

RANKING PUUC
ARCHAEOLOGICAL SITES

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HARKINS WAY SITE

1. 100' x 100' x 100'
2. 100' x 100' x 100'

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RANKING MAYA SITES

BACKGROUND: A number of individuals, starting with S.G. Morley in 1937, have attempted to rank Maya settlements on the basis of their size and importance. According to Morley:

The basic criteria for classifying Maya religious centers according to their relative importance would seem to be: 1) their respective areas; 2) the number and extent of the architectural remains; and 3) the number and excellence of their sculptured monuments.

Morley recognized certain problems inherent in these criteria, however, since some sites are outstanding because of the number, size, and decoration of their buildings, but may have few, if any, sculptured monuments. In spite of this shortcoming, Morley prepared a table showing four classes of sites, based on his three criteria. This table shows 4 Class 1 sites, 19 Class 2 sites, 39 Class 3 sites, and 54 Class 4 sites. A major anomaly in this chart is the fact that sites were assigned to Class 4 solely on the basis of their having only a few hieroglyphic inscriptions, and neither their areas or the size and number of their architectural remains were taken into account.

For purposes of the present discussion, which focusses on the Puuc region, it should be noted that Morley's table included Uxmal in Class 1, Kabah and Sayil in Class 2, Labna, Oxkintok, Kiuic, Holactun (Xcalumkin), Xculoc, Huntichmul I, and Nohpat in Class 3 and only Tabi I and Cave of Loltun in Class 4.

Some years later, William Bullard (1960) surveyed a section of the northeastern Peten and on the basis of this survey established three classes of sites which he called 1) house mounds; 2) minor ceremonial center; and 3) major ceremonial center. Even though his scheme was based on sketch plans of a fairly large number of settlements in a small region, Bullard's categories were essentially heuristic since they did not depend on quantified data.

In 1975, GFA proposed a general site ranking scheme, based in part on Bullard's earlier effort, which identified five classes of sites: 1) large urban centers; 2) small urban centers; 3) major ceremonial center; 4) minor ceremonial center; and 5) housing cluster. While this scheme was based on the presence (or absence) of certain civic/religious/elite class structures and features, it also was largely subjective and no comparative numerical values were involved.

On the heels of the GFA proposal, Marcus (1976) suggested that the rank of any given Maya site was related to its perceived status within the Maya cosmic view and used hieroglyphic textual material from monuments as the prime determinant of status. Her proposal, which was linked to central place theory, relied almost exclusively on the importance of monuments and is flawed by the fact that many otherwise large and important sites are relegated to minor status simply because they have almost no sculptured monuments or inscriptions. For example, it is well known that sculptured monuments and inscriptions are extremely rare at Rio Bec sites, regardless of their size or complexity, and Harrison (1981) reports a similar lack of inscriptions at the largest sites in southern Quintana Roo.

About the same time, Norman Hammond (1976b) proposed a site hierarchy of nine levels for northern Belize sites, based on site features rather than hieroglyphic texts. While his scheme is not numerically based, it could be converted to a quantified assessment. The main difficulties with Hammond's scheme are: 1) conditions in other parts of the Maya area are not necessarily similar to those in Belize; and 2) excavational data and inferences (not normally available) are required to implement it fully.

During the past decade several other site ranking schemes have been proposed which attempt to quantify site data as a means of rank ordering sites within the same region, or in different regions. Two of these (Turner, Turner and Adams, 1981) and (Adams, 1981) are of particular interest although neither involved the ordering of sites in the Puuc region. The method developed by the Turners is the most ambitious and is based on volumetric measurement. According to the Turners:

Measurable components are 1) courtyard groupings of formal architecture and 2) paved courtyard areas. The measurements obtained are statistically reduced to single figures for individual courtyards and single centers. This system will also accommodate numerical values for ballcourts, fortifications, carved monuments, tombs, and other features. The system is open ended, computer compatible, and can be expressed through alternative graphic model displays.

The Turners' proposal is difficult to implement at a large scale since the data available for most sites are considerably less than the level of data required to make their system operate fully and evenly for all sites.

In order to overcome this last difficulty, Adams (1981) proposed a

simpler rank ordering system which employs only two major components; courtyard and acropolis counts. Using Adams' system, the physical mass relationship of an acropolis to a courtyard group at the same site is assumed to be roughly 2:1. The assumption is made that building an acropolis required twice the effort and materials that went into a major courtyard at the same site. Using these two criteria, Adams counted courtyard and acropolis complexes as shown on available site maps at that time and ranked a total of 72 sites in the Peten, Rio Bec, and Chenes regions on the basis of the total values obtained. He also grouped them into several clusters of values. He then compared his results from 15 specific sites which had also been ranked by the Turners using their volumetric assessment system and found a relatively poor correlation between the rankings. He noted, however, that this difficulty tended to resolve itself when sites were divided into their respective regional styles.

In contrast to these volume-based proposals, Peter Harrison (1981) attempted to rank the sites in his study area in southern Quintana Roo on the basis of an arbitrary "rule-of-thumb" approach, in which he divided sites into three classes; large, medium, and small, and according to Harrison:

A "small" site is limited or narrow in areal extent and consists of known structures not exceeding three meters in height. In most cases, such sites are formed by small patio groups associated with two or three additional mounds. "Medium" sites are sites with a large number of small mounds, spread over an extensive area; or areally smaller sites where structures are fewer but range up to ten meters in height. Sites of this size fit the common concept of "tertiary" centers. "Large" sites include more structures (than found at medium sites) of which at least one is higher than ten meters. Such sites may be "large" without being major primary centers, although the latter would clearly fall into this category.

SITE RANKING - PUUC REGION

Aside from Morley's early effort to include a few well-known Puuc sites in his ranking scheme, the first comprehensive system for ranking Puuc sites was put forward by Garza and Kurjack (1980), who described and implemented a four-tiered scheme for ranking all archaeological sites in the state of Yucatan. Included in this investigation were a large number of sites in the Puuc region, in addition to a larger number in adjacent regions to the north. While this

study represented an enormous step forward in terms of our understanding of certain settlement patterns in the Yucatan portion of the Puuc region, it suffered from two inherent difficulties: 1) much of the site data was obtained from air photos rather than ground-level surveys, which leads to a considerable margin of error in evaluating site area and makeup since most of the Puuc sites are heavily overgrown with trees and brush making even major features hard to discern; and 2) the rankings of Puuc sites were based primarily on models of site size and makeup as seen at non-Puuc sites in the northern plains area of Yucatan. Both NPD and GFA believe that conditions at Puuc sites are sufficiently different from those at sites to the north to call for a revised site ranking system for the Puuc region and these systems are outlined below.

THE NPD SYSTEM: In 1987 NPD developed a site ranking system in conjunction with his Settlement Patterns Survey of a selected portion of the Puuc archaeological region. This system is based on the sum of values assigned to three basic site factors: 1) the areal extent of the site settlement areas; 2) the estimated physical volume of civic/ceremonial/elite residential architecture in the site core; and 3) the presence (or absence) of several special civic features believed to have significant sociopolitical importance. In regard to the latter factor, NPD included "acropolis" or segregated courtyard arrangements of range structures, multi-story or 10+ room range structures, large pyramid complexes, ballcourts, internally or externally oriented sacbeob, stelae, glyphic inscriptions, small pyramid complexes, and small elite residential complexes. In this kind of system, the total value assigned to any specific site reflects both its size and volume of construction, as well as its importance, since many of the sociopolitical features do not contribute substantially to either site area or volume.

NPD Table 2 (1987) shows the rank and total values for all sites in quadrant 16 Qd (10) in the Archaeological Atlas of Yucatan (Garza and Kurjack, 1980) and NPD Table 4 shows selected features used in obtaining values for Rank 1-4 sites. It can be noted that NPD included variable values (0-6) for both site areas and estimated volume of the larger structures in the site core, and separate variable values (0-6) for the presence of various civic symbols. On this basis, the largest and most important site cannot have a value greater than 18.0. Statistical clustering of his site values suggested a six-tiered regional hierarchy as shown in the NPD tables.

THE GFA SYSTEM: This system is actually only a variation of the NPD system, and is based on the sum of values for the same three basic site factors used by NPD. In the GFA system, however, the individual value assigned to any specific building type, or complex of buildings, is the sum of its combined civic and volumetric value; the latter value is a variable since it is weighed on the basis of relative volume. The values of most civic symbols are also weighed on the basis of volume (or numbers), wherever this is appropriate. The table below shows the basis for the combined values:

COMPONENT	CIVIC VALUE	VOLUMETRIC VALUE	TOTAL VALUE
Early and Late Architecture	0.5	0.5-1.0	1.0-1.5
Ballcourt	1.5	----	1.5
Inter-site and Intra-site Sacbes	1.0	0-1.5	1.0-1.5
Hieroglyphic Inscriptions	0.5	----	0.5
Stelae	1.0	0-2.0	1.0-3.0
Free-standing Portal Vault	1.0	----	1.0
Large Pyramid-temples	1.0	1.0	2.0
Medium Pyramid-temples	0.5	0.5-1.0	1.0-1.5
Large "Palace" Buildings	1.0	1.0-3.0	2.0-4.0
Small "Palace" Buildings	0.5	0.5	1.0
Large Range-type Buildings	1.0	0.5-2.0	1.5-3.0
Large Acropolis Groups	1.0	1.0-2.0	2.0-3.0
Large Courtyard Groups	1.0	1.0-2.0	2.0-3.0
Special Hilltop Groups	0.5	0.5-1.0	1.0-1.5

GFA charts 1-8 show the specific values for each component listed above for every civic symbol, building, or building complex considered in the present study.

The advantage of the GFA system over the NPD system, if indeed there is any advantage, lies in the fact that the GFA system is somewhat more sensitive in identifying the largest and most important sites (Rank 1-4) than the NPD system since: 1) it considers a larger number of site components; 2) the individual components are weighted for both civic and volumetric values; and 3) the tables show clearly that the bulk of the major site components are concentrated in Rank 1-4 sites. On the other hand, the NPD system is probably more sensitive to certain medium sized structures and complexes which are not accounted for individually in the GFA system, and may also be able to make better distinctions between Rank 4-6 sites.

Neither system is as detailed as the one proposed by Turner and Turner (1981) but this is not really a shortcoming since there is only one site in the entire Puuc region (Sayil) which has been mapped in sufficient detail to be able to successfully employ the Turners' system. Both the NPD and GFA systems are more comprehensive in terms of the amount and variety of data considered than the restrictive acropolis-courtyard count proposed by Adams (1981). Finally, both the NPD and GFA systems are rather fully responsive to the actual level of data presently available for sites in the Puuc region, and while both involve borderline cases in terms of appropriate ranking, none of the individual ranks are likely to be dead wrong.

EXPLANATION OF INDIVIDUAL FACTORS LEADING TO SITE RANKINGS

Total value is the sum of all individual values.

Settlement area is the estimated total area which properly belongs to a single site. As noted by Dunning (1987) it became apparent from his settlement survey that many of the sites indicated in the Archaeological Atlas of Yucatan as separate sites were in fact outlying groups belonging to a larger, nearby site. In these instances, the area of the outlying groups were included as part of the total settlement area of the large site. For example, see Yaxhom where Cooperative A and B, Nohoch Cep, Pozo 2, Kutzuytzuy, Emiliano Zapata Pozo 1, Nucuchtunich, Cooperative C/Chakpichi, Cooperative D, Yaxhom B, Contreras, and Cooperative E were all included in the settlement area of Yaxhom, producing a total value of 6+.

NPD (1987) suggested that settlement area could also be considered as a surrogate for site population and I concur in this assumption, although it is hard to specify a specific ratio between area and population. I also consider site settlement area to be a kind of surrogate for the volume of those small groups, of the kind that Adams (1981) called "private courtyard groups", which are found in both the site core and peripheral areas. These groups are too numerous (and too much destroyed) to be recorded individually by either NPD or GFA. (See new map of Sayil for actual number and distribution of these small groups in a Rank 2 site).

Early and late architecture indicates the presence of buildings in both Early and Late Puuc styles. It is assumed that these sites were occupied longer than sites with only Late architecture and this "longevity" has been assigned a value of 1.0.

Ballcourt: These special structures are considered to be very important sociopolitical symbols and have been assigned a value of 1.5 regardless of type or size.

Large pyramid-temples are over 15 m. high. Value = 1.0 as civic symbol plus 1.0 for volume.

Medium pyramid-temples are 5 - 15 meters high. Value = 1.0-1.5 for each medium pyramid.

Large "palace" buildings have 10 or more rooms arranged around all four sides of a solid central core. For lack of a better expression, I have used the term

"palace" to describe buildings with this configuration in order to distinguish them from large range-type buildings as described below. Most buildings of this kind have two levels of rooms (occasionally three) and the upper level(s) rest on top of the solid core(s) below. Volumetric values are 1.0 for buildings with 10 - 20 rooms, 2.0 for buildings with with 20 - 40 rooms, and 3.0 for buildings with 41 or more rooms.

Small "palace" buildings have less than 10 rooms arranged around a solid central core. Here again, the term "palace" is used to distinguish buildings of this configuration from similar-sized, range-type buildings, the latter lacking solid cores. It is noteworthy that with one exception, buildings of this kind are not found at Rank 1 and 2 sites. Most buildings of this kind have only one level but occasional examples have rooms on two levels. Value = 1.0 for each building of this type.

Large range-type buildings have 10 or more rooms arranged in one or two (occasionally more) parallel rows. Values are 1.0 for buildings with 10 - 18 rooms and 1.5 for buildings with 19 or more rooms.

Inter-site or intra-site sacbes: Sacbes are very important sociopolitical symbols and have been assigned a value of 1.0 where site has only one or two intra-site sacbes and 1.5 where there are multiple intra-site sacbes (see Oxkintok) or a large inter-site sacbe such as the one connecting Uxmal with Nohpat and Kabah.

Hieroglyphic inscriptions are considered to be important sociopolitical symbols, particularly when they are found on buildings, and have been given a value of 1.0 regardless of the number or location of the inscriptions.

