the exploration of residential groups dating to the Late and Terminal Classic periods (Eberl *et al.* 2009: 7). Its investigations consist of a systematic survey between Tamarindito and the Río Petexbatun, the mapping of the site and the excavation of residential groups to investigate their occupational history and socio-economic utilization (Eberl *et al.* 2010: 12). A special focus is placed on the question of persisting occupation and settlement patterns during and after the time of the collapse when the Petexbatun was reduced to political turmoil and warfare (cf. Demarest *et al.* 1997; Martin and Grube 2000: 64-67).

From a spatial perspective, the relationship between residential groups and the topography is one focus, always under comparison to known patterns from the Petexbatun area. The typology of residential groups is also investigated in the site's internal context, for example, in order to identify neighbourhoods, or *barrios*, in Tamarindito. Knowing where the residential groups during the Late Classic were located and how far they extended around the site centre has chronological significance. Without a doubt, these perspectives must be pursued in combined analysis to determine the expansion of the site at a certain point of time and reconstruct its limits.

In the 2009 PAT field season, operations took place at twelve groups (operations TM1-TM12)³ to the west and southwest of the site centre. They are mainly distributed north and south of the current trail to Arroyo de Piedra. In the 2010 field season, a total of sixteen operations (operations TM12-TM27) were conducted at fifteen new groups, with one (TM12) being completed from the preceding year. Again, the excavations were concentrated in the sector west of the centre (Figure 3). One particular group (5QR-c) will be discussed in greater detail, below.

Generally, we can observe that all the excavated groups date to the end of the Late Classic period. Tamarindito's centre was occupied from Pre-Classic times onwards (Eberl *et al.* 2010: 12) and the earliest hieroglyphic accounts date back to AD 472 (TAM St. 5). Commoner residential groups, however, have provided little evidence of earlier materials in form of ceramic sherds and none for earlier construction phases pre-dating the verge of the Classic Maya collapse in the Petexbatun region (Eberl *et al.* 2009: 33).

As the project focuses on the common people and their living conditions, it is not surprising to find that most of the platforms were of simple and low-quality construction. Most of them supported structures of perishable materials and sometimes a stone wall of varying height. However, there are several examples of extremely well built structures with benches (5RQ-4, 5QR-5, 5QR-8, 5QR-9, 5SQ-1, 5SQ-7, 5SQ-10). Such terminal Late Classic examples demonstrate that the political collapse in the region did not affect the common people evenly across the board, and it might even be argued that in certain cases it rather improved their living circumstances (Eberl *et al.* 2010: 78). Furthermore, the varying quality of the architecture shows that these people were not a homogenous group, and this demonstrates the need to further investigate the socio-economic differences among the inhabitants of Tamarindito and their activity patterns across the settlement in a diachronic fashion.

2010 FIELD SEASON RESULTS

The 2010 PAT field crew consisted of four archaeologists (Markus Eberl, Claudia Vela González, Sven Gronemeyer, and Sarah Levithol) and twelve workers from neighbouring Las Maravillas. The archaeological fieldwork took place between May 24 and June 11, 2010. The laboratory work in Flores took place between June 21 and August 6, 2010, conducted by Markus Eberl and supported by three students from the *Centro Universitario de Petén* of the *Universidad de San Carlos* in Santa Elena. The sixteen operations had 67 sub-operations in total, resulting in a total excavation area of 107.3 m² (Table 1).

Nearly 15,500 ceramic sherds have been unearthed, and nearly 28 % were suitable for ceramic analyses (Table 2). The analyses follow the second phase of the Aguateca (Inomata *et al.* 2007) and Dos Ceibas projects (Eberl 2007; Eberl *et al.* 2008). The prevalent ceramic groups are Tinaja, Cambio and Saxche-Palmar, which amount to 97.3 % in total. Six vessels could be reconstructed. Sherds of plates, bowls and cups were the most abundant. Almost all ceramic material dates from the Late Classic. Among the 56 fragments of ceramics found that are not the remains of vessels, 10 were parts of flutes and 18 were parts of figurines or musical instruments.

³ Contexts are designated according to the following scheme in the nomenclature of the Tamarindito project (Eberl *et al.* 2009: 8, 9, Figs. 3, 4): TM24A-1-2-3 (TM = Tamarindito, 24 = operation (a residential group), A = sub-operation (structure or midden in a residential group), 1 = unit, 2 = level, 3 = lot). Group designations are oriented after the UTM grid as follows: 5QR-c (5 = cipher of 5 x 5 km segment, QR = longitude/latitude cipher of a 250 x 250m grid within, c = third group within grid). Much like group identifiers increment within each 250 x 250 grid, so do the numbers for individual structures.

Table 1. Summary of all operations and artefacts excavated (after Eberl *et al.* 2010: 16-17, 62-63, 66-72).

Operation	Suboperation	Area excavated	no. of ceramics	no. of lithics (obsidian, flint, quartz, <i>manos</i>)	no. of figurines and molded ceramics	no. of bones
12	B-C	1.0 m ² 1 cleaning	239 (1.5%)	O: 3 (2.7%) F: 7 (0.6%) Q: 2 (10.5%) M: 1 (4.4%)	2 (4.4%)	-
13	A-F	19.0 m ²	1,262 (8.1%)	O: 5 (4.5%) F: 148 (13.1%) Q: 11 (57.9%) M: 1 (4.4%)	8 (17.4%)	-
14	A-E	4.0 m ² 1 cleaning	1,478 (9.5%)	O: 14 (12.6%) F: 18 (1.6%) Q: - M: 14 (60.9%)	6 (13.0%)	-
15	A-E	5.0 m ²	1,894 (12.2%)	O: 4 (3.6%) F: 8 (0.7%) Q: - M: 1 (4.4%)	4 (8.7%)	-
16	A-D	4.0 m ²	580 (3.7%)	O: 2 (1.8%) F: 21 (1.9%) Q: - M: -	1 (2.2%)	-
17	A-E	4.0 m ² 1 cleaning	2,566 (16.6%)	O: 2 (1.8%) F: 63 (%) Q: - M: -	10 (21.4%)	-
18	A-D	3.0 m ² 1 cleaning	526 (3.4%)	O: 1 (0.9%) F: 11 (1.0%) Q: - M: -	2 (4.4%)	-
19	A-D	4.0 m ²	426 (2.8%)	O: 6 (5.4%) F: 14 (1.2%) Q: - M: 1 (4.4%)	7 (15.2%)	-
20	A-D	6.0 m ² 1 cleaning	351 (2.3%)	O: 2 (1.8%) F: 71 (6.3%) Q: 4 (21.1%) M: 2 (8.7%)	1 (2.2%)	-
21	A-E	24.0 m ²	596 (3.8%)	O: 4 (3.6%) F: 27 (2.4%) Q: - M: 1 (4.4%)	3 (6.5%)	-

22	A-D	2.0 m ² 2 cleanings	793 (5.1%)	O: 10 (9.0%) F: 134 (11.9%) Q: 2 (10.5%) M: 1 (4.4%)	1 (2.2%)	1 (0.5%)
23	A-D	4.0 m ²	208 (1.3%)	O: 6 (5.4%) F: 15 (1.3%) Q: - M: -	3 (6.5%)	-
24	A-D	12.0 m ² 1 cleaning	584 (3.8%)	O: 3 (2.7%) F: 18 (1.6%) Q: - M: 1 (4.4%)	-	-
25	A-B	2.0 m ²	493 (3.2%)	O: 17 (15.3%) F: 75 (6.6%) Q: - M: -	1 (2.2%)	-
26	A-D	7.0 m ²	1,927 (12.4%)	O: 20 (18.0%) F: 344 (30.4%) Q: - M: -	3 (6.5%)	9 (4.7%)
27	A-E	6.3 m ²	1,574 (10.2%)	O: 12 (10.8%) F: 156 (13.8%) Q: - M: -	4 (8.7%)	180 (94.7%)
Subtotal		107.3 m ² 8 cleanings	15,496 (160 kg)	1,283 O: 111 (8.7%, 166.1 g) F: 1,130 (88.1%, 2,840 g) Q: 19 (1.5%) M: 23 (1.8%)	46 (462.4 g)	190 (145.2 g), 175 (113.1 g) in Burial 1 (TM27C)

Table 2. Results of the ceramic analyses (after Eberl *et al.* 2010: 62-64).