Stelae: Stelae, which are now known to carry portraits and important historic data in regard to Maya rulers, have long been recognized as important sociopolitical symbols. Morley (1937-38) for example, used the number of these monuments at any given site as a fundamental indicator of the size and importance of that site. I have tried to accomodate this notion by recognizing that a site with 20 stelae should get a higher value for this particular factor than a site with only one stela. Values used by GFA are 1.0 for sites with 1 - 5 stelae, 2.0 for sites with 6 - 10 stelae, and 3.0 for sites with more than 10 stelae.

Large acropolis groups generally consist of a large platform, with one or more levels, which supports one or more large pyramidal structures together with a number of other buildings and substructures. Such groups vary considerably in

size and makeup and have been assigned different values, depending on their estimated total volume. Volumetric values range from 1.5 for the smallest groups of this kind up to 3.0 for the largest groups.

Large courtyard groups consist of two or more range-type buildings, opening onto a central court. At least one of these buildings must have 10 or more rooms. Type A groups have buildings on two or three sides of a central court while Type B groups are true quadrangles, with buildings on all four sides of the court. Volumetric values range from 1.0 for the smallest groups of this kind to 2.0 for the largest groups.

Special hilltop groups consist of a combination of single or double rows of rooms along the outer edges of one or more sides of hilltop terraces, with one or more buildings on the upper terrace behind the lower level rooms. These groups vary in size and makeup; some are completely outwardly oriented such as the Main Group at Dzula, while others are organized around a central court on the upper terrace where some rooms are oriented inward and others (those at edges or terraces in particular) are oriented outward. Total values are 1.0 for small groups of this kind and 1.5 for the larger groups.

Portal vault: In this case we are referring only to free-standing portal vaults such as those found at Kabah and Xculoc. While these forms are associated with sacbes (causeways) they have been given a separate value of 1.0 since they represent important additions to the symbolic value of the sacbes themselves.

CHART 1.
SITES WITH LARGE PYRAMID TEMPLES

SITE	BUILDING	HEIGHT	VALUE	REFERENCES
Acanmul	Structure 2	?	2.0	HEDP
	Structure 4	?	2.0	HEDP
	Structure 5	?	2.0	HEDP
	Group 7, N. pyramid	?	2.0	HEDP
	Structure 8	?	2.0	HEDP
Kabah	Structure 1B2	22 m	2.0	HEDP
Nohpat	Structure 1, Group I	?	2.0	GFA, NPD
Oxkintok	Structure 1B2	?	2.0	HEDP
	Structure 1B3	15 m	2.0	HEDP
	Structure 2B13	?	2.0	HEDP
	Structure 3B2	?	2.0	HEDP
	Structure 3B6	?	2.0	HEDP
	Structure 3C1	?	2.0	HEDP
	Structure 3C2	?	2.0	HEDP
	Structure 3C3	?	2.0	HEDP
Uxmal	Pyr. of the Magician	25 m	2.0	ARL, GFA
	Pyr. of the Old Woman	?	2.0	HEDP, GFA
	Great Pyramid	18 m	2.0	SGM, GFA
Xcoch	Structure 1	?	2.0	JLS, GFA
Xcorralche I	Structure 1, Main Group	?	2.0	GFA, NPD
Yakalxiu	Structure 1, Central Group	25 m	2.0	NPD
Yaxhom	Structure 1, Main Group	15 m	2.0	NPD

- NOTES: 1) All "large" pyramids are believed to be at least 15 m high
- 2) In some cases, pyramid-temples recorded above are parts of acropolis groups, such as those at Oxkintok and Xcoch, while in other cases they are free-standing structures as at Xcorralche I and Yakalxiu.
- 3) See fig. 2 for example

CHART 2.
SITES WITH MEDIUM-SIZED PYRAMID-TEMPLES

SITE	BUILDING	HEIGHT	VALUE	REFERENCES
Acanmul	Structure 3	?	1.0	HEDP
	Structure 6	?	1.0	HEDP
	E. pyramid, Group 7	?	1.0	HEDP
	W. pyramid, Group 7	?	1.0	HEDP
	S. pyramid, Group 7	?	1.0	HEDP
Bakna	Pyramid - N. side of road	8 m	1.0	HEDP
Cab	Structure 1	12 m	1.5	NPD
	Structure 6	8 m	1.0	NPD
Chuncanob	Pyramid B	6 m	1.0	JRC
	Pyramid C	9 m	1.0	JRC
	Pyramid D	8 m	1.0	JRC
	Pyramid E	11 m	1.5	JRC
Dsecilna	Main Temple	?	1.0	TM
Huntichmul I	Structure 8, Group B	8 m	1.0	NPD
	Structure 10, Group B	5 m	1.0	NPD
	Structure 13, Group B	8 m	1.0	NPD
Ichmac	East Bldg, East Group	12-15 m	1.5	HEDP
Itzimte	Structure 19	9 m	1.0	EVE
Kabah	Structure 3B1	10-12 m	1.5	HEDP
Kalakmul Pequena	Structure 1	?	1.0	NPD
	Structure 2	?	1.0	NPD
	Structure 5, Km 105 Group	?	1.0	NPD
Kanki	Pyramid, South Group	?	1.0	HEDP
	Pyramid, West Group	?	1.0	HEDP
Labna	Structure 4	11.5 m	1.5	HEDP, GFA
Lagarto Xlabpak	Structure 7	7 m	1.0	NPD
Maioch	Structure 9	?	1.0	HEDP
Mul-Chic	Structure C	8 m	1.0	RPC, GFA
Muluchtzekel	Structure 1, West Group	10 m	1.0	HEDP, GFA
Nakaskat, Group I	Structure 7	8-10 m	1.0	NPD
Nakaskat, Group II	Structure 3	12 m+	1.5	NPD
Nohoch Cep	Structure 1	8 m	1.0	NPD
Oxkintok	Structure 1C1	?	1.0	HEDP
	Structure 2A1	?	1.0	HEDP
	Structure 2B3	?	1.0	HEDP

SITE	BUILDING	HEIGHT	VALUE	REFERENCES
Pozo 9/Xnuc	Structure 1	8 m	1.0	NPD
Pozo 10	Structure 1	8 m	1.0	NPD
San Felipe	Structure 1, Main Group	5 m	1.0	HEDP
Santa Ana II	Structure 1	12 m	1.5	NPD
Santa Rosalita	Structure 1	10 m	1.0	NPD
Sayil	Structure 3B2	6 m	1.0	HEDP, GFA
Unnamed Site 225	Pyramid	6 m	1.0	NPD
Xcavil de Yaxche	Structure 2, SW Group	?	1.0	GFA, NPD
Xcorralche I	Structure 2, Main Group	?	1.0	GFA
	Structure 3, Main Group	?	1.0	GFA
	Structure 4, Main Group	?	1.5	GFA
Xcocha	Pyramid, Main Group	8 m	1.0	HEDP
Xcucsuc	Pyramid	9-10 m	1.0	HEDP
Xemtzil	Pyramid	10-12 m	1.5	HEDP
Xketpa'ap	Structure 2	?	1.0	NPD
Xkukican	Structure 36, Complex B	?	1.0	Site map
Xmulikom	Structure 1	8 m	1.0	NPD, GFA
Xucchah	Pyramid	?	1.0	NPD
Xulmil	West Bldg, West Group	15 m	1.5	HEDP
Yaxche Xlabpak	E. Valley Group, Structure 20	?	1.0	NPD
Xcalupococh Cerro	Pyramid	8 m	1.0	NPD

NOTES: 1) Medium sized pyramid-temples fall between 5 - 15 m in height.

2) Values - 1.0 = 5-10 m in height

1.5 = 11-15 m in height

3) See fig. 3 for example

CHART 3.

CHART SHOWING SITES WITH LARGE "PALACE" BUILDINGS

SITE	BUILDING	ROOMS	VALUE	REFERENCES
Banquetatunich	Structure 1	26	3.0	GFA
Chac I	Structure 1	?	2.5	NPD
Chac II	Structure 1	?	2.5	GFA, NPD
Chacmultun	Structure 1	20	3.0	EHT, GFA
	Structure 20	21	3.0	GFA
Chuncanob	Structure 7 (Palace)	18	2.0	JRC, GFA
Chunhuhub	Main Palace	13	2.0	TM, GFA
Cooperativa A	Structure 1	29+?	3.0	GFA, NPD
Dsecilna	N. Building, NW Group	?	2.5	TM
	W. Building, NW Group	?	3.0	TM
Dzula	Structure 1, upper level	17+25	2.0	GFA
Halal	Acropolis (Structure 1)	?	4.0	HEDP, GFA
Ichmac	Structure 1 (Palace)	9+	2.0	HEDP, GFA
	West Bldg, E. Court, W. Group	?	2.0	HEDP
Itzimte	Structure 63	10+	2.0	EVE, GFA
Kabah	Structure 2A1	21	3.0	HEDP, GFA
	Structure 2C2	32	3.0	HEDP, GFA
	Structure 2C3	36	3.0	HEDP, GFA
	Structure 2C6	21	3.0	HEDP, GFA
	Structure 1A1	22	3.0	HEDP, GFA
Kom	Structure 1, Group A	13?	2.0	GFA
Kiuic	Structure 2, Group 3	12?	2.0	GFA
Labna	Structure 1 (Palace)	63	4.0	HEDP, GFA
Miramar	Structure 1	11+	2.0	GFA
Muluchtzeke1	W. Building, S. Group	?	2.5	HEDP
	Structure 1, Central Group	?	3.0	NPD
Nakaskat	Structure 1, Group 1	?	2.5	GFA, NPD
Nohpat	Structure 1, Group I	10+	2.0	GFA, NPD
	Structure 3, Group II	10+	2.0	GFA, NPD
Oxkintok	Structure 2C1	12+	2.0	HEDP
Santa Ana I	Structure 1	25?	3.0	NPD
Sayil	Structure 2B1	94	4.0	HEDP, GFA
	Structure 4B2	16	2.0	HEDP, GFA
	Structure 2B5	12?	2.0	HEDP, GFA

SITE	BUILDING	ROOMS	VALUE	REFERENCES
Uxmal	Chanchimez, Structure 1	15+	2.0	HEDP, GFA
Xcanalcruz	Structure 1	14	2.0	TM, GFA
Xcavil de Yaxche	Structure 1, Central Group	15	2.0	TM, GFA
	Structure 1, SW Group	12?	2.0	GFA, NPD
Xcoch	Structure ?	?	2.5	GFA
Xcorralche I	South Building, Group B	20+	3.0	GFA
	Structure 1, NW Group	14	2.0	GFA, NPD
Xkakochna	Structure 1, Group A	13	2.0	GFA
Xkipche	Structure 1, Group A	29	3.0	TM, GFA, HJP
	Structure 2, Group A	18?	2.0	GFA, HJP
Xkokoh	Structure 5	14	2.0	GFA, NPD
Xpostanil	Structure 1	14	2.0	TM, GFA
Xulmil	East Building, East Court	?	3.0	HEDP
Yakalxiu	Structure 2, Central Group	?	2.0	NPD
Yaxche Xlabpak	Structure 1, E. Cerro Group	15	2.0	GFA
Xketpa'ap	Structure 1	10+	2.0	GFA
Yaxhom	Structure 9, Main Group	?	3.0	NPD

NOTES: 1) ? = number uncertain due to advanced state of collapse.

2) + = probably more than number shown

3) Values - 1.0 = 10 - 20 rooms

2.0 = 21 - 40 rooms

3.0 = 41 or more rooms

4) See fig. 4 for example

TABLE 4.
CHART SHOWING SITES WITH SMALL "PALACE" BUILDINGS

SITE	BUILDING	ROOMS	VALUE	REFERENCES
Almulchil	Structure 3	7+	1.0	HEDP
Bacabchen	Structure 1	8-10?	1.0	GFA
Cab	Structure 7	?	1.0	NPD
Chacbolay	Structure 1	8	1.0	TM, GFA
Chuncanob	Structure 1	9	1.0	JRC, GFA
Kiuic	Structure 2, Group 3	5?	1.0	GFA,
Kom	Structure 1, Group B	6	1.0	GFA
Muluchtzekel	Structure 1, South Group	9	1.0	GFA
Tzum	Structure 21, Group A	?	1.0	GFA
Vena	Structure 1 (Palace)	8?	1.0	HJP, GFA
Xcobalchac	Structure 1	9	1.0	GFA, NPD
Xkalupococh	Structure 2, Group A	?	1.0	NPD
	Structure 1, Group III	10	1.0	HJP, GFA
Xketpa'ap	Structure 1	?	1.0	GFA
Xkochkax	Structure 2, 5th Tier	8?	1.0	GFA

NOTES: Small "palace" buildings have up to 10 rooms arranged around a solid central core. Most have rooms on only one level but a few have one or more rooms on upper level above core below.

See fig. 5 for example

CHART 5.