Ceramic groups		Vessel types		Dating	
Cambio	1,490 (34.4%)	Plates	199 (31.8%)	Pre-Classic	26 (0.6%)
Paso Caballo Waxy	16 (0.6%)	Bowls	190 (30.4%)	Early Classic	7 (0.16%)
Balanza	3 (0.1%)	Cups	158 (25.3%)	Late Classic	4,252 (98.3%)
Dos Arroyos	4 (0.1%)	Jars	72 (11.5%)	Terminal Classic	41 (0.95%)
Saxche-Palmar	1,137 (26.3%)	Drums	4 (0.6%)		
Tinaja	1,581 (36.6%)	Comales	1 (0.2%)		
Fine Gray	5 (0.1%)	Lids	1 (0.2%)		
Fine Orange	36 (0.8%)				
Others	44 (1.0%)				
Total	4,326	Total	625 (27.9% of analysable)	Total	4,326 (100%)

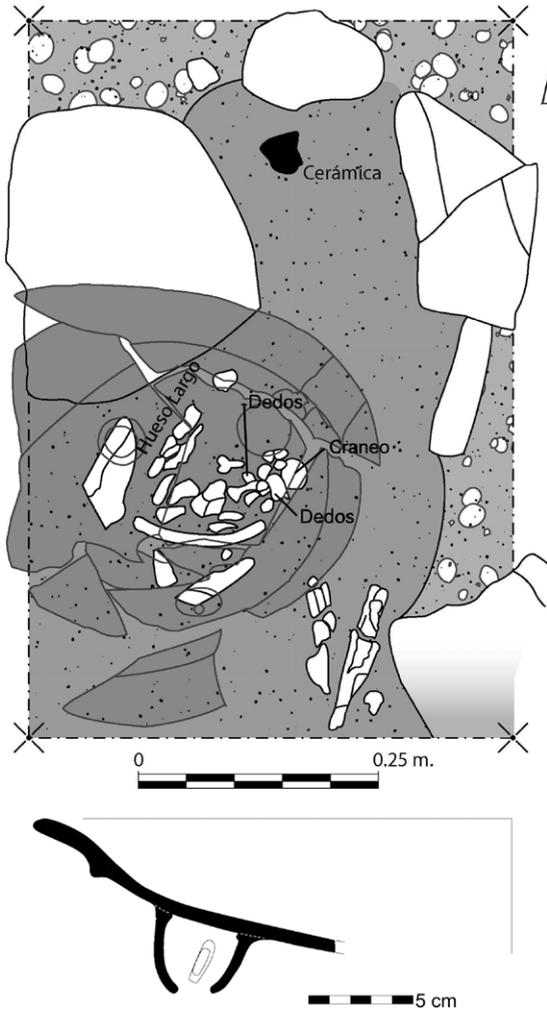


Fig. 4. Sub-operation TM27C in Group 5SQ-b. Top: Burial 1 in Str. 5SQ-6, composite of TM27C-2-6-1 (tripod plate) and TM27C-2-6-2 (interment) in the northern half of TM27C. Plan by Omar Schwendener based on field drawings by Sven Gronemeyer (after Eberl *et al.* 2010: figs. 98, 99). Bottom: Profile of the tripod plate (vessel 310515) covering the human remains. Drawing by Markus Eberl (after Eberl *et al.* 2010: Fig. 106).

Only very little bone material has been found (Eberl *et al.* 2010: 72-73), and 15 fragments and parts of a turtle carapace were recovered from middens (Table 1). The human remains from Burial 1 from Str. 5SQ-6 (Figure 4) are heavily deteriorated and intruding sediments and rodents had disturbed the burial. Most of the fragments belong to parts of the long bones of arms, femora and lower leg bones, and there is one fragment of the cranium, nine teeth and four hand phalanges. Most notably, vertebrae are missing as well as other diagnostic bones such as the pelvis or the mandible. Since the bones appeared in their approximate anatomical positions in the burial it would seem that the interment is a primary burial; nevertheless, the excavator expressed some doubts as to this assessment and suggested that this may represent a secondary interment. The head portion was covered by a Saxche-Palmar Orange-polychrome tripod plate (complete vessel 310515).

One of the most extensively excavated residential groups of the 2010 field season was 5SQ-a (TM13), with Str. 5SQ-1 standing out as the residential group featuring the highest quality of architecture, among the groups excavated to date (Figure 5). Its excavation (TM13C) revealed that the corners of the platform are made of finely worked stones, supporting a single room structure of

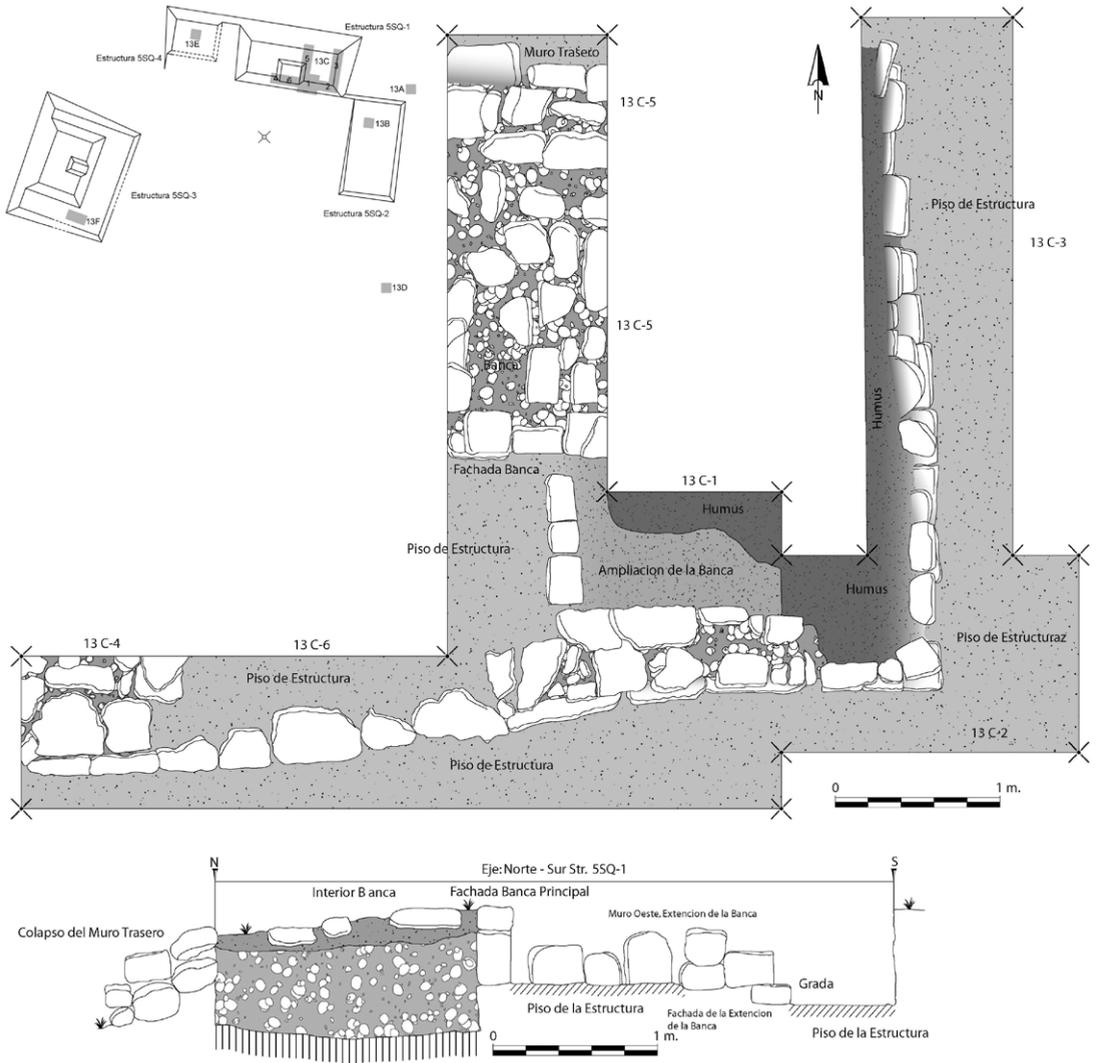


Fig. 5. Operation TM13 in Group 5SQ-a. Map by Markus Eberl (after Eberl et al. 2010: Fig. 7). Top: Plan of TM13C in Str. 5SQ-1. Bottom: Profile through the central axis of the building exhibiting the bench. Plan and profile by Omar Schwendener based on field drawings by Claudia Vela González (after Eberl et al. 2010: figs. 12, 15).

a stone mural of an original height of about two metres. The room contained a single rectangular bench, later transformed into a 'C' shape (Eberl et al. 2010: 20; see also Tourtellot 1988; Harrison 1970). A Pabellon Molded-carved bowl (complete vessel number 310520) from the entrance of the structure (TM13C-6-2-2) clearly dates the usage of this building into the Terminal Classic period (Eberl et al. 2010: 65, 78; Smith and Gifford 1966: 160; Adams 1971: 49-51; Sabloff 1975: 195-196, 198).

Group 5QR-a (TM14) may provide hints as to its socio-economic use (Eberl et al. 2010: 38-40). Str. 5QR-1 is a two-tiered platform with a small stair leading to a single room structure with a bench

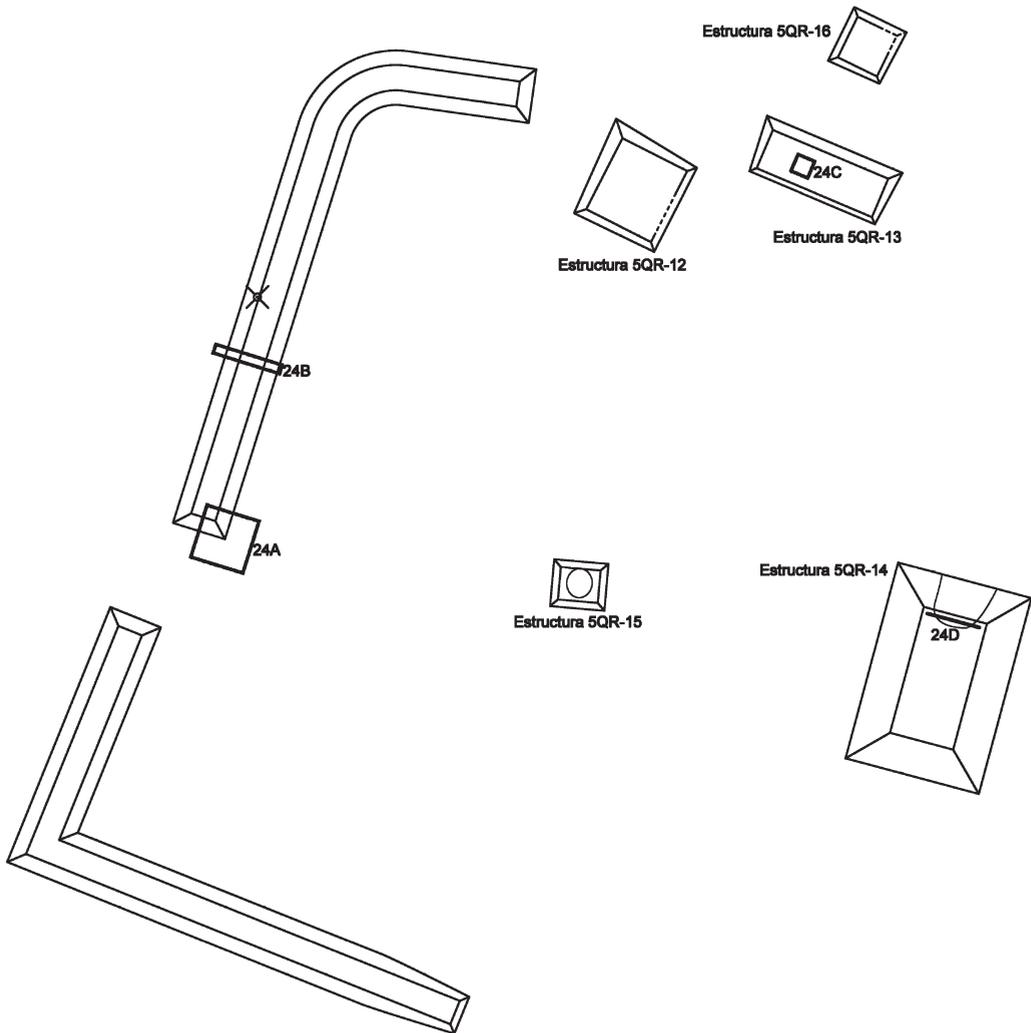


Fig. 6. Map of Group 5QR-c. Map by Markus Eberl (after Eberl, Vela González and Gronemeyer 2011: Fig. 3).

surrounded by enormous walls. The structure was well built, and large stone slabs covered the surface of the platform and obviously served to transfer the mass of the supporting mural. The structure can be tentatively identified as a scribal residence or workshop on account of a stone bark beater found on the surface of the platform (TM19A-1-1-1), along with the head of a figurine (TM19B-1-2-1), which depicts a spider monkey wearing a wrapped and bent headdress that was not only typical for scribes (see e.g. K1522, K2220), but also for ritual specialists (Zender 2004a: 10, 2004b: 142-152). A ceramic sherd featuring the distinct iconography of the Jaguar God of the Underworld was also recovered (TM19D-1-4-2), eventually determined to have been part of a censer (Miseria Applique, also dating to the Terminal Classic period; see Sabloff 1975).

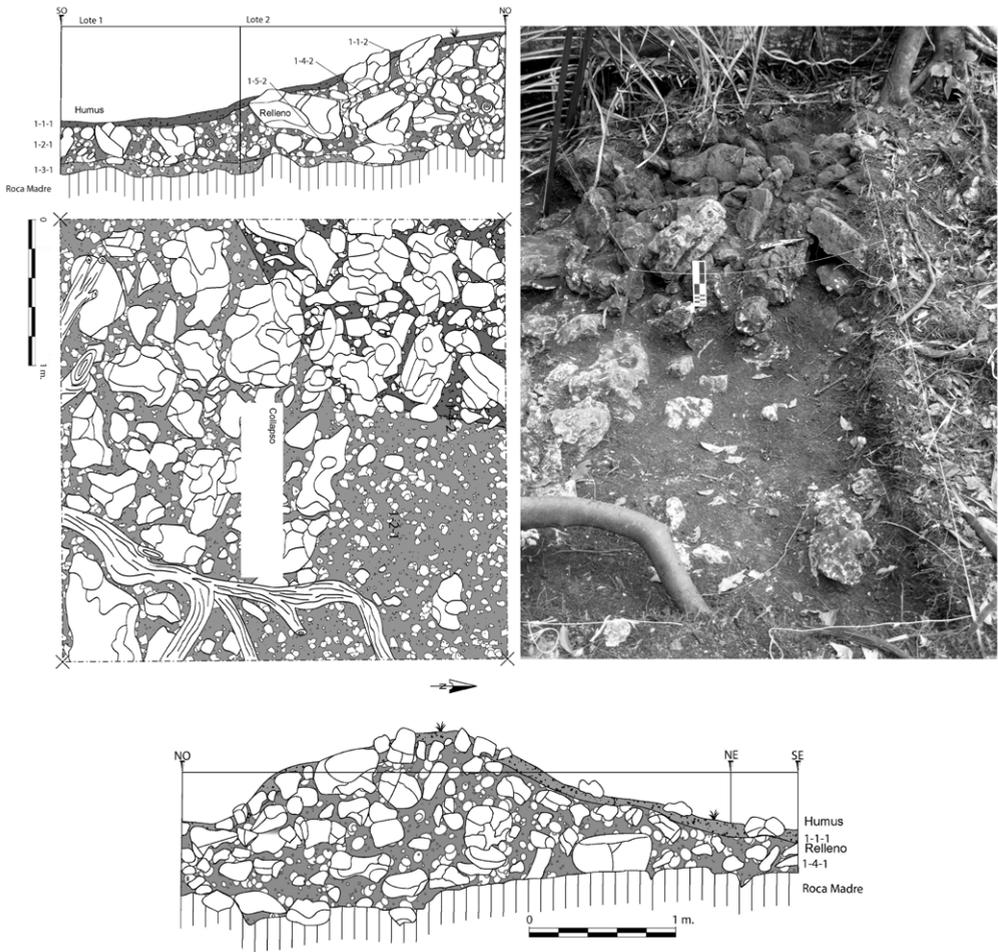


Fig. 7. Top left: Plan and profile of TM24A, the south-eastern corner of the northern wall. Bottom: Profile of TM24B, a trench through the northern mural. Plan and profiles by Omar Schwendener based on field drawings by Sven Gronemeyer (after Eberl *et al.* 2010: figs. 79-81). Right: Photo of TM24A showing the wall fill and pavement. Photo by Sven Gronemeyer.

GROUP 5QR-C

The most spectacular finding was Group 5QR-c (Eberl *et al.* 2011b: Fig. 4), situated some 740 m west of Plaza B (Figure 6). It consists of five platforms surrounded by a C-shaped wall (Str. 5QR-11) with a passage (Eberl *et al.* 2010: 52-55, 79-81; Eberl *et al.* 2011b: 239, 240) allowing access into the complex. The whole group is some 20 m south of the current trail towards Arroyo de Piedra. There is good reason to consider this group as an ‘entrance’ to Tamarindito by at least the Late Classic, due to its advantageous topographic setting on top of a rather flat elevation. It also likely served defensive purposes, as is implied by the wall and by its position overlooking the northern plains below the escarpment. This group specifically evokes the question of ‘urban boundaries’ of Classic Maya

settlements (Eberl *et al.* 2011b: 241-242) and the architectonic imprints of such boundaries, especially when considering that the wall faces towards Tamarindito's twin capital of Arroyo de Piedra (Mathews and Willey 1991: 43; Escobedo 2006: ix, 28).

Four sub-operations (Figure 7) have been conducted during the 2010 PAT field season in this group (Eberl *et al.* 2010: 52-55; Eberl *et al.* 2011b: 239-240). As there has only been limited test pitting and trenching thus far, all results and conclusions remain tentative and subject to change.