CHART SHOWING SITES WITH LARGE RANGE-TYPE BUILDINGS

SITE	BUILDING	ROOMS	VALUE	REFERENCES
Chacmultun	Structure 3, Chacmultun Group	19	2.0	GFA
	Structure 4, Xetpol Group	15	1.5	GFA
	Structure 5, Cabalpak Group	12	1.5	GFA
Chunhuhub	Main Palace (Structure E3-1	13	1.5	GFA
Dsecilna	Structure 1, South Group	17	2.0	GFA
Huntichmul I	Structure 2, Group A	10	1.5	GFA, NPD
Kabah	Structure 1A2	18	2.0	HEDP, GFA
	Structure 2C1	12	1.5	HEDP, GFA
Kiuic	Structure 6, Group 1	10	1.5	HEDP, GFA
	Structure 1, Group 5	10	1.5	GFA
Labna	Structure 11	18	2.0	HEDP, GFA
	Rooms 1-31, lower level, Pal.	31	3.0	HEDP, GFA
	Rooms 47-57, upper level, Pal.	11	1.5	HEDP, GFA
Nocacab I	Structure 1/2	10	1.5	GFA
	Structure 5	10	1.5	GFA
Nohpat	Structures 4/5	11+	1.5	NPD
Oxkintok	Structure 3B1	18	2.0	HEDP, GFA
	Structures 3C5/6	14	1.5	HEDP, GFA
La Reforma	Structure 2, Group A	11+	1.5	GFA
	Structure 1, Group B	14?	1.5	GFA
	Structure 2, group B	11+	1.5	GFA
Sayil	Structure 2B8	11	1.5	HEDP, GFA
	Structure 2B4	10	1.5	HEDP, GFA
	Structure 4A1, Group E	11	1.5	HEDP, GFA
Sodzil	Structure 1, E. Cerro Group	12?	1.5	NPD
Uxmal	North Building, Nunnery Quad.	26	3.0	JLS, GFA
	West Building, Nunnery Quad.	14	1.5	JLS, GFA
	East Building, Nunnery Quad.	14	1.5	JLS, GFA
	South Building, Nunnery Quad.	20	2.0	JLS, GFA
	East Building, Advino Quad.	12	1.5	ARL, GFA
	East Bldg, N. Quad., S. Acrop.	12	1.5	SGM, GFA
	West Bldg, N. Quad., S. Acrop.	14	1.5	SGM, GFA
	Dove-Cotes Building, S. Acrop.	23	2.0	SGM, GFA

SITE	BUILDING	ROOMS	VALUE	REFERENCES
Uxmal	East Bldg, S. Quad., S. Acrop.	10	1.5	SGM
	West Bldg, S. Quad., S. Acrop.	12	1.5	SGM
	South Bldg, S. Quad., S. Acrop	19+	2.0	SGM
	Governor's Palace	20	2.0	JKK, GFA
	East Building, West Quadrangle	12	1.5	ES, HEDP
Xcanahleeb	Structure 1	13	1.5	GFA, NPD
Xcorralche I	East Building, group A	12	1.5	GFA
Xcuncat	Structure 1	10	1.5	GFA
Xkokoh	Structure 1	16	2.0	GFA, NPD
Xpostanil	Structure 3	10	1.5	GFA
Xtampak I	Structure 3, Group B	10	1.5	GFA
Yakalxiu	Structure 6, N. Central Group	10	1.5	NPD
	Structure 22, Central group	?	1.5	NPD

NOTES: Values - 0.5 = 10 - 15 rooms

1.0 = 16 -24 rooms

2.0 = 24 or more rooms

1.0 = Civic value

See fig. 6 for example

TABLE 6
CHART SHOWING SITES WITH LARGE ACROPOLIS GROUPS

SITE	GROUP	VALUE	REFERENCES
Huntichmul I	Group B (Structures 12, 13)	2.0	NPD
Kabah	Group of Structure 1B2	2.5	HEDP, GFA
Nohpat	Group I	3.0	GFA, NPD
Oxkintok	North Group	2.5	HEDP
	South Group	2.5	HEDP
	Group of Structure 2B3	2.5	HEDP
	Group of Structures 2B11-13	2.5	HEDP
	Group of Structures 3C1-3	2.5	HEDP
Uxmal	North Acropolis	2.5	HEDP, GFA
	South Acropolis	3.0	SGM, GFA
Xcoch	Group I	2.5	GFA
Yakalxiu	Central group, Structures 1-4	2.5	NPD

- NOTES: 1) Large acropolis groups generally include at least one large pyramidal structure, together with several other structures, all of which are situated on a large platform. Platform may have more than one level.
- 2) Values reflect combined total of civic and volumetric values.
- 3) See fig. 8 for example

CHART 7.
SITES WITH LARGE COURTYARD GROUPS

SITE	BUILDING	VALUE	REFERENCES
Acanmul	Group of Court 7	2.0	HEDP
	Group of Structures 1-2	2.5	HEDP
Bakna	Court NE of Pyramid-temple	2.0	HEDP
Banquetatunich	Group of Structure 1	2.0	GFA
Chunhuhub	Main Group (Str. E1-12)	2.0	GFA, CEMCA
Dsecilna	South Group	2.0	GFA
	Northwest Group	2.5	TM
Itzimte	Group of Structures 16-19	2.5	EVE
	Group of Structures 35-37	2.0	EVE
	Group of Structures 11-14	2.0	EVE
Kabah	Court of Structure 2A1	2.5	HEDP, GFA
	Group of Structures 2B1-3	2.5	HEDP, GFA
	Group of Structure 1A2	2.0	HEDP, GFA
	Northwest Group	2.0	HEDP, GFA
Nohcacab	Main Group (Str's 1, 2, 5)	3.0	GFA
Nohpat	Group II	3.0	NPD
Oxkintok	Group of Structures 2B1-3	2.5	HEDP
	Group of Structures 2B4-8	2.5	HEDP
	Group of Structure 2C1	2.0	HEDP
	Group of Structures 3C5-8	2.0	HEDP, GFA
Uxmal	Nunnery Quadrangle	3.0	GFA
	Advino Quadrangle	2.0	GFA
	Cemetery Group	2.5	HEDP, GFA
	Governors Palace platform	3.0	JKK, GFA
	Chanchimez Group	2.0	HEDP, GFA
	Temple of the Phalli Group	2.0	GFA
	N. Quad, S. Acropolis	2.0	SGM, GFA
	S. Quad, S. Acropolis	2.5	SGM, GFA
	SW Quadrangle	2.0	ES, Uxmal map
Xcorralche I	Group of the Stelae	2.0	GFA
	Group A, Main Center	2.0	GFA
	Group B, Main Center	2.5	GFA
Xkipche	Group A	2.5	GFA, HJP

TABLE 8

SITE	BUILDING	VALUE	REFERENCES
Yakalxiu	Structures 4-7, Central Group	2.5	NPD
Yakalxiu	Structures 6-12, Central Group	2.0	NPD

NOTES: Large courtyard groups include at least one building with 10 or more rooms. These groups generally stand on a very large platform or terrace.

Large courtyard groups are of two types:

Type A - Has buildings on 2 or 3 sides of a central court

Type B - Has building on all 4 sides of a central court (true quadrangle).

See fig. 9 for example

Hualtilo	Structure 1	1.0	CPA, NPD
	Group 2, Structure 1	1.0	NPD
Izabela	Structure 4	1.4	SL
Kiari	Group 1, Structure 4	1.0	NPD
	Group 1, Structure 5	1.5	NPD
Kan	Group A	1.5	NPD
	Group B	1.0	NPD
Lama	Structure 3 (Palace)	1.5	NPD, CPA
Palmasol	Main Group (Structures 1, 2, 3)	1.5	NPD
La Reforma	Group A	1.5	CPA
	Group B	1.5	NPD
Sancho	Group 3	1.0	NPD
Segu	North Group	1.0	Segu-NPD
Segu	East-South group	1.0	NPD
	Structure 1, Valley Group	1.5	CPA, NPD
Teotihuacan	Initial Series Group	1.0	NPD
	North Hill Group	1.0	NPD
Acavil de Yaxche	SW Group	1.5	NPD
Acotla	Southwest Group	1.0	NPD
Xialachelzela	Main Group	1.5	NPD, CPA
Xuanxian	4th and 5th Floors	1.5	CPA
Xuanxian	Complex A	1.0	CPA, NPD
Xuanxian	Main Group	1.5	CPA

NOTES: 1) Special hilltop groups have rooms along outer edge of one or more sides of a hilltop terrace, with other structures on terrace.

2) See Fig. 10 for example

TABLE 8.
CHART SHOWING SITES WITH SPECIAL HILLTOP GROUPS

SITE	GROUP	VALUE	REFERENCES
Bacabchen	North Group	1.0	GFA
Balche	Group A	1.0	GFA
	Group C	1.0	GFA
Chacmultun	Chacmultun Group	1.5	GFA
	Xetpol Group	1.5	GFA
	Cabalpak Group	1.5	GFA
Chunhuhub	Group of Structures 3B1-8 +3C3	1.5	GFA, CEMCA
Chunhuitz	Group of Structure 5	1.0	GFA, NPD
Dzula	Structure 1 (Upper and lower)	1.5	GFA
Huntichmul I	Group C, Structure 1	1.0	GFA, NPD
	Group D, Structure 1	1.0	NPD
Itzimte	Structure 63	1.5	EVE
Kiuic	Group 1, Structure 4	1.0	HEDP
	Group 1, Structure 6	1.5	HEDP
Kom	Group A	1.5	GFA
	Group B	1.0	GFA
Labna	Structure 1 (Palace)	1.5	HEDP, GFA
Nohcacab	Main Group (Structures 1,2,5)	1.5	GFA
La Reforma	Group A	1.0	GFA
	Group B	1.5	GFA
Sannacte	Group 5	1.0	NPD
Sayil	North Group	1.0	Sayil map
Sodzil	East Cerro group	1.0	NPD
	Structure 1, Valley Group	1.5	GFA, NPD
Xcalumkin	Initial Series Group	1.0	HEDP
	North Hill Group	1.0	HEDP
Xcavil de Yaxche	SW Group	1.0	GFA
Xcocha	Southwest Group	1.0	HEDP
Xkalachetzimin	Main Group	1.5	HEDP, GFA
Xkochkax	4th and 5th Tiers	1.5	GFA
Xkukican	Complex A	1.0	Site map
Xpostanil	Main Group	1.5	GFA

NOTES: 1) Special hilltop groups have rooms along outer edge of one or more sides of a hilltop terrace, with other structures on terrace above.

2) See fig. 10 for example

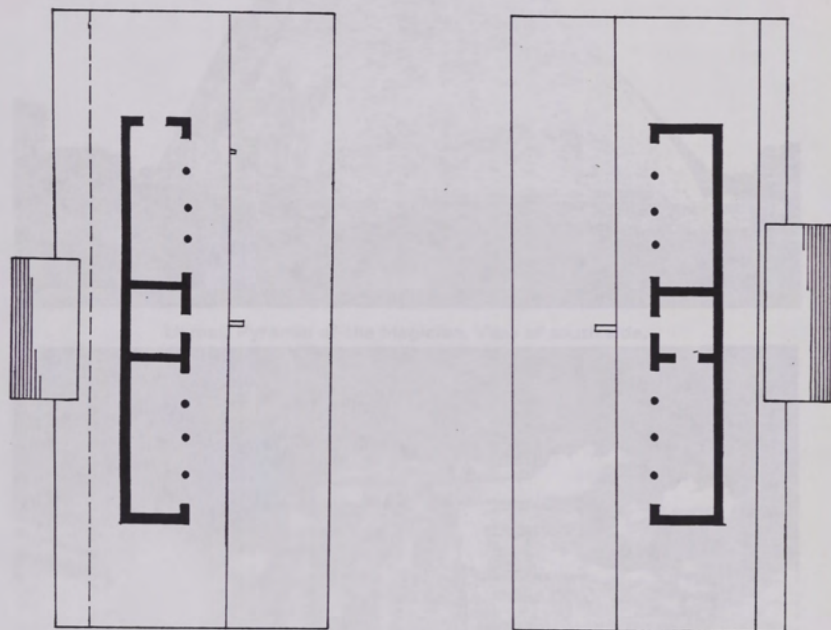


fig. 1. BALLCOURT (Plan of Ballcourt at Uxmal)



Uxmal, Pyramid of the Magician. View of south side.



Uxmal, Pyramid of the Magician. View of east side.

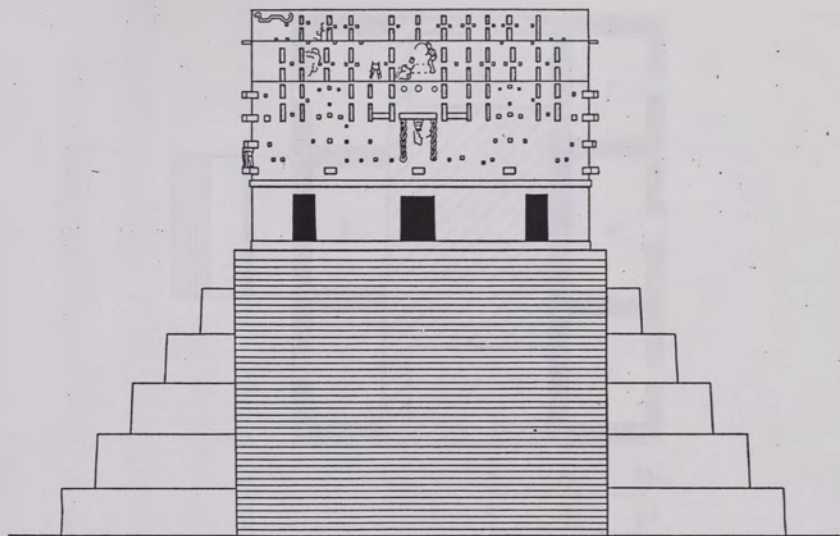


fig. 3. MEDIUM PYRAMID-TEMPLE (Labna, Structure 4)

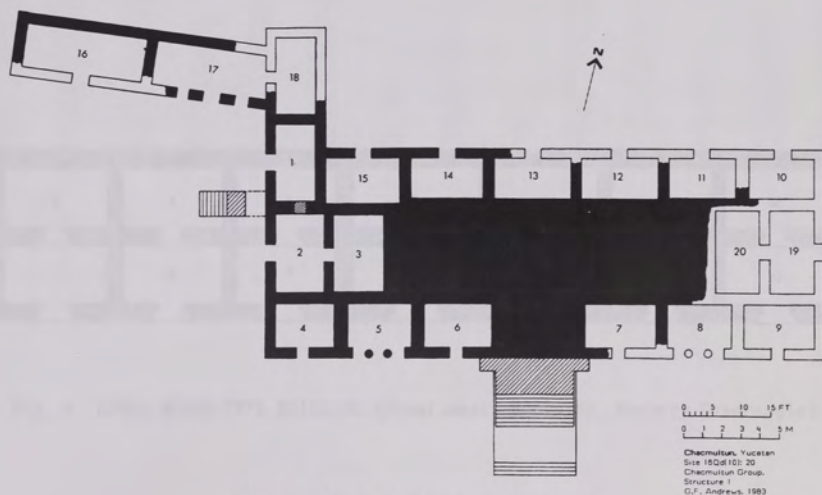


fig. 4. LARGE PALACE-TYPE BUILDING
(Chacmultun, Structure 1, Chacmultun Group)

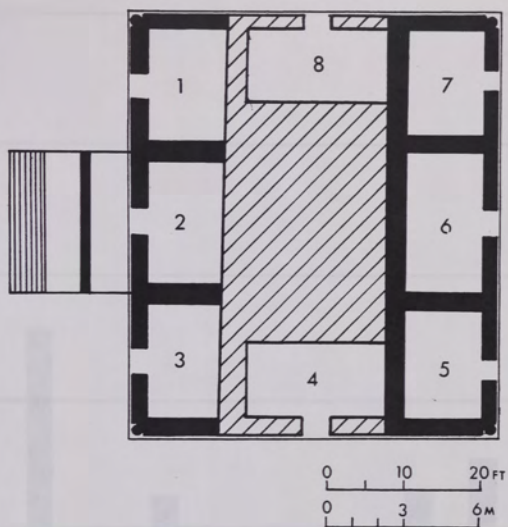


fig. 5. SMALL PALACE-TYPE BUILDING (Chacbolay, Structure 1)

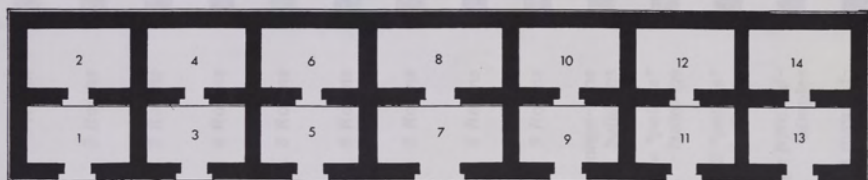


fig. 6. LARGE RANGE-TYPE BUILDING (Uxmal, West Building, Nunnery Quadrangle)

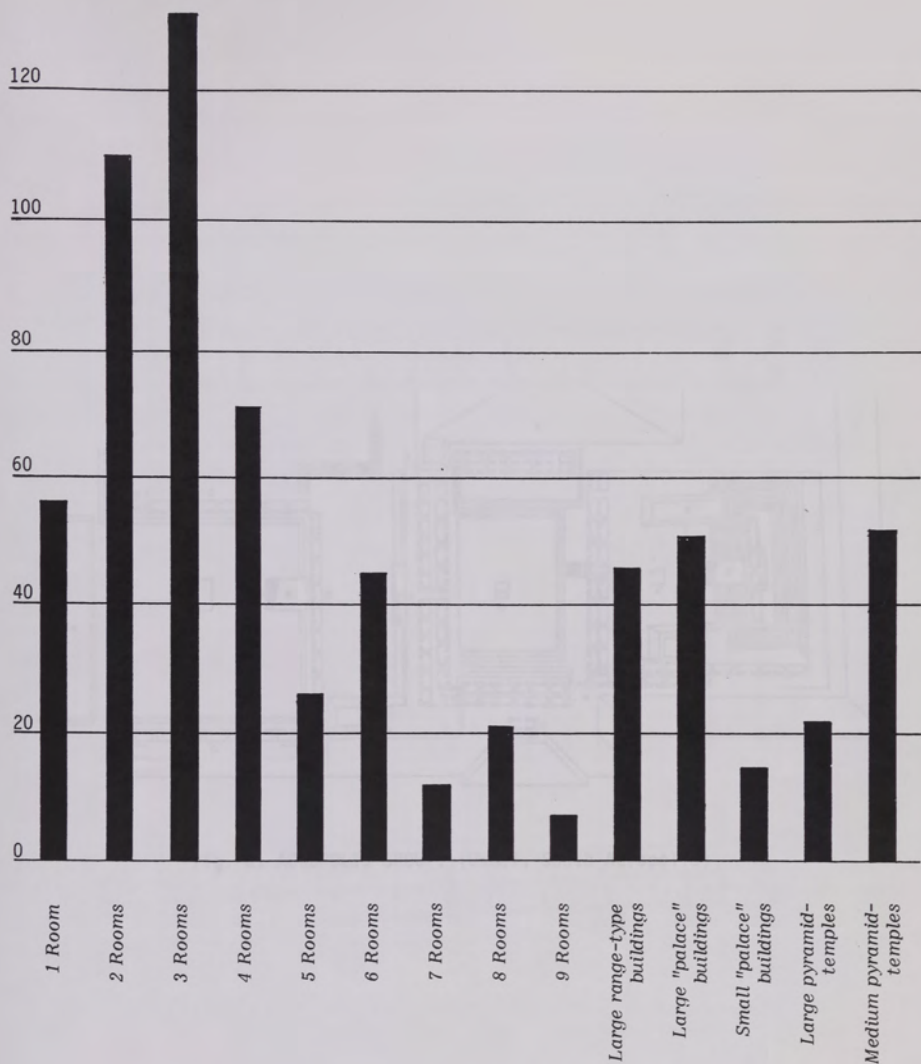


CHART SHOWING DISTRIBUTION OF PUUC BUILDINGS BASED ON SIZE

fig. 7. SMALL RANGE-TYPE BUILDINGS
(1 to 9 rooms)

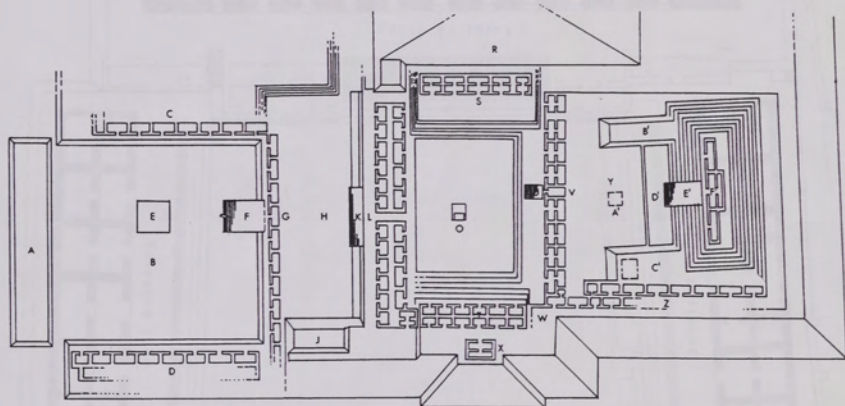


fig. 8. ACROPOLIS GROUP. (Uxmal, South Acropolis)

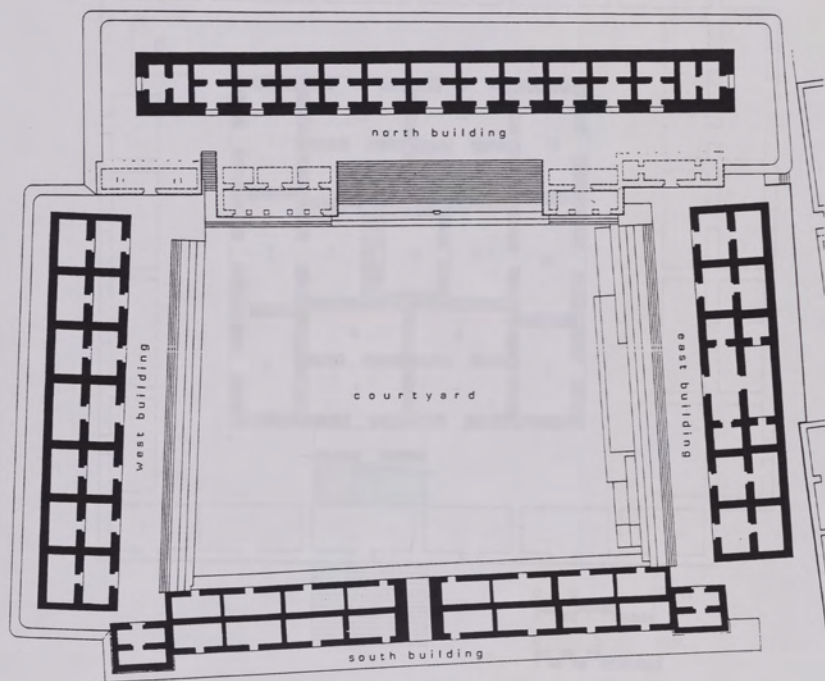


fig. 9. LARGE COURTYARD GROUP (Uxmal, Nunnery Quadrangle)

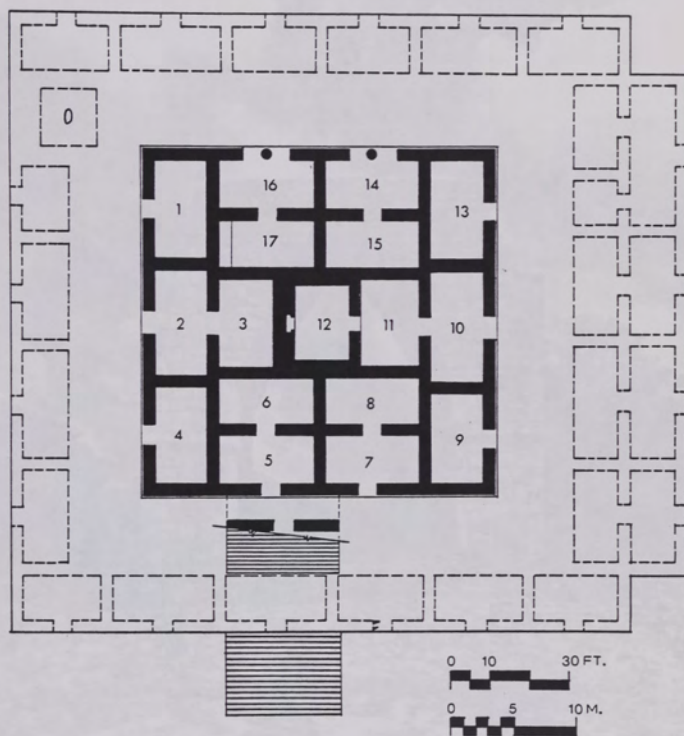


fig. 10. SPECIAL HILLTOP GROUP (Dzula, Structure 1)

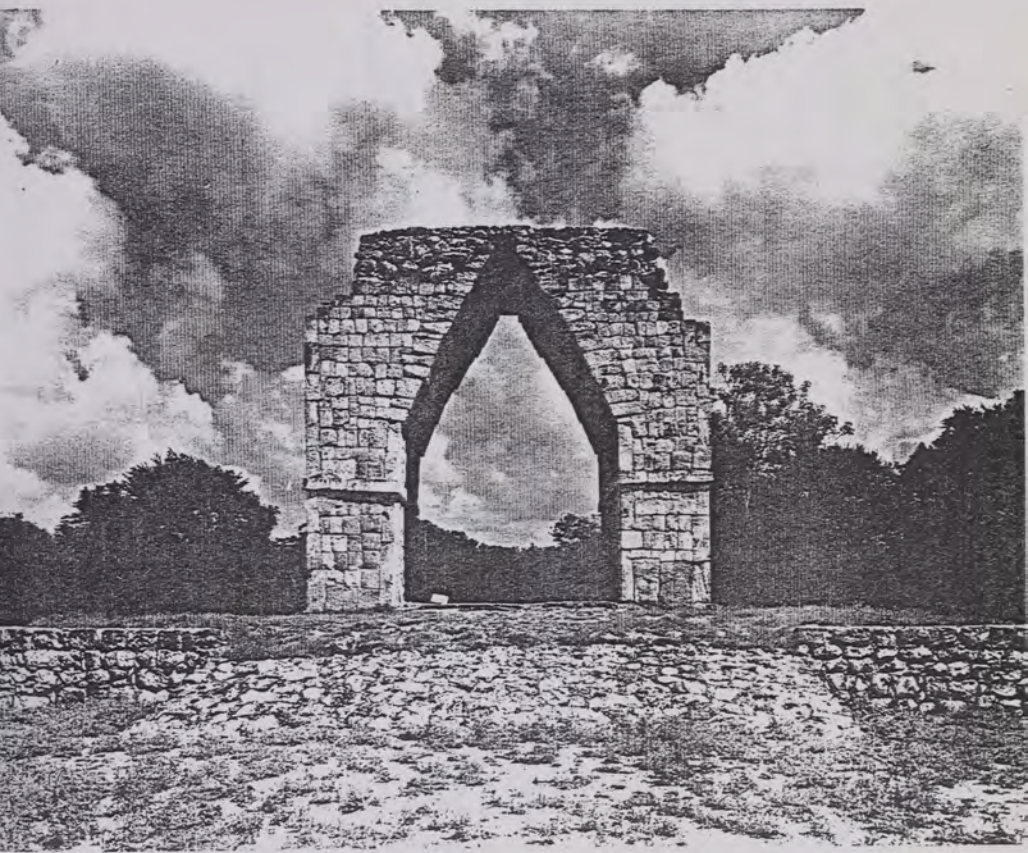
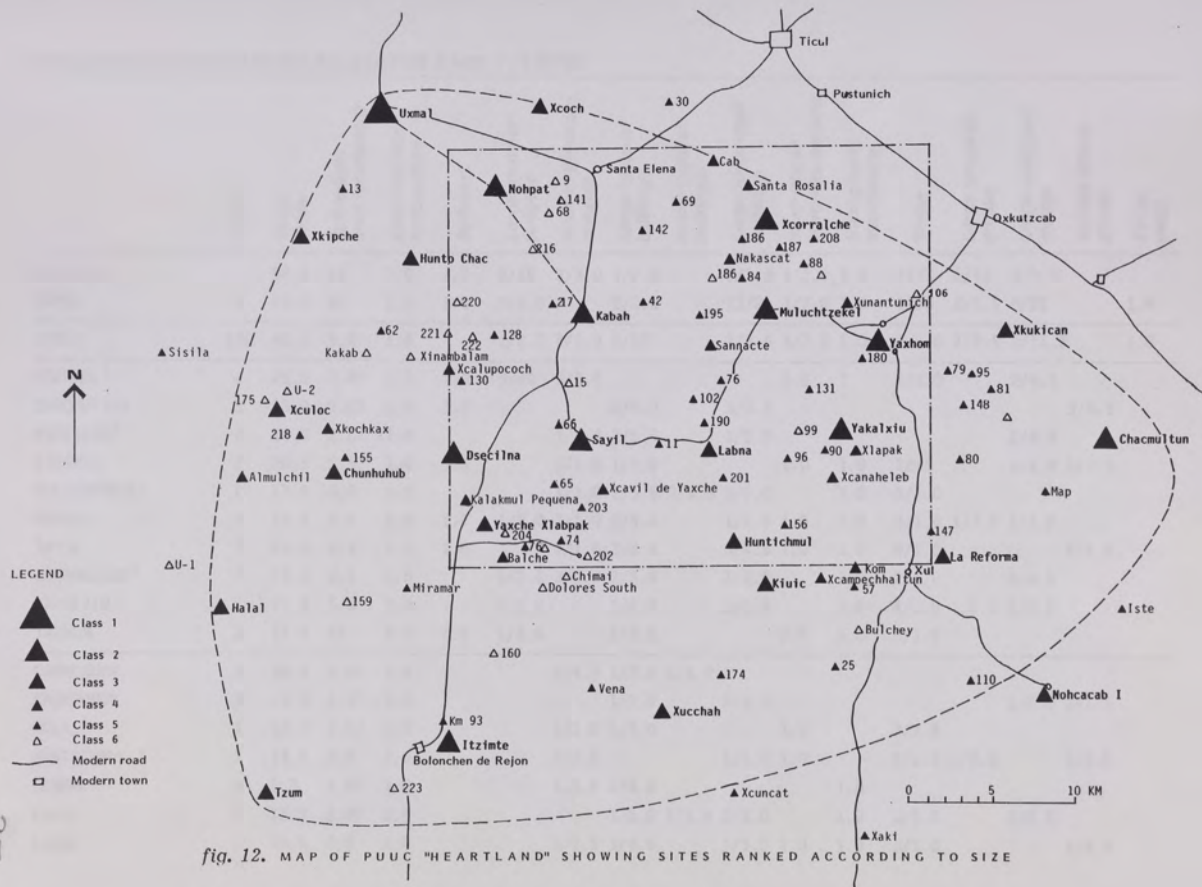