The first of these is TM24A, a 3 x 3 m pit in the south-eastern corner of Str. 5QR-11, which also served to investigate parts of the passageway and the area behind the wall. The limestone bedrock in this area is a very uneven. Throughout the entire sub-operation, a thin layer of compacted earth with small cobbles was found above the bedrock. Apparently it was deposited to level the area before the construction of the passage and the wall. Large and rather flat stones were set in the area of the passageway, while the area behind the wall only consists of dense soil. The core of the wall and the stones in the passage grade seamlessly, and we can thereby assume that they represent a single phase of construction. TM24B is a 4.1 x 0.5 m trench six meters north to TM24A. In this section, the wall was built directly on the bedrock which is much more even here. It was built in one construction phase. The wall deteriorated into a loose pile of rocks covered by sediments. It is surmised to have originally supported a wooden palisade.

TM24C is a 1 x 1 m test pit in Str. 5QR-13 that serves to clarify the dating of one of the northern platforms and investigate whether they were contemporaneous with the wall. The target of TM24D was Str. 5QR-14, into which a looters trench had already been driven (Eberl *et al.* 2011b: Fig. 5). The profile was cleared to a width of 1.3 m and excavated down to bedrock. The stratigraphy exposed by the looting provided a clear view of a single construction phase. The collapse of a bench or wall covered the surface. Beneath was a thin layer of deteriorated stucco, indicating that the entire structure had once been plastered. It is the only evidence of stucco thus far from a residential group outside Tamarindito's centre. The underlying layers represent construction core on the remnants of a palaeosol.

THE QUESTION OF CLASSIC MAYA SITE BOUNDARIES

The discovery of Group 5QR-c raises some important questions as to the boundaries of Classic Maya cities and access to them (Eberl *et al.* 2010: 79-81; Eberl *et al.* 2011b: 240-242). The ceramics found in all sub-operations date to the Late Classic period⁴. The wall measures around three metres at its base and reaches around one metre in height. As the northern arm of the wall is rather short, Strs. 5QR-12, 13 and 16 likely blocked this side. We assume that we have the original layout of the entire group that was planned and constructed in one phase and was left open to the east, towards Tamarindito. The presence of various residential groups of the same time period in the vicinity implies that this group was not built as an advanced 'control post' on a green field. The closest group is just 70 m to the west, and residential groups have thus far been found up to 1.6 km to the west of Tamarindito's centre (thus about 900 m further from this group).

Str. 5QR-14 and 15 align on an axis with the passageway and were likely to the side of a route or roadway that cut the group in a west-east direction, which is to say between Arroyo de Piedra and Tamarindito. We assume this route to be more than a trail. Its development into something like a roadway is suggested by the construction in the passageway, but further investigations are needed to clarify whether some hard-surfaced paving was laid down and whether this putative material is to be found exclusive in the wall group, or if it even extended all the way between the site centres of

⁴ Sub-operations TM24A and TM24B yielded only very few artefacts. Interestingly, the lowest densities were found in the area of the passageway and behind the wall, among them one broken flint spearhead.

Arroyo de Piedra and Tamarindito. Large areas of the group were still covered by vegetation in 2010. As a result, it was not possible to more thoroughly investigate the possibility of a trench in front (to the west) of the wall, as we know to have existed at other sites, such as Tikal or Becan, for example.

The question of clearly defined limits of Classic Maya cities is still under debate, especially in relation with routes (especially causeways) and their boundary-maintaining function (Kurjack and Andrews 1976; Ashmore 1981; Chase and Chase 2001; Shaw 2001: 261-262, 268). Commonly, particular topographic features such as inaccessible terrain, *bajos*, or unfavourable soils have been taken as an indicator of limited human occupation (cf. Houk 1996). This reflects the model of Maya sites as “garden cities” (Stierlin 1964: 179; Graham 1999a, 1999b), where residential groups are interspersed among spaces used for cultivation (“infield agriculture”) as opposed to outlying fields (cf. Netting 1977; Sanders 1981: 362-363). Until the 1.6 km distance to Tamarindito’s site centre where residential groups have been investigated, differences in their layout have been noted that require more thorough investigation in the future. For example, their size is not constant. In fact, the largest group discovered so far measures some 50 x 90 m and is located almost half way between Tamarindito and Arroyo de Piedra.

The discovery of Group 5QR-c allows the development of an alternative perspective on the question of Maya city boundaries. We will concentrate on four aspects to which this group, but also others, surveyed by the PAT, may provide an answer.

One question concerns how to define a Maya polity⁵ from a spatial point of view, contrasting the traditional Thiessen polygon model first successfully applied to the Maya case by Peter Mathews (1991) against a zonal model, as it was introduced by Antonio Benavides for Coba (1981a: 24, 105-115, 1981b: 210-215).

Furthermore, can we trace formal boundary markers of a Maya site and are these congruent with a ceremonial and/or territorial boundary? In ancient Rome, the defensive walls surrounding the city were different to the *pomerium*, which is the legal border, or the sacral delimitation (Drogula 2007). Diego de Landa (1959: 63) describes how in Colonial times rock piles with god effigies were used to separate what the Yukatek Maya call *kàaj* and *k’áax* (cf. Stone 1995: 15-18; Taube 2003; Le Guen 2005), that is, the ordered world of the settlement from the realm of the *aluxes*. Alternatively, we have identified architectural features such as the arches of Labna and Kabah that mark the entrance to a site. Highly interesting in this respect is the investigation on ranked spaces and community boundaries in Copan (Wagner 2006b), where stela-altar complexes at the cardinal points of the site seem to both formally and ceremonially delimit the city.

The particular layout of Group 5QR-c also brings strategic considerations into play. The location of the group on the flattened escarpment and the presumed road passing by cannot be a coincidence. Finally, the type of route that ran through the group is of importance. The construction of a formal causeway (or *sacbe*) is not overly common between Maya cities (Shaw 2001), Coba (Benavides 1981c) and Caracol (Chase and Chase 2001) being the most prominent examples, wherein the major site connects to its subsidiaries. In the Petexbatun, no kind of inter-site road has heretofore been recognised. The currently existing networks of trails (or *brechas*) that connect hamlets, fields and farmsteads, are sufficient to travel between two localities in a sparsely inhabited region. Such trails were likely insufficient in Classic times, though, because today’s trails are not always cut along the most suitable terrain and because they impede the use by large groups of people, be it in the form of merchants, soldiers, or during processions. Group

⁵ Based on epigraphic evidence one could argue that a Classic Maya site and its polity formed a ‘city-state’ (Grube 2000: 553). However, the extent of a Maya site does not have to match the expansion of its polity’s territory. Although neighbouring Arroyo de Piedra was part of the same polity as Tamarindito, Group 5QR-c suggests that some demarcation between the two existed.

5QR-c attests to the existence of a simple road between Tamarindito and Arroyo de Piedra and as such provides the first evidence for a Classic period network of roads in the Petexbatun region.

There are two additional questions that are linked to the relationship of Tamarindito and Arroyo de Piedra as twin capitals (Mathews and Willey 1991: 43; Escobedo 2006: ix, 28) of the polity sharing the so-called scroll emblem glyph. Were both cities within this political entity marked off as two different communities and did Group 5QR-c serve as a boundary marker? Or did the Late Classic construction of Group 5QR-c reflect the rapid balkanisation in the Petexbatun⁶ and served as a last line of defence before reaching the royal seat? The ceramic sherds recovered from the wall core and the layout that differs from other fortifications in the region suggest that Group 5QR-c predates the Petexbatun wars but the ceramic sample is rather small to provide to precise chronological estimate.

THIESSEN POLYGONS VS. ZONAL BELTS

Peter Mathews (1991) used “Thiessen polygons” (Voronoi 1908) to define the territory of Classic Maya polities on the basis of the distribution of emblem glyphs. The boundaries are drawn exactly along the centreline between two sites with different emblem glyphs. These boundaries stretch straight across the landscape and do not take into consideration the natural features that may have served as natural boundary markers.

Figure 8 shows the result of such a tessellation around the sites of Dos Pilas, Arroyo de Piedra, Tamarindito, Punta de Chimino and Aguateca. As Arroyo de Piedra and Tamarindito were part of the same polity, the ‘border’ between them is only indicated by a dotted line, Punta de Chimino was likewise part of the political sphere⁷. Dos Pilas and Aguateca were also twin capitals (Houston and Inomata 2009: 295), and with the accession of *Tahn Te’ K’inich* in AD 770, Aguateca became the sole royal seat after the fall of Dos Pilas. The figure indicates the residential groups west of Tamarindito’s centre that were excavated in 2009 and 2010 and highlights the position of Group 5QR-c with an asterisk. If Group 5QR-c was a ‘control post’ at Tamarindito’s border, it is situated well within its territory and far off the hypothetical border with Arroyo de Piedra. Neighbouring residential groups even further west would be excluded from Tamarindito’s territory if Group 5QR-c was contemporaneous with them. However, its location may just be the result of a diminished territory during the Petexbatun wars.