fig. 11. PORTAL VAULT (Kabah, Structure 1B1)



TABULATION OF SITE RANKING VALUES FOR RANK 1 - 4 SITES

	Rank	Total value	Settlement area (estimated)	Early and late architecture	Ballcourt	Large pyramid-temples	Medium pyramid-temples	Large "palace" buildings	Small "palace" buildings	Large range-type buildings	Inter-site or intra-site sacbe(s)	Hieroglyphic inscriptions	Stelae	Large acropolis groups	Large courtyard groups	Special hilltop groups	Portal vault
OXKINTOK	1	58.0	4+	1.0	1.0	8/16	3/3.0	1/2.0		2/3.5	1/2.0	1.0	26/3	5/12	4/9.0		
UXMAL	1	70.0	6+	1.0	1.0	3/6.0		1/2.0		13/21	1/2.0	1.0	17/3	2/5.5	9/21		1.0
KABAH	1/2	46.0	5.0	1.0		1/2.0	1/1.0	5/15		2/3.5	1/2.0	1.0	2/1.0	1/2.5	5/11.5		1.0
ACANMUL ¹	2	26.0	3.0?	1.0	1.0	5/10	5/5.0				1.0	?	1/1.0		2/4.5		
CHACMILTUN	2	18.0	2.0?	1.0	1.0			2/6.0		3/3.5						3/4.5	
DSECILNA ³	2	16.5	2.5?	1.0			1/1.0	2/5.5		1/2.0					2/4.5		
ITZIMTE	2	20.5	2.5?	1.0	1.0		1/1.0	1/2.0			1.0	1.0	12/3		3/6.5	1/1.5	
MULUCHTZEKEL	2	17.5	4.0	1.0			1/1.0	2/5.5	3/3.0	1/1.0		1.0	5/1.0				
NOHPAT	2	24.5	4.5	1.0	1.0	1/2.0	1/1.0	2/4.0		1/1.5	1.5	1.0	2/1.0	1/3.0	1/3.0		
SAYIL	2	25.0	4.5	1.0	1.0		1/1.0	3/8.0		3/4.5	1.0	1.0	9/2.0			1/1.0	
XCORRALCHE ²	2	24.5	3.5	1.0		1/2.0	3/3.0	2/5.0		1/1.5		1.0	2/1.0		3/6.5		
YAKALXIU	2	21.5	5.0	1.0		1/2.0		1/2.0		2/3.5		1.0	4/1.0	1/2.5	2/4.5		
YAXHOM	2	17.0	6+	1.0	1.0	1/2.0		1/3.0			2.0	1.0	3/1.0				
CHUNCANOB	3	10.5	2.0?	1.0			4/4.5	1/2.0	1/1.0								
CHUNHUHUB	3	10.5	2.5?	1.0				1/2.0		1/1.5					1/2.0	1/1.5	
HALAL ⁴	3	10.5	2.5?	1.0			1/1.0	1/4.0			1.0		3/1.0				
HUNTICHMUL I	3	14.5	3.0	1.0			3/3.0			1/1.5	1.0		2/1.0	1/2.0		2/2.0	
ICHMAC	3	9.0	1.5?	1.0			1/1.5	2/4.0				1.0					
KIUIC	3	13.5	2.0?	1.0				1/2.0	1/1.0	2/3.0		1.0	3/1.0		2/2.5		
LABNA	3	14.5	2.0	1.0			1/1.5	1/4.0		1/1.5	1.0	1.0	3/1.0			1/1.5	

TABULATION OF SITE RANKING VALUES FOR RANK 1 - 4 SITES

	Rank	Total value	Settlement area (estimated)	Early and late architecture	Ballcourt	Large pyramid-temples	Medium pyramid-temples	Large "palace" buildings	Small "palace" buildings	Large range-type buildings	Inter-site or intra-site sacbe(s)	Hieroglyphic inscriptions	Stelae	Large acropolis groups	Large courtyard groups	Special hilltop groups	Portal vault
NOHCACAB I	3	12.5	3.0?	1.0						2/3.0			2/1.0		1/3.0	1/1.5	
REFORMA, LA ⁵	3	9.5	1.5	1.0?						3/4.5						2/2.5	
TZUM	3	9.5	2.0	1.0	1.0			1/1.0		1.5	1.0	6/2.0					
XCALUMKIN ⁶	3	8.5?	3.5	1.0								1.0	2/1.0			2/2.0	
XCULOC	3	10.0	2.0?	1.0	1.0			1/1.0		1.0		1/1.0?				1/1.0	1.0
XCOCH ⁷	3	10.0?	2.0	1.0?		1/2.0		1/2.5						1/2.5			
XKIPCHE ¹²	3	11.5?	2.0?	1.0			1/1.0	2/5.0							1/2.5		
XKUKICAN	3	10.0	2.0	1.0			1/1.0				1.0	1.0	11/3			1/1.0	
XUCCHAH ⁸	3	7.5?	2.5?				1/1.0								2/4.0		
YAXCHE XLABPAK	3	15.5	4.0	1.0			1/1.0	1/2.0				1.0	8/2.0		3/3.5	1/1.0	
ALMULCHIL	4	4.8	1.8?	1.0			1/1.0		1/1.0								
BAKNA ⁹	4	8.0?	2.0	1.0?			1/1.0						1/1.0	1/1.0	1/2.0		
BALCHE	4	4.0	2.0													2/2.0	
CAB	4	5.6	1.1				2/2.5		1/1.0							1/1.0	
KALAKMUL PEQUENA	4	5.0	1.0	1.0			3/3.0										
KANKI	4	7.5	1.5?	1.0			2/2.0				1.0	1.0?				1/1.0?	
KOM	4	8.0	1.5	1.0				1/2.0	1/1.0							2/2.5	
NAKASKAT	4	7.0	1.5	1.0			2/2.0	1/2.5			1.0						
SANNACTE	4	4.0	1.0	1.0							1.0					1/1.0	
UNNAMED SITE 31 ¹⁰	4	6+	?														

TABULATION OF SITE RANKING VALUES FOR RANK 1 - 4 SITES

	Rank	Total value	Settlement area (estimated)	Early and late architecture	Ballcourt	Large pyramid-temples	Medium pyramid-temples	Large "palace" buildings	Small "palace" buildings	Large range-type buildings	Inter-site or intra-site sacbe(s)	Hieroglyphic inscriptions	Stelae	Large acropolis groups	Large courtyard groups	Special hilltop groups	Portal vault
XCAMPECHHALTUN	4	4.5	1.5?	1.0											1/1.0	1/1.0	
XCANAHELEB	4	6.0	1.0	1.0					1/1.0	1/1.5	1.0	1.0					
XCAVIL DE YAXCHE	4	8.5	1.5	1.0			1/1.0	2/4.0								1/1.0	
XCOCHA	4	4.5	2.5?				1/1.0									1/1.0	
XKALUPOCOCH ¹¹	4	7.5	3.5?				1/1.0		2/2.0							1/1.0	
XKOCHKAX	4	5.0	1.5?	1.0					1/1.0							1/1.5	
XLAPAK	4	5.0	2.0	1.0?											1/1.0	1/1.0	

NOTES: 1) Where two numbers are shown [1/1.5], first number indicates number of examples and second number indicates total value for category.

2) See separate sheets for footnotes on particular sites.

3) See separate sheets for explanation of individual site factors included in table above.

4) See Tables 1 - 8 for list of specific buildings and building groups for various sites in table above.

CHART SHOWING RANKINGS OF PUUC SITES

Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Oxintok	Acanmul	Chuncanob	Almulchil	Acambalam I	Actun Chen
Uxmal	Chacmultun	Chunhuhub	Bakna	Acambalam II & III	Bol'tl
	Dsecilna	Hala	Balche	Bacabchen	Bolchhoch
	Itzimte	Huntichmul I	Cab	Balandray	Chac I
	Muluchtzekei	Hunto Chac	Kalakmul Pequena	Banquetatunich	Chencoyl
Kabah	Nohpat	Ichmac	Kanki	Cacabbeec	Chimal
	Soyil	Kiuc	Kom	Cacabmuc	Chunhuaymil II
	Xcorralche	Labna	Nakaskat	Chac II	Chunhuaymil II
	Yakatzu	Nohcacab I	Sannacte	Chacbolay	Dolores North
	Yaxhom	La Reforma	Santa Rosalia	Chakakal	Dolores South
		Tzum	Unnamed Site 31	Chelimi	Dzancab
		Xcalumkin	Xcampechaltun	Chuncatzim	Hacienda Tabi
		Xculoc	Xcanahaleb	Chunhuaymil I	Iste
		Xcoch	Xcavil de Yaxche	Chunhuaymil I	Kakab
		Xkiche	Xcocha	Dolores	Kanalku
		Xkuktan	Xkalupococh	Dzula	Kanchi
		Xucchah	Xkuchaz	Ejido Revolucion	Laltuc
		Yaxche Xlabpak	Xlapak	Hokolbitze	Las Malvinas
			Xunantunich	Idztel	Lazaro Cardenas SW
				Katab	Loltun (cave)
				Km 23	Mul-Chic
				Km 93	Pibil Tzotz
				Kupaloma	Pozo 3
				Kuznecan	Pozo 8
				Lazaro Cardenas	Sacomucuy
				Maloch	Sacbe (Xhazche)
				Map	San Joaquin
				Metate con Glifos	San Pablo III
				Miramar	San Felipe
				Noax	Tantah
				Nucuchunich	Unnamed Site I
				Piler	Unnamed SDite II
				Pozo 6	Unnamed Site 27/70
				Pozo 10 I	Unnamed Site 87
				Pozo 10 II	Unnamed Site 129
				Sabacche	Unnamed Site 194
				San Diego II	Unnamed Site 201
				San Pablo I	Unnamed Site 207
				San Simon	Unnamed Site 224
				Santa Ana I	Unnamed Site 226
				Santa Ana II	Unnamed Site 227
				Santa Elena	Xcorralcot
				Santa Rosalia	Xinambalam
				Sisila	Xkepku
				Tzinitun	Xkiche
				Unnamed Site 64	Xnucbec
				Unnamed Site 85	Xuelen
				Unnamed Site 225	Zocchen
				Xaki	
				Xcanaleruz	
				X'Castillo	
				Xcocalchac	
				Xcorralche II	
				Xcucuc	
				Xcuncat	
				Xemtil	
				Xhazche Savanna	
				Xkakochna	
				Xkalachetizimin	
				Xkampon	
				Xkanbul	
				Xkankabi	
				Xkatsun	
				Xketpa'ap	
				Xkokah	
				Xlabpak	
				Xmulikom	
				Xnibacal	
				Xpostanil	
				Xtampak II	
				Xulmil	
				Yakalmai	
				Yashachen	
				Yiba	
				Vena	
				Xlotzel	

RANK 1 SITES: Two Rank 1 sites were identified (Oxkintok and Uxmal) both of which have total site values more than twice as large as any Rank 2 site. Both sites include large settlement areas, massive core areas with numerous examples of outsized civic/ceremonial/elite residential structures and numerous symbols of political power. It should not be assumed that these two sites are alike, however, as their specific layouts and makeup differ considerably. It can be noted for example that Uxmal shows very high numbers and values for large range-type buildings and large courtyard complexes while Oxkintok shows high numbers and values for large pyramid-temples and large acropolis groups. They are more or less equal, however, in terms of the values obtained for political symbols such as stelae, hieroglyphic inscriptions, ballcourts and sacbes.

RANK 1/2 SITES: This rank was created solely to find an appropriate place for Kabah, which falls well below the two Rank 1 sites in terms of total value (46.0 vs. 70.0 & 58.0) but well above the value of any of the Rank 2 sites. I recognize that to some extent the values shown for Kabah are partly the result of the excellent state of preservation of many of its major structures, in contrast to Nohpat for example, where there is almost no standing architecture of any kind. In the latter instance, values tend to be lowered due to lack of data. Still, Kabah shows most of the elements found at Rank 1 sites, with the exception of a ballcourt, and is particularly noteworthy for the large number (and value) of its large two-story "palace" buildings.

RANK 2 SITES: Ten Rank 2 sites were identified, which show total values ranging from 19.0 to 26.0. As noted earlier by Dunning (1987) these sites differ considerably from one another since some such as Nohpat, have highly concentrated, massive core areas while others, such as Yaxhom, are more diffusely spread out over large areas. Rank 2 sites also include significant number of political symbols, but fewer than those at the three largest sites.

RANK 3 SITES: A total of 17 Rank 3 sites were identified, with total values ranging from 8.5 to 14.5. These sites generally have smaller settlement areas than Rank 1 and 2 sites, and core areas show fewer (and generally smaller) major buildings and building groups. Rank 3 sites also have fewer political

symbols and it is noteworthy that civic symbols such as ballcourts and stelae are almost non-existent at these sites.

RANK 4 SITES: Seventeen Rank 4 sites were identified, all of which tended to be smaller in area than Rank 3 sites. Total values range from 4.0 to 8.0. They exhibit relatively small core areas with few, if any, large buildings, and other than an occasional medium-sized pyramid-temple, have few political symbols such as ballcourts, sacbes, stelae and hieroglyphic inscriptions.

RANK 5 AND 6 SITES: Some 76 Rank 5 sites and 46 Rank 6 sites were identified. These sites differ from one another mostly in terms of size: Rank 6 sites are very small and some have only a single group of structures standing on a small terrace, while Rank 5 sites cover larger areas and may include several discrete groups of structures. The total values for Rank 5 sites fall between 2.0 and 4.0 while Rank 6 sites have total values below 2.0. Some Rank 5 sites may have one large "palace" building or one large range-type building but the total value for such sites falls between 2.0 and 4.0. Somewhat surprisingly, a number of Rank 5 sites include good-sized special hilltop groups such as those at Dzula and Xpostanil, but little else that would tend to move them up to Rank 4.

CONCLUSIONS

The hierarchy of sites, and the differences in their makeup, as described in the preceding pages points up several unusual features of Puuc social and political structure as outlined below.

1) Both the GFA and NPD site hierarchies indicate that not only was there a considerable difference among all the sites investigated in terms of size, but considerable differences in function as well. The two largest classes of sites (Classes 1 and 2) differ from one another mostly in terms of size and numbers of specific civic/ceremonial features; both Class 1 and 2 sites include most of the special civic-ceremonial features noted earlier as well as multiple examples of large residential buildings or complexes. Both classes must also have functioned as important commercial centers, serving a specific hinterland. Class 3 sites, however, while showing some of the civic/ceremonial features which are prominent at Class 1 and 2 sites tend not to include ballcourts, large pyramid-temple structures or hieroglyphic inscriptions, suggesting that they (Class 3 sites) may have functioned as important residential nodes but would have to be considered as secondary civic/ceremonial centers.

The smaller sites (Class 4-6) are not only considerably smaller than those in Classes 1-3, but show few, if any, civic/ceremonial symbols, particularly those of any great size, and generally include no more than one large residential building or building complex. These sites appear to be essentially residential in character and their inhabitants would need to travel to the nearest large (Class 1-3) site for most non-daily activities, including commerce.

2) The four largest Puuc sites (Oxkintok, Uxmal, Kabah and Nohpat), all of which are in the Santa Elena district (fig.), have densely built-up central core areas containing massive buildings, platforms, and pyramids as do some of the next largest sites such as Acanmul, Xcorralche 1, and Yakalxiu. Other large (Class 2) sites such as Yaxche Xlabpak, Muluchtzekel, Yaxhom, and to some degree, Sayil, have fewer really large structures and show more dispersed plans. For example, the largest building at Yaxche Xlabpak has only 15 rooms but its various sub-units spread out over a considerable area. Yaxhom, which

has even more outlying groups, spreads out over more than eight square kilometers. The heavy concentration of the largest sites in the Santa Elena district might be accounted for by their proximity to some of the best agricultural areas in the Puuc region (Dunning, 1990) but this would not account for the different site layouts noted above (concentrated vs. dispersed) since the sites with the most compact core areas are in relatively flat, open spaces rather than the more confined valleys which characterize the huitz dominated Bolenchon district to the south.

3) The large number of Class 1 and 2 sites (at least 13) and their distribution in space (fig. 12), suggests that political power in the greater Puuc region was not concentrated at one regional "capital" or super-site, as appears to have been the case in some other regions. Both Kurjack (19) and Dunning (1990) have suggested that the relative equality in size and number of civic symbols among the largest and important Puuc sites indicates that power was decentralized and distributed among a number of different Puuc elite groups, none of which was able to dominate the whole region. Possible exceptions to this picture are Oxkintok, which appears to have been the largest and most important site in the northwestern sector of the Puuc region throughout most of the late and terminal classic periods (Lopez de la Rosa and Velazquez, 1992), and Uxmal, which appears to have achieved a dominant position in the eastern Puuc sector by the end of the Terminal Classic period. Dunning (1990) has suggested that Uxmal's very late rise to power near the end of the Puuc florescence may be related to its connections and/or competition with Chichen Itza, which at that time was the dominant force in the Northeastern Plains area.

4) There are significant differences between the western and eastern sectors of the Puuc region in regard to density of occupation, number and distribution of major sites (Class 1-3 sites), and period(s) of occupation. The eastern sector, which I have called the Puuc heartland, is extremely densely occupied, with sites of some size spaced out around 3 kilometers on centers and major sites spaced out at around 7-9 kilometers on centers. While there is some amount of early architecture at sites in the eastern sector, particularly Early Puuc architecture, buildings in the later Puuc styles (Colonnade, Mosaic, Late Uxmal) tend to dominate the scene, particularly at the larger sites. In

contrast, the western zone appears to have been more sparsely settled (fig.) throughout most of its history and major sites are spaced out anywhere from 10 to 25 kilometers on centers. At the same time, there is a heavier concentration of buildings in the earliest Puuc styles (Early Oxkintok and Proto-Puuc) at sites in the western sector and both Colonnade and Mosaic style buildings represent less than 20 percent of the total at most western sites.

5) While there is only one known inter-site sacbe (Uxmal-Nohpat-Kabah), there are at least 16 Puuc sites with inter-site sacbeob, only 4 of which are in the western Puuc sector. Dunning (1990:261) has noted that in some cases the intra-site sacbeob connect important residential complexes with civic-ceremonial complexes. He cites Labna and Sayil as examples of this particular organization which he calls the "Labna Plan". Dunning argues that the Labna Plan is an idealized site core scheme which contrasts with a more common site core type, called the "Nohpat/Yakalxiu" model, in which the site core consists of acropolis or pyramidal compounds of civic/ceremonial structures arranged around a series of continuous courtyards, with adjacent residential complexes, sometimes surrounding the civic core on all sides. Interestingly, Kurjack (1990) has cited the same Labna sacbe and structure system as an example of a scheme in which the residential complexes (Palaces) of two distinct elite groups at the same site were joined together through intermarriage. In this case, the sacbe is seen as symbolizing the marriage bond between the two families or clans occupying the complexes at the ends of the sacbe.

For my own part, I have some question as to whether the "Labna plan" as visualized by either Dunning or Kurjack can be considered as a generic form since it seems clear that the intra-site sacbes differ considerably in terms of their orientations and the makeup of the structures at either end, suggesting that some as yet unidentified circumstances at particular sites gave rise to the internal sacbeob.

In regard to the single inter-site sacbe, which connects the sites of Uxmal, Nohpat and Kabah, there is some question as to whether the sacbe itself is an indication of Uxmal's dominant position in the Terminal Classic period; I suggested some time ago (Andrews, 1975), and still believe, that the sacbe was constructed during the Early Puuc phase when all three sites were still in their initial stages of growth. Taking another tack, Kurjack (1990) has suggested that Nohpat, rather than Uxmal, was the central focus of the causeway system

and that the roads built from Nohpat to Uxmal and Kabah were part of a scheme hatched at Nohpat to pit two powerful neighbors against one another. Regardless as to how the origin of the inter-site sacbe is interpreted, it does indicate "formal" ties between these sites that are not described for any other Puuc sites.

6) It is worth noting that at least 12 of the smaller Puuc sites (Class 4-6) include one very large residential structure or complex ("palace", range building, hilltop complex) but no important civic/ceremonial structures or symbols such as stelae, hieroglyphic inscriptions, ballcourts, sacbeob, or large pyramids. These sites are listed below, together with the number of rooms in the building or complex in question.

<i>Banquetatunich</i>	<i>26 Rooms</i>	<i>Sodzil</i>	<i>12+ Rooms</i>
<i>Chac II</i>	<i>12+ "</i>	<i>Xcanalcruz</i>	<i>14 "</i>
<i>Dzula</i>	<i>42 "</i>	<i>Xcanaheleb</i>	<i>12 "</i>
<i>Kom</i>	<i>13+ "</i>	<i>Xcavil de Yaxche</i>	<i>15 "</i>
<i>Nakaskat</i>	<i>10+ "</i>	<i>Xkakochna</i>	<i>13 "</i>
<i>Santa Ana I</i>	<i>25+ "</i>	<i>Xpostanil</i>	<i>14+ "</i>

The presence of these large residential compounds at relatively small sites is a further indication of the stratification of Puuc society, wherein families (probably extended families) of elite status enjoyed rather palatial surroundings even out in the countryside, while the balance of the inhabitants of the same community were housed in very small 1-3 room masonry buildings or pole-and-thatch dwellings. It seems reasonable to assume that the elite families living at the smaller sites were lower in the pecking order than their counterparts at the larger sites, and that the former enjoyed some form of protection by their larger neighbors, probably by reason of intermarriage.

7) There appears to be a hierarchy of Puuc residences, or residential types, analogous to the hierarchy of Puuc sites. For example, Tourtellot and Sabloff (1988:3) described the potential house structures at Sayil as follows:

the potential house structures at Sayil exhibit a six-step hierarchy from high-styled to vernacular, costly to cheap: namely, multistory (vaulted masonry) buildings, single-story vaulted buildings, single

story stone buildings without vaults, foundation braces, bare platforms, and chiches.

In connection with the first two categories noted above (multistory and single-story vaulted masonry buildings) my data shows that of a total of 591 buildings of these kinds recorded at sites throughout the Puuc region (fig. 7) 369, or 62 percent are small, 1 to 4 room buildings (one-story), 126, or 21 percent, have 5-10 rooms (one-story) and 96, or 17 percent, have ten rooms or more. The latter group includes both single-story and multistory buildings. For the most part, these masonry buildings appear to be residences, although some of the smaller buildings as found on top of stepped pyramids, are normally identified as temples. Some of the larger buildings might also have been used for non-residential purposes but these are in the minority.

While the pattern of distribution of all potential residential structures varies to some extent from site to site, the general pattern is that the larger sites (Class 1-3) tend to contain multiple buildings or building complexes of more than 10 rooms while most of the smallest sites (Classes 5 and 6) have no vaulted masonry buildings with more than 4 rooms. As noted above (No. 6) there are a few small sites with quite large residential structures or complexes, but these are the exceptions rather than the rule.

Within any specific site, the larger residences tend to be situated in or immediately adjacent to the site core while the smaller dwellings of all types tend to be found in the surrounding "suburban" areas. Such is the case at Sayil, for example, where both of the above general patterns can be observed. My architectural survey at Sayil (Andrews, 1985) disclosed that there are about a dozen buildings in all with more than five rooms and that the two largest buildings (Great Palace with 94 rooms and South Palace with 22 rooms) appear to define the northern and southern edges of the central core area. In addition, virtually all of the larger structures (those with 5 or more rooms) are in or immediately adjacent to the site core. This pattern is replicated at nearly all of the larger sites, except at those such as Yaxhom, where large buildings are associated with secondary centers, some distance from the central portion of the site.

To summarize, the combined data obtained from both preliminary and more detailed site surveys of numerous Puuc settlements, coupled with architectural data from exposed building remains at nearly 150 of these sites, shows somewhat different settlement patterns in the two major parts of the

Puuc region (western and eastern sectors) as well as a differential distribution of architectural styles between the two sub-regions, the latter having temporal significance. The hierarchy of sites in the Puuc region, as delineated by Garza and Kurjack (1980), Dunning (1990) and myself, although differing in certain details, all point toward a Puuc political structure wherein a dozen or more very large settlements, under the sway of local elite groups, formed a loosely knit confederation of sub-regional polities (chiefdoms). Rank (or lack of same) seems to have operated the scale of entire sites, where the larger, and more important communities show numerous symbols of rank such as stelae, hieroglyphic inscriptions, sacbeob, and above all, large and important buildings. At the same time, within any specific community, social stratification is demonstrated by differences in dwelling sizes and types, as well as location with respect to the site core areas.

Competition among the sub-regional polities (Class 1 and 2 sites) for scarce natural resources, may have led to the temporary domination of the eastern Puuc sector by Uxmal toward the end of the Terminal Classic period, and a longer domination of the western sector by Oxkintok, which only postponed briefly the ultimate collapse of all communities large and small throughout the greater Puuc region. Even today, the Puuc region is only lightly populated and the numerous large communities constructed by the ancient inhabitants, now mostly reduced to collections of shapeless mounds, are only poignant reminders of past success at local scales, which ultimately led to failure at the scale of a whole region.