Antonio Benavides (1981a: 24) proposed the zonal model for Coba as an alternative to better reflect the diversity of settlement patterns and incorporate them into an urban landscape. This model differentiates a nuclear zone (or epicentre) as the ceremonial and administrative centre with monumental architecture from the ‘suburbs’. These suburban zones are mainly defined by their distance from the epicentre and causeways (Benavides 1981a: 105-115), and are subdivided into a “perinuclear” zone around the epicentre (characterized by elite patio groups; Benavides 1981b: 213) and a peripheral zone of outlying groups connected to it by causeways. The complementary zone is a collocation

⁶ A process to which Tamarindito actively contributed by ousting and capturing the last Dos Pilas king *K’awil Chan K’inich* in AD 761 (Gronemeyer in prep.), leading to a downfall of the hegemonial power which Tamarindito could not fill. From the Petexbatun wars, fortifications are known from numerous sites, such as Dos Pilas (Demarest *et al.* 1997: 230), Aguateca (Inomata 1997: 342), and Punta de Chimino. Arroyo de Piedra was also enclosed by defensive walls (Escobedo 1997: 316), but such large-scale features have not yet been found at Tamarindito.

⁷ Assumed by an Early Classic Jordan phase bowl in Punta de Chimino Burial 8, featuring the Tamarindito emblem glyph (Eberl 2007: Fig. 3.8a), which presumably represents a royal gift (Escobedo 1996: 20).

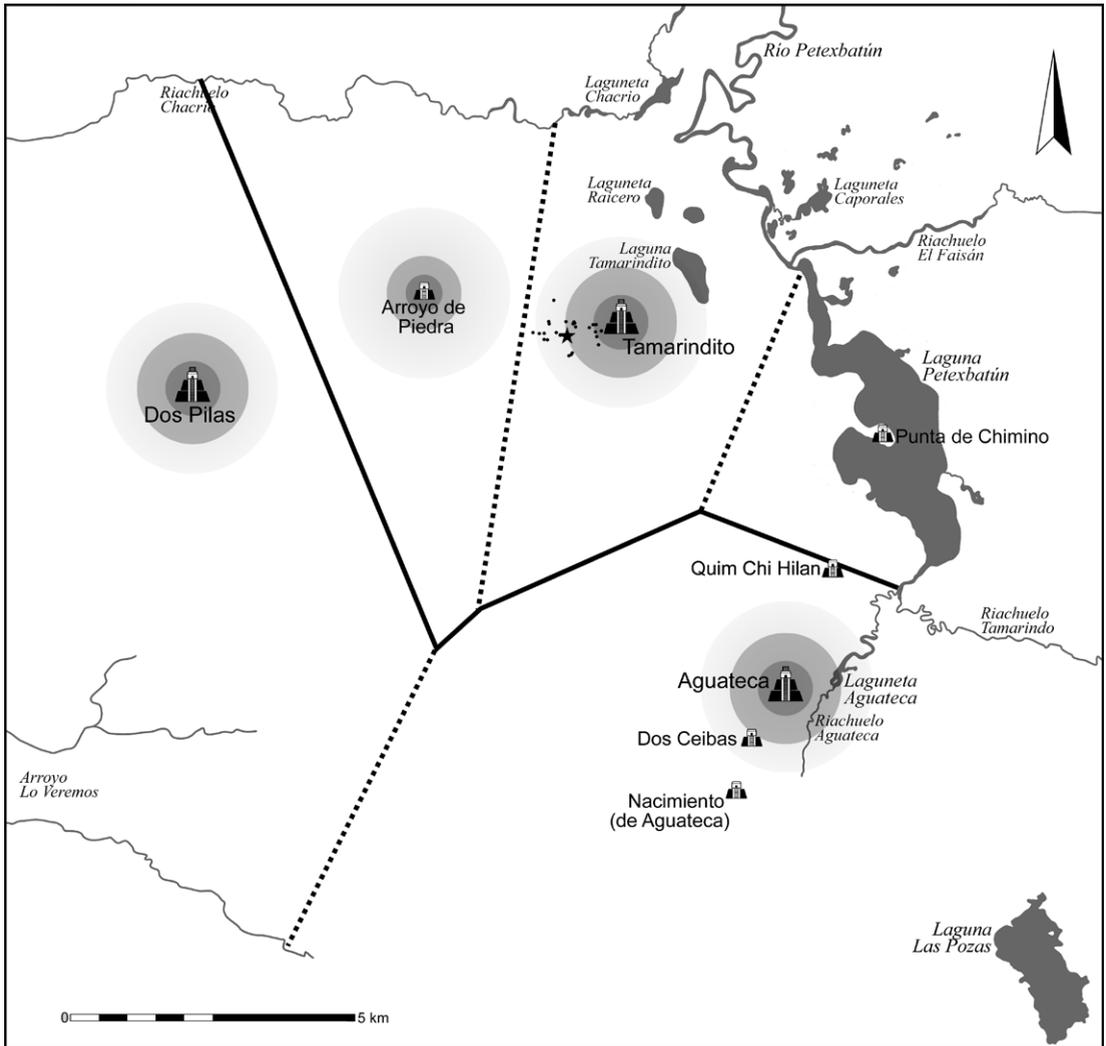


Fig. 8. Political organisation of the Petexbatun area in the Late Classic period with indications of settlement zones. Mapping by Sven Gronemeyer, based on modified map by Markus Eberl (2007: Fig. 1.2).

of residential groups (combined with subsistence agriculture; Benavides 1981a: 112-114) of varying density that fades into the site's hinterland.

Settlement patterns of course seem to differ from site to site. Concentric models (Folan *et al.* 2009) have been discussed and applied for other sites (e.g. Garza and Kurjack 1984) while the situation was apparently different for Tikal (cf. Arnold and Ford 1980; MacKinnon 1981). Too little data are yet available for Tamarindito and future surveys and excavations might change the picture. When applying a zonal model to Tamarindito (and for comparison also other sites in the region), it necessarily remains a simplified and idealized succession of concentric circles (Figure 8), each denoting a nuclear,

perinuclear and peripheral zone⁸. According to the size of each site, the extension varies proportionately. The expansion of Tamarindito's perinuclear zone has been set to coincide with Group 5QR-c.

The nuclear zone of Tamarindito consists of Groups A and B as the administrative and ritual centre. The perinuclear zone is an agglomeration of elite compounds and residential groups of varying extension around the epicentre. To the west, this zone is formally bordered by Group 5QR-c, limiting the site's extension as viewed by their rulers (Eberl *et al.* 2011b: 242) and without necessarily coinciding with those of the polity. Other groups of a similar function or even a similar layout may be located at other access points in the north, east and south. Since residential groups exist to the west of Group 5QR-c, this zone can be considered as the periphery. Its settlement density fluctuates depending on the terrain and the distance from the epicentre, but decreases in general with distance⁹. The borders of the zones were vaguely delimited and Tamarindito's periphery presumably merged seamlessly into Arroyo de Piedra's periphery, with the twin capitals forming a large agglomeration. A transect between Tamarindito and Dos Pilas that would go through Arroyo de Piedra could provide important insights because it would traverse the border between two friendly sites (Arroyo de Piedra and Tamarindito) and the border between two enemy sites (Dos Pilas and Arroyo de Piedra).

OUTLOOK FOR THE *PROYECTO ARQUEOLÓGICO TAMARINDITO*

The Tamarindito project continued its investigations with a third field season in 2011. Byron Hernández started with the creation of a total station-based map of the entire site; he and his crew took about 9,000 measurements predominantly in the western part of the site near Plaza A. Sarah Levithol began her systematic survey of the area between Tamarindito and the Petexbatun river and lake. She mapped and test-pitted two residential groups near the escarpment. Claudia Vela González and the junior author continued with the investigations of commoner residential groups at the site itself. Six residential groups to the west of Plaza A were test-pitted in addition to seven residential groups to the southeast of Plaza B. The Tamarindito project completed the investigation of 41 residential groups so far and hopes to have a comprehensive sample of Tamarindito by adding additional residential groups to the south of Plaza B and by starting limited excavations that complement earlier studies by Juan Antonio Valdés in the centre (Plaza A and B).

EPIGRAPHY OF TAMARINDITO

Tamarindito is the oldest kingdom in the Petexbatun region and after Dos Pilas and Aguateca the third largest site (Valdés *et al.* 1995: 415). It must have played a major socio-political role in the area (cf. Inomata 1997: 338, 341), at least until Dos Pilas was founded by an exiled Tikal noble faction (cf. Martin and Grube 2000: 56-58; Fahsen 2002; Boot 2002; Guenter 2003; Eberl 2007: 64). This is exemplified by being the first site in the Petexbatun to bear an emblem glyph (Valdés *et al.* 1994: 368; Escobedo 2006: 7). Otherwise, emblem glyphs in the Pasión area are only attested at the sites of Altar de Sacrificios and Tres Islas (Mathews 1991; Valdés *et al.* 1994: 379) by these early times.