NOTES:

1) This site was not visited by either GFA or NPD and total site value was determined mostly on the basis of very preliminary data provided by Pollock (1980). According to Pollock, the site is quite large and has at least 10 pyramids (maybe as many as 20), together with at least one very large multilevel structure of uncertain form.

2) While Xcorralche has been partially explored by both NPD and GFA, as well as Maler, the values shown are based on very incomplete data. The site is very overgrown making exploration very difficult and most of the large pyramids and buildings are in an advanced state of collapse. Both NPD and GFA believe that site may be larger than present data suggests.

3) While Dsecilna has been investigated to some extent by Maler, NPD, and GFA, there is still no site map of any kind and most of the values shown are based on Maler's preliminary data, together with my own impressions of several structures in the southern portion of the site, the only part I saw.

4) Halal is not well known and the values shown are based mostly on preliminary data provided by Pollock (1980). I visited the site in 1983 but my notes refer only to the huge Acropolis (Group) near the center of the site. According to Pollock, the site includes several additional groups of structures situated in the savanna to the southwest, west, and northwest of the Acropolis, with a good-sized pyramid in the latter group. Pollock also mentions a group of 15 or more structures a little over one kilometer north of the Acropolis. A sacbe leaves the west side of the Acropolis seemingly headed for the Northwest Group.

5) NPD (1987) classified this site as Rank 4 but I have put it in Rank 3 since my analysis produced a total site value of 9.5. While the settlement area appears to be smaller than similar area at most other Rank 3 sites, La Reforma has several fairly large buildings, two of which are part of a good sized Special Hilltop Group (Group B). Further exploration may show site to be more extensive than currently believed.

6) Xcalumkin is one of several Puuc sites which have no large pyramids or buildings, even though the known ruin groups include numerous small structures spread out over a considerable area, many on hilltops. Xcalumkin is best known for its numerous (and well preserved) hieroglyphic inscriptions, and carved doorway columns, jambs and lintels, rather than the size or complexity of its building remains.

7) Xcoch has never been adequately explored and is mostly known for a large Acropolis Group, which includes a large pyramid-temple, now mostly fallen. From the top of this pyramid the larger structures at Uxmal can easily be seen. While there is almost no standing architecture at Xcoch, we noted a number of very large mounds, at least one of which represents the remains of a two-story "palace" building, as well as several large courtyard groups whose buildings have completely collapsed. Both NPD and GFA believe that further exploration might show Xcoch to be a Rank 2 site.

8) Xucchah was only explored in a cursory manner by both GFA and NPD since it is very overgrown and contains almost no standing architecture. While the tentative total value shown is lower than required to indicate a Rank 3 site, both NPD and GFA noted a number of very large mounds and courtyard complexes, as well as a good-sized pyramid, all of which suggest a Rank 3 site.

9) Pollock (1980) is the only person who has reported on Bakna, and the various values given in the chart are strictly tentative, based on his descriptions. Pollock believed the site was "large and important" and referred to a number of separate groups, spread out over a considerable area.

10) I have no data on this site and total value shown is based entirely on NPD (1987) value of 6+. Unfortunately, Dunning did not include a detailed description of site and its components.

11) There is considerable confusion in regard to this site, since the name Xcalupococh has been used in connection with several discrete groups of structures, which may or may not be part of the same site. Maler (1902) described 3 different groups of ruins which are in the same general vicinity as two other groups of ruins, also called Xkalupococh, which were located in 1987

by NPD. The latter are numbered 220 (Xkalupococh) and 221 (Xkalupococh Cerro) in the revised Atlas of Yucatan. Hanns Prem (personal communication) who relocated two of Maler's groups in 1989, believes that neither of the groups located by Dunning include any of the Maler buildings. Pending further data, I am including both the Maler and NPD groups as part of a larger, very dispersed site, somewhat on the order of Xcalumkin.

12) The total value given for Xkipche is purely tentative since the data for this site is very incomplete. While Maler visited site in 1893, his notes have not yet been published. I visited the site in 1989, accompanied by Hanns J. Prem and others, and we spent most of our time examining a large "palace" building with at least 29 rooms on two levels. We also noted an additional large, "palace" building just south of the palace building, as well as a small quadrangular group to the west with a fallen pyramid on the east side. Further exploration may show Xkipche to be a Rank 3 site.

APPENDIX
P U U C A R C H I T E C T U R E

BUILDINGS:

I. RANGE-TYPE

- Type 1-A Tandem present/Transverse Present
- Type 1-B Tandem Present/Transverse Present - at edge of terrace
- Type 2-A Tandem Present/Transverse not present
- Type 2-B Tandem Present/Transverse not present - at edge of terrace
- Type 3-A Tandem not present/Transverse Present
- Type 3-B Tandem not present/Transverse present - at edge of terrace
- Type 4-A Tandem not present/Transverse not present
- Type 4-B Tandem not present/Transverse not present - at edge of terrace

II. "PALACE" TYPE

- 1. Small "palace" buildings - less than 10 rooms
- 2. Large "palace" buildings - more than 10 rooms

III. CORE/WING TYPE

STRUCTURES

I. PYRAMID

- 1. "Large" pyramids are over 15 m high
- 2. "Medium" pyramids are 6-14 m high
- 3. "Small" pyramids are less than 6 m high

II. BALLCOURT

III. PLATFORM

- 1. Small, free-standing platform, generally near center of court or plaza
 - A. With column altar or other small monument on top
 - B. Stela platform
- 2. Platform of any size used as supporting structure (substructure) for buildings and/or other structures.

IV. TERRACE

V. SACBE (Causeway, roadway)

VI. FREE-STANDING WALLS

VII. TOWER (no Puuc examples)

VIII. STAIRWAY

IX. FREE-STANDING PORTAL VAULT

MONUMENTS

1. Stelae
2. column altars
3. Misc.

COMPLEXES

I. Pyramid-Temple combinations

II. Acropolis Group

III. Pyramid-Platform Group

IV. Courtyard Group

1. Large group
2. Medium-sized group
3. Small group (Plazuela)

V. Special Hilltop Group

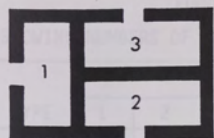
WATER STORAGE

1. Chultun
2. Aguada

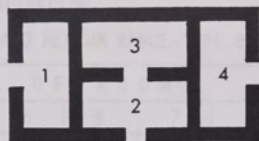


PULC BUILDING TYPES

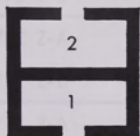
Plan diagrams showing small, type 1-A - 4-A buildings



1-A/3



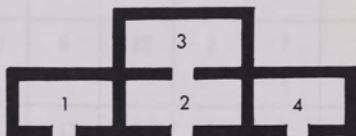
1-A/4



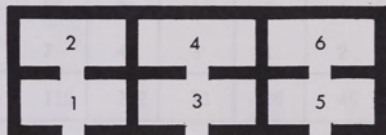
2-A/2



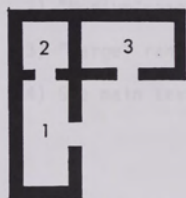
2-A/2



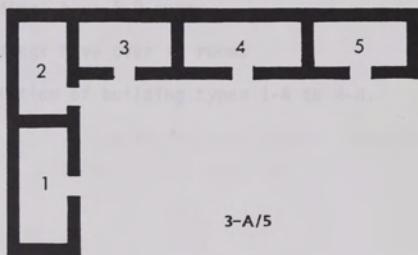
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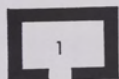
2-A/6



3-A/3



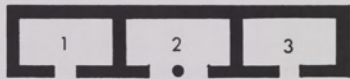
3-A/5



4-A/1



4-A/2



4-A/3

PUUC BUILDING TYPES

Plan diagrams showing small, type 1-A - 4-A buildings

PUUC ARCHAEOLOGICAL REGION

CHART SHOWING NUMBERS OF ROOMS IN SMALL AND MEDIUM RANGE-TYPE BUILDINGS

BUILDING TYPE	NUMBER OF ROOMS								
	1	2	3	4	5	6	7	8	9
TYPE 1-A			11	25	1	5	5	2	2
TYPE 1-B									2
TYPE 2-A		17	5	20	6	28	2	7	2
TYPE 2-B								1	
TYPE 3-A		1	14	8	11	8	3	7	1
TYPE 3-B				1	2	1	1	1	
TYPE 4-A	55	85	98	14	5	1		2	
TYPE 4-B	1	7	4	3	1	2	1	1	
TOTALS	56	110	132	71	26	45	12	21	7

NOTES: 1) "Small" range-type buildings have 1-4 rooms

2) "Medium" range-type buildings have 5-9 rooms

3) "Large" range-type buildings have over 10 rooms

4) See main text for description of building types 1-A to 4-B.

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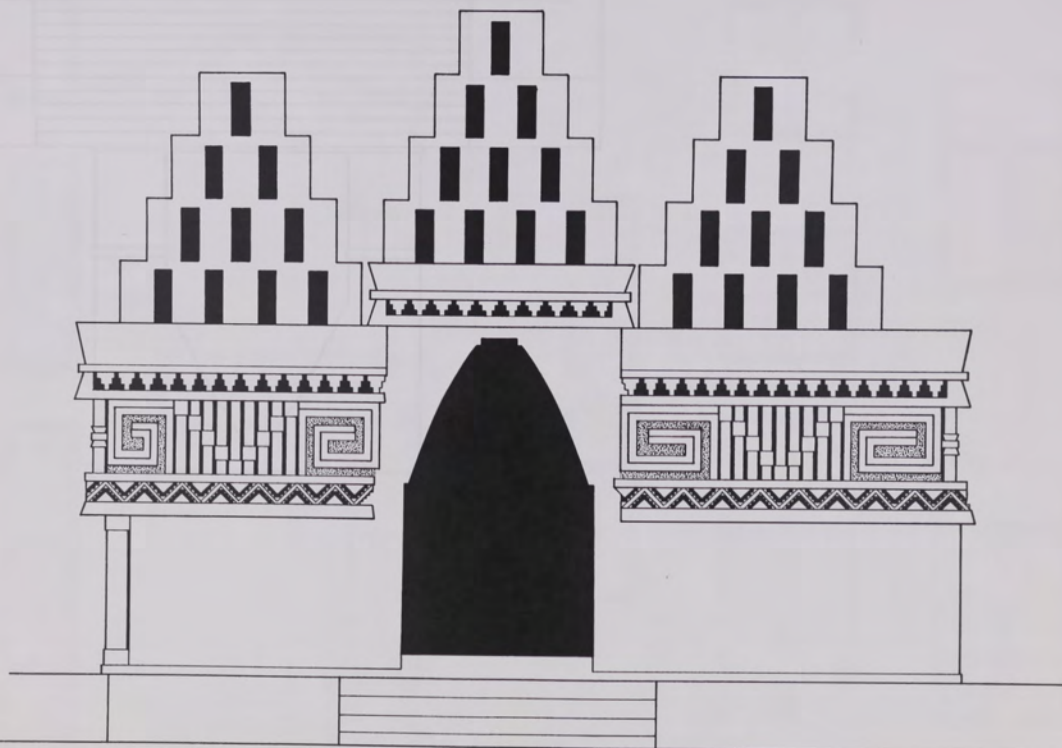
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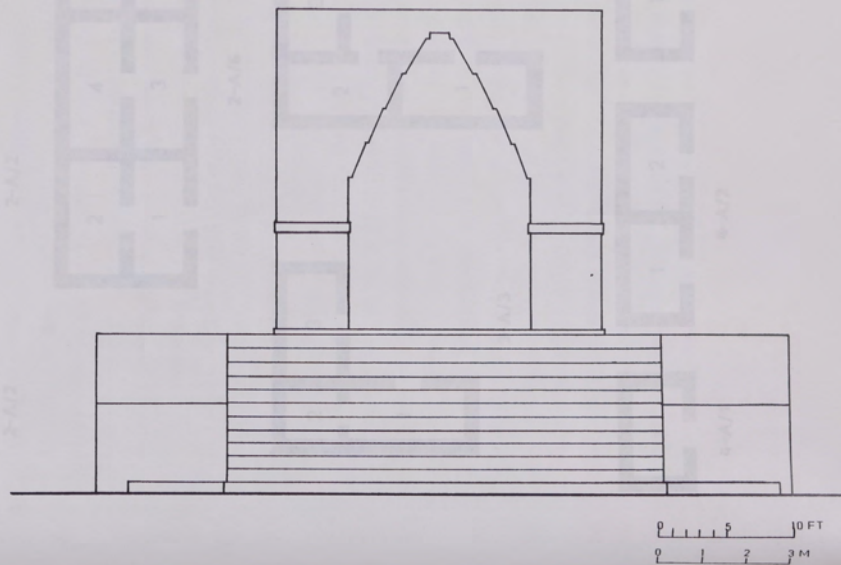
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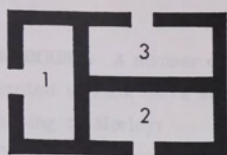
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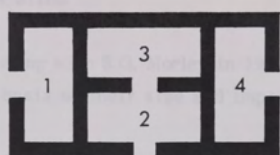


PORTAL VAULT · LABNA, YUCATAN, MEXICO
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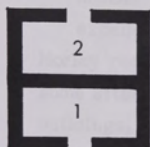




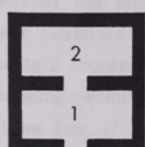
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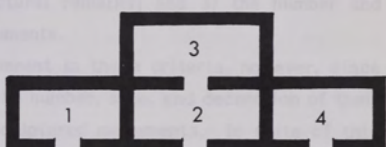
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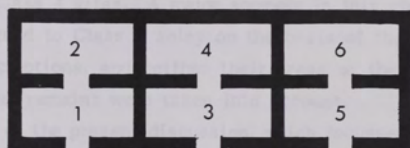
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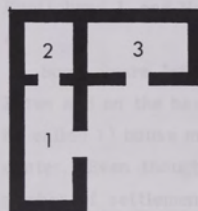
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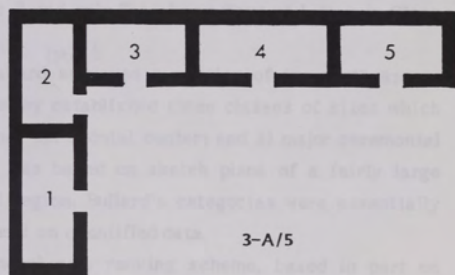
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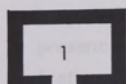
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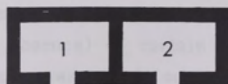
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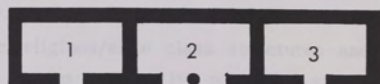
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RANKING MAYA SITES

BACKGROUND: A number of individuals, starting with S.G. Morley in 1937, have attempted to rank Maya settlements on the basis of their size and importance. According to Morley:

The basic criteria for classifying Maya religious centers according to their relative importance would seem to be: 1) their respective areas; 2) the number and extent of the architectural remains; and 3) the number and excellence of their sculptured monuments.