A long dynastic line is also in evidence: by around 9.13.0.0.0 (AD 711), we have *Aj Ihk' Wolok* designated the 25th in succession (although surely anchored to a fictional dynastic founder), as detailed

⁸ The peripheral zone in this model matches Benavides's complementary zone. At Coba, causeways connected outliers but since similar causeways are missing at Tamarindito, no complementary zone is needed to 'fill the space'.

⁹ Compare to modern metropolitan areas, such as Greater London. We have the rather small City of London itself, the boroughs of Inner London around and the ones of Outer London to border the home counties.

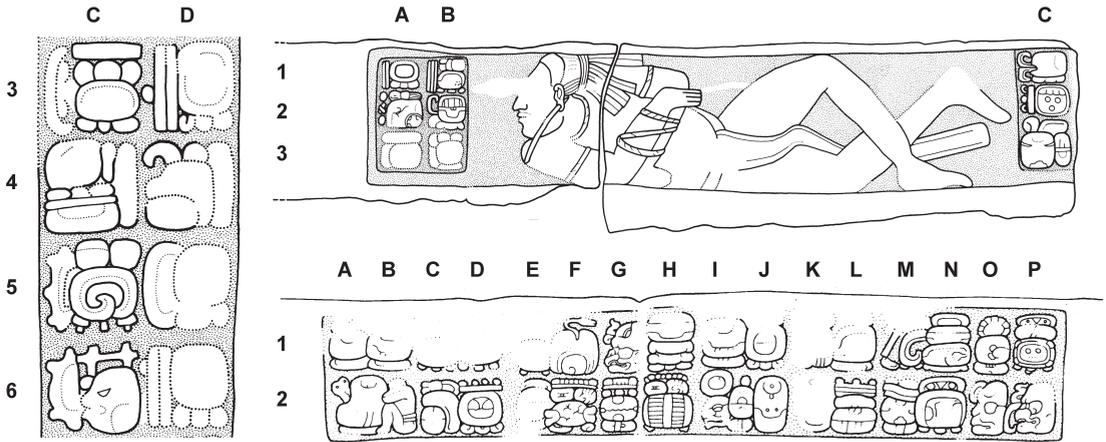


Fig. 9. Left: TAM St. 1, C3-D5. Drawing by Sven Gronemeyer, after photos by Sven Gronemeyer. Top right: TAM HS. 1, Step II. Drawing by Sven Gronemeyer, after rubbings by Merle Greene Robertson and photos by Karl Herbert Mayer. Bottom right: TAM HS. 3, Step III. Drawing by Stephen Houston (after Houston 1993: Fig. 4.21).

by TAM HS. 3, Step VI, E1 – Step VII, A1 (Houston 1993: 114). This implies that the later rulers of Tamarindito considered their royal patriline to have begun many years earlier, quite possibly in the deep mythical past (see Helmke, this volume). The earliest known epigraphic reference to Tamarindito comes from TAM St. 5, Bp5. It mentions the birth of an individual on 9.1.17.10.8 (22 Dec. AD 472) who acceded to power as Ruler 1 shortly before 9.3.19.0.0 (21 Oct. AD 513). Whereas previous research (Mathews and Willey 1991: 43-44) has identified eight rulers, new investigations (Gronemeyer in prep.) found twelve rulers in the inscriptions at Tamarindito and related sites.

A pivotal event in the polity's history occurred in the little known time between the reigns of *Aj Ihk' Wolok* (Ruler 7) and *Mo' ? Bahlam* (Ruler 10). Dos Pilas was still involved in the fratricidal war against Tikal in the decades after its foundation (Martin and Grube 2000: 57-58; Boot 2002; Guenter 2003). The Dos Pilas king *Itzamnaaj K'awiil* appears on TAM HS. 3, Step I, C1 acting under the auspices of *Aj Ihk' Wolok*, seemingly a subordinate to the old Petexbatun kingdom. The same *Itzamnaaj K'awiil* likely appears less than 10 years later as the overlord of *Chak Bin Ahk* (Ruler 11) on ARP St. 2, overseeing his accession on 9.14.0.3.5 (6 Feb. AD 712). Ruler 11 is the offspring of a Dos Pilas princess, likely a daughter of the founder *Bajlaj Chan K'awiil* (Martin and Grube 2000: 57). That Dos Pilas subjugated Tamarindito (Gronemeyer in prep.) is attested to by the many smashed and mutilated Early Classic monuments that have been found at latter site (Houston 1993: 46; Escobedo 1997: 309, 2006: 110, 124). The rivalry between Dos Pilas and Tamarindito may not only have been about regional hegemony but it may also reflect pan-Lowland pretension, because Tamarindito had close ties to Tikal during the Middle Classic. We see the 'Lady of Tikal' governing the 9.5.0.0.0 (3 Jul. AD 534) period ending conducted by *Wakoh K'inich* on TAM St. 2, C4-C6 (Gronemeyer 2011: 61 in prep., Figure 9). By destroying Tamarindito's stelae, Dos Pilas blatantly attempted to efface history.

Tamarindito actively contributed to the collapse of the Petexbatun when *Chanal Bahlam* (Ruler 12) captured and removed the Dos Pilas king *K'awiil Chan K'inich* from the throne on 9.16.9.15.3 (17 Jan AD 761), as recorded on TAM HS. 2, Step III, F1-H2 (Martin and Grube 2000: 63) and shown as a captive on TAM HS. 1, Step II (Gronemeyer in prep., Figure 9). TAM HS. 2 provides the last known mention of this Dos Pilas King as a ruler, before the 'petty kings' of Aguas Calientes, Aguateca, La

Amelia and Seibal fought for supremacy in the resulting power vacuum (Martin and Grube 2000: 64-65). In an act of reprisal, Tamarindito was attacked only seven days later on 9.16.9.15.10, as TAM HS. 2, Step III, M1-P2 reports (24 Jan. AD 761), apparently as a Dos Pilas punitive expedition to recover their captured patron gods (Gronemeyer in prep.).

Tamarindito proved stable enough to sustain rulership for at least one and a half years after it had been attacked. The latest secure date is 9.16.11.6.13 (10 Aug. AD 762) on TAM HS. 2, Step IV, I1-L1, when *Chanal Bahlam* visited the tomb of *Aj Ihk' Wolok*, the last independent king before the Dos Pilas hegemony (Gronemeyer in prep.). The last mention of the scroll polity dates to 9.18.0.0.0 (17 Aug. AD 800) in the form of a scribal signature on AGT St. 7 (Graham 1967: 24, Fig. 17; Houston 1993: 120).

THE HIEROGLYPHIC AND MONUMENTAL CORPUS

Tamarindito's history provides some important clues to the history of the Petexbatun. Yet, its corpus remains poorly documented. Together with the texts from Arroyo de Piedra, Héctor Escobedo (2006) has provided the most comprehensive catalogue so far, though it still lacks a thorough documentation in the form of photos and line drawings. Many monuments have been looted and disappeared after they were recorded in the 1960s by Ian Graham and Merle Greene Robertson. A preliminary report (Gronemeyer 2011) listed 17 stone monuments. More recent research (Gronemeyer in prep.) that included miscellaneous texts on portable artefacts, contributed seven additional texts. Thus far, we have identified six stelae, seven panels, one altar, three hieroglyphic stairways (Gronemeyer 2011), and in addition one unpublished stela fragment, one step of stair of Str. B64 (possibly part of TAM HS. 3; Houston *et al.* 1992: Fig. 2), one graffito (rubbing by Merle Greene Robertson, ID D23869), two inscribed ceramic vessels from Burial 6 inside Str. B44 (Cat-No. 260,002; [Valdés *et al.* 1995: 421, Fig. 17; Foias 1996: 1140-1142, Fig. C.22]; Cat-No. 206,001 [Foias 1996: 1144, Fig. C.23]), one ceramic vessel with pseudoglyphs from Burial 3 inside Str. A13 (Cat-No. 206,245 [Foias 1996: 1136]), and a sherd of an *Ik'*-style vessel with a badly weathered Calendar Round, recovered during the 2010 PAT field season.

TAM P. 3 and 4 have been investigated during the 2011 PAT field season. TAM St. 1 and 6, which were reported as uncarved, may just be fallen with their sculptured surface facing the ground, so further excavation of these monuments might add additional insights to the epigraphy, iconography and history of Tamarindito.

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REFERENCES

- ADAMS, RICHARD E. W.
1971 *The Ceramics of Altar de Sacrificios*. (Papers of the Peabody Museum of American Archaeology and Ethnology, 63 (1)). Cambridge: Harvard University.
- ARNOLD, JEAN AND ANABEL FORD
1980 A Statistical Examination of Settlement Patterns at Tikal, Guatemala. *American Antiquity* 45(4): 713–726.
- ASHMORE, WENDY
1981 Some Issues of Method and Theory in Lowland Maya Settlement Archaeology. *Lowland Maya Settlement Patterns*, edited by Wendy Ashmore, pp. 37-69. University of New Mexico Press, Albuquerque.
- BOOT, ERIK
2002 The Life and Times of B'alah Chan K'awil of Mutal (Dos Pilas), according to Dos Pilas Hieroglyphic Stairway 2. *Mesoweb*: <<http://www.mesoweb.com/features/boot/DPLHS2.pdf>>.
- BENAVIDES, ANTONIO
1981a *Cobá: una ciudad prehispánica de Quintana Roo*. Mexico D.F.: INAH Centro Regional de Sureste.
1981b Cobá y Tulum: adaptación al medio ambiente y control del medio social. *Estudios de Cultura Maya* 13: 205-222.
1981c *Los caminos de Cobá y sus implicaciones sociales (Proyecto Cobá)*. Mexico D.F.: INAH Centro Regional de Sureste.
- CHASE, ARLEN F. AND DIANE Z. CHASE
1983 Intensive Gardening Among the Late Classic Maya: A Possible Example at Ixtutz, Guatemala. *Expedition* 25(3): 2-11.
2001 Ancient Maya Causeways and Site Organization at Caracol, Belize. *Ancient Mesoamerica* 12(2): 273-281.
- DEMAREST, ARTHUR
1997 The Vanderbilt Petexbatun Regional Archaeological Project 1989-1994: Overview, History, and Major Results of Multidisciplinary Study of the Classic Maya Collapse. *Ancient Mesoamerica* 8(2): 209-227.
2006 *The Petexbatun Regional Archaeological Project: A Multidisciplinary Study of the Maya Collapse*. (Vanderbilt Institute of Mesoamerican Archaeology Series 1). Nashville: Vanderbilt University Press.
- DEMAREST, ARTHUR, MATT O'MANSKY, CLAUDIA WOLLEY, DIRK VAN TOERENHOUT, TAKESHI INOMATA AND HÉCTOR ESCOBEDO
1997 Classic Maya Defensive Systems and Warfare in the Petexbatun Region: Archaeological Evidence and Interpretations. *Ancient Mesoamerica* 8(2): 255-266.
- DROGULA, FRED
2007 Imperium, Potestas, and the Pomerium in the Roman Republic. *Historia* 56(4): 419-452.
- DUNNING, NICHOLAS, TIMOTHY BEACH AND DAVID RUE
1997 The Paleocology and Ancient Settlement of the Petexbatun Region, Guatemala. *Ancient Mesoamerica* 8(2): 255-266.
- EBERL, MARKUS
2007 *Community Heterogeneity and Integration: The Maya Sites of Nacimiento, Dos Ceibas, and Cerro de Cheyo (El Peten, Guatemala) during the Late Classic*. Ph.D. dissertation. New Orleans: Department of Anthropology, Tulane University.
- EBERL, MARKUS, ALEJANDRO SEIJAS, MARÍA DE LOS ÁNGELES CORADO, JENNY GUERRA RUIZ, JUAN M. PALOMO, OMAR SCHWENDENER AND CLAUDIA VELA GONZÁLEZ
2008 *Informe final del Proyecto Arqueológico Dos Ceibas, temporada 2008*. Guatemala City: Ministerio de Cultura y Deportes, IDAEH.
- EBERL, MARKUS, CLAUDIA VELA GONZÁLEZ AND SVEN GRONEMEYER
2011b Investigaciones recientes del Proyecto Arqueológico Tamarindito: la temporada 2010. *XXIV Simposio de Investigaciones arqueológicas en Guatemala, 2010*, edited by Barbara Arroyo, Lorena Paiz Aragón, Adriana Linares Palma and Ana Lucia Arroyave, pp. 237-246. Guatemala City: Ministerio de Cultura y Deportes, IDAEH, Asociación Tikal.

- EBERL, MARKUS, CLAUDIA VELA GONZÁLEZ, JUAN M. PALOMO, MIRIAM SALAS AND OMAR SCHWENDENER
2009 *Informe final: Proyecto Arqueológico Tamarindito, temporada 2009*. Guatemala City: Ministerio de Cultura y Deportes, IDAEH.
- EBERL, MARKUS, CLAUDIA VELA GONZÁLEZ, LAURA FERGUSSON, BYRON HERNÁNDEZ, SARAH LEVITHOL AND SVEN GRONEMEYER
2011a *Informe anual: Proyecto Arqueológico Tamarindito, Tercera temporada 2011*. Guatemala City: Ministerio de Cultura y Deportes, IDAEH.
- EBERL, MARKUS, CLAUDIA VELA GONZÁLEZ, JUAN M. PALOMO, AND SVEN GRONEMEYER
2010 *Informe anual: Proyecto Arqueológico Tamarindito, Segunda temporada 2010*. Guatemala City: Ministerio de Cultura y Deportes, IDAEH.
- ESCOBEDO, HÉCTOR
1996 Operaciones PC32, 26 y 25: Rescate arqueológico en las estructuras 2, 76 y 7 de Punta de Chimino. *Proyecto Arqueológico Punta de Chimino 1996, Informe preliminar*, edited by Arthur Demarest, Héctor Escobedo and Matt O'Mansky, pp. 9-27. Guatemala City: Ministerio de Cultura y Deportes, IDAEH.
1997 Arroyo de Piedra: Sociopolitical Dynamics of a Secondary Center in the Petexbatun Region. *Ancient Mesoamerica* 8(2): 307-320.
2006 *History and Dynastic Politics in a Classic Maya Court: Investigations at Arroyo de Piedra, Guatemala*. Ph.D. dissertation. Nashville: Department of Anthropology, Vanderbilt University.
- FAHSEN, FEDERICO
2002 Rescuing the Origins of the Dos Pilas Dynasty: A Salvage of Hieroglyphic Stairway #2, Structure L5-49. Foundation for the Advancement of Mesoamerican Studies, Inc.: <<http://www.famsi.org/reports/01098/>>.
- FOIAS, ANTONIA
1996 *Changing Ceramic Production and Exchange and the Classic Maya Collapse in the Petexbatun Region*. Ph.D. dissertation. Nashville: Department of Anthropology, Vanderbilt University.
- FOLAN, WILLIAM, ARMANDO ANAYA HERNANDEZ, ELLEN KINTZ, LARAINÉ FLETCHER, RAYMUNDO GONZALEZ HEREDIA, JACINTO MAY HAU AND NICOLAS CAAMAL CANCHE
2009 Coba, Quintana Roo, Mexico: A Recent Analysis of the Social, Economic and Political Organisation of a Major Maya Urban Center. *Ancient Mesoamerica* 20(1): 59-70.
- GALL, FRANCIS
1999 *Diccionario geográfico de Guatemala*. Third edition. Guatemala City: Dirección Nacional de Cartografía.
- GARZA, SILVIA AND EDWARD KURJACK
1984 Organización social y asentamientos mayas prehispánicos. *Estudios de Cultura Maya* 15: 19-28.
- GRAHAM, ELIZABETH
1999a Stone Cities, Green Cities. *Complex Politics in the Ancient Tropical World*, edited by E. A. Bacus and L. Lucero, pp. 185-194. (Archaeological Papers 9). Arlington: American Anthropological Association.
1999b Farming the Built Environment. *For Hunger-Proof Cities: Sustainable Urban Food Systems*, edited by Mustafa Koc, Rod MacRae, Luc J.A. Mougeot, and Jennifer Welsh, pp. 150-154. Ottawa: International Development Research Centre.
- GRAHAM, IAN
1967 *Archaeological explorations in El Petén, Guatemala*. (Middle American Research Institute, Publication 33). New Orleans: Tulane University.
2010 *The Road to Ruins*. Albuquerque: University of New Mexico Press.
- GREENE ROBERTSON, MERLE
2006 *Never in Fear: The Memoirs of Merle Greene Robertson*. San Francisco: Pre-Columbian Art Research Institute.
- GRIEDER, TERENCE
1960 Manifestaciones de arte maya en la región de Petexbatun. *Antropología e Historia de Guatemala* 12(2): 10-24.

GRONEMEYER, SVEN

2011 A Preliminary Report on the Corpus of Tamarindito, Guatemala. *Mexicon* 33(3): 61-65.

in prep. *The Monuments and Inscriptions of Tamarindito, Petén, Guatemala*. (Acta Mesoamericana). Markt Schwaben: Verlag Anton Saurwein.

GRUBE, NIKOLAI

2000 The City-States of the Maya. *A Comparative Study of Thirty City-State Cultures*, edited by Mogens Herman Hansen, pp. 547-565. (Det Kongelige Danske Videnskabernes Selskab Historisk-filosofiske Skrifter 21). Copenhagen: C. A. Reitzels Forlag.

GUENTER, STANLEY

2003 The Inscriptions of Dos Pilas Associated with B'ajlaj Chan K'awiil. *Mesoweb*: <<http://www.mesoweb.com/features/guenter/DosPilas.pdf>>

HARRISON, PETER D.

1970 *The Central Acropolis, Tikal, Guatemala: A Preliminary Study of the Functions of Its Structural Components during the Late Classic Period*. Ph.D. dissertation. Philadelphia: University of Pennsylvania.

HEALY, PAUL F., LAMBERT, J.D.H., ARNASON, J.T., HEBDA, R.J.

1983 Caracol, Belize: evidence of ancient maya agricultural terraces. *Journal of Field Archaeology* 10: 397-410.

HOUK, BRETT

1996 *The Archaeology of Site Planning: An Example from the Maya Site of Dos Hombres, Belize*. Ph.D. dissertation. Austin: Department of Anthropology, University of Texas.

HOUSTON, STEPHEN

1993 *Hieroglyphs and History at Dos Pilas*. Austin: University of Texas Press.

HOUSTON, STEPHEN, ROBERT CHATHAM, OSWALDO CHINCHILLA, ERICK PONCIANO AND LORI WRIGHT

1992 Mapeo y sondeos en Tamarindito, Petén. *IV Simposio de Investigaciones arqueológicas en Guatemala, 1990*, edited by Juan Pedro Laporte, Héctor Escobedo and Sandra Villagrán de Brady, pp. 154-163. Guatemala City: Ministerio de Cultura y Deportes, IDAEH, Asociación Tikal.

HOUSTON, STEPHEN AND TAKESHI INOMATA

2009 *The Classic Maya*. New York: Cambridge University Press.

INOMATA, TAKESHI

1997 The Last Day of a Fortified Classic Maya Center: Archaeological Investigations at Aguateca, Guatemala. *Ancient Mesoamerica* 8(2): 337-351.

INOMATA, TAKESHI, DANIELA TRIADAN, ERICK PONCIANO AND KAZUO AOYAMA (EDS.)

2009 *La política de lugares y comunidades en la sociedad maya del Petexbatún: investigaciones del Proyecto Arqueológico Aguateca, Segunda Fase*. Guatemala City: Ministerio de Cultura y Deportes, IDAEH.

KURJACK, EDWARD AND WYLLYS ANDREWS

1976 Early Boundary Maintenance in Northwest Yucatan, Mexico. *American Antiquity* 41(3): 318-325.

LANDA, DIEGO DE

1959 *Relación de las cosas de Yucatán*, Eighth edition. Mexico D.F.: Editorial Porrúa.

LE GUEN, OLIVIER

2005 Geografía de lo sagrado entre los Mayas Yucatecos de Quintana Roo: configuración del espacio y su aprendizaje entre los niños. *Ketzalcalli* 2(1): 54-68.

MACKINNON, JEFFERSON

1981 The Nature of Residential Tikal: A Spatial Analysis. *Estudios de Cultura Maya* 13: 223-249.

MARTIN, SIMON AND NIKOLAI GRUBE

2000 *Chronicles of the Maya Kings and Queens. Deciphering the Dynasties of the Ancient Maya*. London: Thames & Hudson.

MATHEWS, PETER

1991 Classic Maya Emblem Glyphs. *Classic Maya Political History: Hieroglyphic and Archaeological Evidence*, edited by Patrick Culbert, pp. 19-29. Cambridge: School of American Research.

MATHEWS, PETER AND GORDON WILLEY

1991 Prehistoric Politics of the Pasion Region: Hieroglyphic Texts and their Archaeological Settings. *Classic Maya Political History: Hieroglyphic and Archaeological Evidence*, edited by Patrick Culbert, pp. 30-71. Cambridge: School of American Research.

NETTING, ROBERT

1977 Maya Subsistence: Mythologies, Analogies, Possibilities. *Origins of Maya Civilization*, edited by Richard Adams, pp. 299-333. Albuquerque: University of New Mexico Press.

SABLOFF, JEREMY A.

1975 *Excavations at Seibal, Department of Peten, Guatemala: The Ceramics*. (Papers of the Peabody Museum of Archaeology and Ethnography, Vol. 13 (2)). Cambridge: Harvard University.

SANDERS, WILLIAM

1981 Classic Maya Settlement Patterns and Ethnographic Analogy. *Lowland Maya Settlement Patterns*, edited by Wendy Ashmore, pp. 351-369. Albuquerque: University of New Mexico Press.

SHAW, JUSTINE

2001 Maya Sacbeob: Form and Function. *Ancient Mesoamerica* 12(2): 261-272.

SMITH, ROBERT E. AND JAMES C. GIFFORD

1966 *Maya Ceramic Varieties, Types, and Wares at Uaxactun: Supplement to Ceramic Sequence at Uaxactun*. (Middle American Research Institute, Publication 28). New Orleans: Tulane University.

STIERLIN, HENRI

1964 *Living Architecture: Mayan*. New York: Grosset and Dunlap.

STONE, ANDREA J.

1995 *Images from the Underworld: Naj Tunich and the Tradition of Maya Cave Painting*. Austin: University of Texas Press.

TAUBE, KARL A.

2003 Ancient and Contemporary Maya Conceptions about Field and Forest. *The Lowland Maya Area: Three Millennia at the Human-Wildland Interface*, edited by Arturo Gómez-Pompa, Michael F. Allen, Scott L. Fedick and Juan J. Jiménez-Osornio, pp. 461-492. New York: Food Products Press.

TOURTELLOT, GAIR III

1988 *Peripheral survey and excavation settlement and community patterns*. (Memoirs of the Peabody Museum of Archaeology and Ethnology 16(2)). Cambridge: Harvard University.

VALDÉS, JUAN ANTONIO

1994 Operación TA 32: excavación de un templo funerario en el Grupo B de Tamarindito. *Proyecto Arqueológico Petexbatun, Sexta Temporada [Informe Preliminar, 6]*, edited by Arthur Demarest, Juan Antonio Valdés and Héctor Escobedo, pp. 42-52. Guatemala City: Ministerio de Cultura y Deportes, IDAEH.

1997 Tamarindito: Archaeology and Regional Politics in the Petexbatun Region. *Ancient Mesoamerica* 8(2): 321-335.

VALDÉS, JUAN ANTONIO, ANTONIA FOIAS AND OSWALDO CHINCHILLA

1994 Tamarindito: un sitio con historia en la región de Petexbatun. *VII Simposio de Investigaciones arqueológicas en Guatemala, 1993*, edited by Juan Pedro Laporte and Héctor Escobedo, pp. 368-380. Guatemala City: Ministerio de Cultura y Deportes, IDAEH, Asociación Tikal.

VALDÉS, JUAN ANTONIO, ANTONIA FOIAS, KITTY EMERY, TANIA CABRERA AND NANCY MONTERROSO

1995 Poder y gloria en Petexbatun: nuevas evidencias para el centro de Tamarindito. *VIII Simposio de Investigaciones arqueológicas en Guatemala, 1994*, edited by Juan Pedro Laporte and Héctor Escobedo, pp. 415-434. Guatemala City: Ministerio de Cultura y Deportes, IDAEH, Asociación Tikal.

VINSON, GEORGE

1960a Las ruinas de Petexbatun. *Antropología e Historia de Guatemala* 12(2): 3-9.

1960b Two Important Recent Archaeological Discoveries in Esso Concessions, Guatemala. *Standard Oil Company Exploration Newsletter* (March): 114-122.

Recent Archaeological and Epigraphic Investigations at Tamarindito, Peten, Guatemala

VORONOI, GEORGY

1908 Nouvelles applications des paramètres continus à la théorie des formes quadratiques. *Journal für die Reine und Angewandte Mathematik* 133: 97-178.

WAGNER, ELISABETH

2006a White Earth Bundles: The Symbolic Sealing and Burial of Buildings among the Ancient Maya. *Jaws of the Underworld: Life, Death and Rebirth among the Ancient Maya*, edited by Pierre R. Colas, Geneviève LeFort and Bodil Liljefors Persson, pp. 55-69. (Acta Mesoamericana 16). Markt Schwaben: Verlag Anton Saurwein.

2006b Ranked Spaces, Ranked Identities: Local Hierarchies, Community Boundaries and an Emic Notion of the Maya Cultural Sphere at Late Classic Copán. *Maya Ethnicity: The Construction of Ethnic Identity from Preclassic to Modern Times*, edited by Frauke Sachse, pp. 143-164. (Acta Mesoamericana 19). Markt Schwaben: Verlag Anton Saurwein.

ZENDER, MARC

2004a Sport, Spectacle and Political Theatre: New Views of the Classic Maya Ballgame. *PARI Journal* 4(4): 10-12.

2004b *A Study of Classic Maya Priesthood*. Ph.D. dissertation. Calgary: Department of Archaeology, University of Calgary.