Morley recognized certain problems inherent in these criteria, however, since some sites are outstanding because of the number, size, and decoration of their buildings, but may have few, if any, sculptured monuments. In spite of this shortcoming, Morley prepared a table showing four classes of sites, based on his three criteria. This table shows 4 Class 1 sites, 19 Class 2 sites, 39 Class 3 sites, and 54 Class 4 sites. A major anomaly in this chart is the fact that sites were assigned to Class 4 solely on the basis of their having only a few hieroglyphic inscriptions, and neither their areas or the size and number of their architectural remains were taken into account.

For purposes of the present discussion, which focusses on the Puuc region, it should be noted that Morley's table included Uxmal in Class 1, Kabah and Sayil in Class 2, Labna, Oxkintok, Kiuic, Holactun (Xcalumkin), Xculoc, Huntichmul I, and Nohpat in Class 3 and only Tabi I and Cave of Loltun in Class 4.

(1960)

Some years later, William Bullard surveyed a section of the northeastern Peten and on the basis of this survey established three classes of sites which he called 1) house mounds; 2) minor ceremonial center; and 3) major ceremonial center. Even though his scheme was based on sketch plans of a fairly large number of settlements in a small region, Bullard's categories were essentially heuristic since they did not depend on quantified data.

In 1975, GFA proposed a general site ranking scheme, based in part on Bullard's earlier effort, which identified five classes of sites: 1) large urban centers; 2) small urban centers; 3) major ceremonial center; 4) minor ceremonial center; and 5) housing cluster. While this scheme was based on the presence (or absence) of certain civic/religious/elite class structures and features, it also was largely subjective and no comparative numerical values were involved.

~~simple-minded~~^{simpler} rank ordering system which employs only two major components; courtyard and acropolis counts. Using Adams' system, the physical mass relationship of an acropolis to a courtyard group at the same site is assumed to be roughly 2:1. The assumption is made that building an acropolis required twice the effort and materials that went into a major courtyard at the same site. Using these two criteria, Adams counted courtyard and acropolis complexes as shown on available site maps at that time and ranked a total of 72 sites in the Peten, Rio Bec, and Chenes regions on the basis of the total values obtained. He also grouped them into several clusters of values. He then compared his results from 15 specific sites which had also been ranked by the Turners using their volumetric assessment system and found a relatively poor correlation between the rankings. He noted, however, that this difficulty tended to resolve itself when sites were divided into their respective regional styles.

In contrast to these volume-based proposals, Peter Harrison (1981) attempted to rank the sites in his study area in southern Quintana Roo on the basis of an arbitrary "rule-of-thumb" approach, in which he divided sites into three classes; large, medium, and small, and according to Harrison:

A "small" site is limited or narrow in areal extent and consists of known structures not exceeding three meters in height. In most cases, such sites are formed by small patio groups associated with two or three additional mounds. "Medium" sites are sites with a large number of small mounds, spread over an extensive area; or areally smaller sites where structures are fewer but range up to ten meters in height. Sites of this size fit the common concept of "tertiary" centers. "Large" sites include more structures (than found at medium sites) of which at least one is higher than ten meters. Such sites may be "large" without being major primary centers, although the latter would clearly fall into this category.

SITE RANKING - PUUC REGION

Aside from Morley's early effort to include a few well-known Puuc sites in his ranking scheme, the first comprehensive system for ranking Puuc sites was put forward by Garza and Kurjack (1980), who described and implemented a four-tiered scheme for ranking all archaeological sites in the state of Yucatan. Included in this investigation were a large number of sites in the Puuc region, in addition to a larger number in adjacent regions to the north. While this

On the heels of the GFA proposal, Marcus (1976) suggested that the rank of any given Maya site was related to its perceived status within the Maya cosmic view and used hieroglyphic textual material from monuments as the prime determinant of status. Her proposal, which was linked to central place theory, relied almost exclusively on the importance of monuments and is flawed by the fact that many otherwise large and important sites are relegated to minor status simply because they have almost no sculptured monuments or inscriptions. For example, it is well known that sculptured monuments and inscriptions are extremely rare at Rio Bec sites, regardless of their size or complexity, and Harrison (1981) reports a similar lack of inscriptions at the largest sites in southern Quintana Roo.

About the same time, Norman Hammond (1976b) proposed a site hierarchy of nine levels for northern Belize sites, based on site features rather than hieroglyphic texts. While his scheme is not numerically based, it could be converted to a quantified assessment. The main difficulties with Hammond's scheme are: 1) conditions in other parts of the Maya area are not necessarily similar to those in Belize; and 2) excavational data and inferences (not normally available) are required to implement it fully.

During the past decade several other site ranking schemes have been proposed which attempt to quantify site data as a means of rank ordering sites within the same region, or in different regions. Two of these (Turner, Turner and Adams, 1981) and (Adams, 1981) are of particular interest although neither involved the ordering of sites in the Puuc region. The method developed by the Turners is the most ambitious and is based on volumetric measurement. According to the Turners:

Measurable components are 1) courtyard groupings of formal architecture and 2) paved courtyard areas. The measurements obtained are statistically reduced to single figures for individual courtyards and single centers. This system will also accommodate numerical values for ballcourts, fortifications, carved monuments, tombs, and other features. The system is open ended, computer compatible, and can be expressed through alternative graphic model displays.

The Turners' proposal is difficult to implement, ^{at a large scale} since the data available for most sites are considerably less than the level of data required to make their system operate fully and evenly for all sites.

In order to overcome this last difficulty, Adams (1981) proposed a ~~more~~

THE GFA SYSTEM: This system is actually only a variation of the NPD system, and is based on the sum of values for the same three basic site factors used by NPD. In the GFA system, however, the individual value assigned to any specific building type, or complex of buildings, is the sum of its combined civic and volumetric value; the latter value is a variable since it is weighed on the basis of relative volume. The values of most civic symbols are also weighed on the basis of volume (or numbers), wherever this is appropriate. The table below shows the basis for the combined values:

COMPONENT	CIVIC	VOLUMETRIC	TOTAL
	VALUE	VALUE	VALUE
Early and Late Architecture	0.5	0.5-1.0	1.0-1.5
Ballcourt	1.5	----	1.5
Inter-site and Intra-site Sacbes	1.0	0-1.5	1.0-1.5
Hieroglyphic Inscriptions	0.5	----	0.5
Stelae	1.0	0-2.0	1.0-3.0
Free-standing Portal Vault	1.0	----	1.0
Large Pyramid-temples	1.0	1.0	2.0
Medium Pyramid-temples	0.5	0.5-1.0	1.0-1.5
Large "Palace" Buildings	1.0	1.0-3.0	2.0-4.0
Small "Palace" Buildings	0.5	0.5	1.0
Large Range-type Buildings	1.0	0.5-2.0	1.5-3.0
Large Acropolis Groups	1.0	1.0-2.0	2.0-3.0
Large Courtyard Groups	1.0	1.0-2.0	2.0-3.0
Special Hilltop Groups	0.5	0.5-1.0	1.0-1.5

charts 1-8
GFA ~~tables~~ show the specific values for each component listed above for every civic symbol, building, or building complex considered in the present study.

The advantage of the GFA system over the NPD system, if indeed there is any advantage, lies in the fact that the GFA system is somewhat more sensitive in identifying the largest and most important sites (Rank 1-4) than the NPD system since: 1) it considers a larger number of site components; 2) the individual components are weighted for both civic and volumetric values; and 3) the tables show clearly that the bulk of the major site components are concentrated in Rank 1-4 sites. On the other hand, the NPD system is probably more sensitive to certain medium sized structures and complexes which are not accounted for individually in the GFA system, and may ^{also} be able to make better distinctions between Rank 4-6 sites.

EXPLANATION OF INDIVIDUAL FACTORS LEADING TO SITE RANKINGS

Total value is the sum of all individual values.

Settlement area is the estimated total area which properly belongs to a single site. As noted by Dunning (1987) it became apparent from his settlement survey that many of the sites indicated in the Archaeological Atlas of Yucatan as separate sites were in fact outlying groups belonging to a larger, nearby site. In these instances, the area of the outlying groups were included as part of the total settlement area of the large site. For example, see Yaxhom where Cooperative A and B, Nohoch Cep, Pozo 2, Kutzuytzy, Emiliano Zapata Pozo 1, Nucuchtunich, Cooperative C/Chakpichi, Cooperative D, Yaxhom B, Contreras, and Cooperative E were all included in the settlement area of Yaxhom, producing a total value of 6+.

NPD (1987) suggested that settlement area could also be considered as a surrogate for site population and I concur in this assumption, although it is hard to specify a specific ratio between area and population. I also consider site settlement area to be a kind of surrogate for the volume of those small groups, of the kind that Adams (1981) called "private courtyard groups", which are found in both the site core and peripheral areas. These groups are too numerous (and too much destroyed) to be recorded individually by either NPD or GFA. (See new map of Sayil for actual number and distribution of these small groups in a Rank 2 site).

Early and late architecture indicates the presence of buildings in both Early and Late Puuc styles. It is assumed that these sites were occupied longer than sites with only Late architecture and this "longevity" has been assigned a value of 1.0.

Ballcourt: These special structures are considered to be very important sociopolitical symbols and have been assigned a value of 1.5 regardless of type or size.

Large pyramid-temples are over 15 m. high. Value = 1.0 as civic symbol plus 1.0 for volume.

Medium pyramid-temples are 5 - 15 meters high. Value = 1.0-1.5 for each medium pyramid.

Large "palace" buildings have 10 or more rooms arranged around all four sides of a solid central core. For lack of a better expression, I have used the term

LIST OF PUUC SITES BY RANK

RANK 1: Oxxintok, Uxmal

RANK 1/2: Kabah

RANK 2: Acanmul, Chacmultun, Itzimte, Muluchtzeke, Nohpat, Sayil, Xcorralche, Yaxalx'u, Yaxche Xlabpak, Yaxhom

RANK 3: Chunhuhub, Dsecilna, Halal, Huntichmul I, Kiuic, Labna, Nohcacab I, La Reforma, Tzum, Xcalumkin, Xculoc, Xcoch, Xkukican, Xucchah

RANK 4: Almulchil, Bakna, Balche, Cab, Chuncanob, Ichmac, Kalakmul Pequena, Kanki, Kom, Nakaskat (I, II, III), Sannacte, Unnamed Site 31, Xcampechhaltun, Xcanahaleb, Xcavil de Yaxche, Xcocha, Xkalupococh, Xkipche, Xkochkax, Xlapak

RANK 5: Acambalam I, Acambalam II, Bacabchen, Balandzay, Banquetatunich, Cacabbeec, Cacabxuc, Chac II, Chacbolay, Chakakal, Chelimi, Chuncatzim, Chunhuaymil I, Chunhuitz, Dolores, Dzula, Ejido Revolucion, Hokolbitze, Idztel, Katab, Km 23, Km 93, Kupaloma, Kuxnecan, Lazaro Cardenas, Maioch, Map, Metate con Glifos, Miramar, Naax, Nucuchtunich, Pilar, Pozo 6, Pozo 9, Pozo 10 I, Pozo 10 II, Sabacche, Sacbe (Xhaxche), San Diego, San Pablo I & II, San Pedro, San Simon, Santa Ana I, Santa Ana II, Santa Elena, Santa Rosalita, Sisila, Sodzil, Tzinitun, Unnamed Site 64, Unnamed Site 85, Unnamed Site 225, Xaki, Xcanalcruz, X'Castillo, Xcobalchac, Xcorralche II, Xcucsuc, Xcuncat, Xemtzil, Xhaxche Savanna, Xkakochna, Xkalachetzimin, Xkampon, Xkanbul, Xkankabi, Xkatsun, Xketpa'ap, Xkokoh, Xlabpak, Xmulikom, Xnibacal, Xpostanil, Xtampak I, Xtampak II, Xulmil, Yakalmal, Yaxhachen, Yiba

RANK 6: Actun Chen, Bobil, Bolonchoch, Chac I, Chencoyi, Chimai, Chunhuaymil II, Chunyaxnic, Dolores North, Dolores South, Dzancab, Hacienda Tabi, Iste, Kakab, Kanalku, Kanchi, Laltzuc, Las Malvinas, Lazaro Cardenas (SW Group), Loltun, Mul-Chic, Pibiltzotz, Pozo 3, Pozo 8, Sacbe (Xhaxche), San Pablo III, San Felipe, Tintah, Unnamed Site I, Unnamed Site II, Unnamed Site 27/70, Unnamed Site 87, Unnamed Site 129, Unnamed Site 194, Unnamed Site 201, Unnamed Site 207, Unnamed Site 224, Unnamed Site 226, Unnamed Site 227, Xcorralcot, Xinambalam, Xkepku, Xkiche, Xnucbec, Xuelen, Zocchen

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→ TOURYFIMT + SHAROFF

CONCLUSIONS

The hierarchy of sites, and the differences in their makeup, as described in the preceding pages points up several unusual features of Puuc social and political structure as outlined below.

1) Both the GFA and NPD site hierarchies indicate that not only was there a considerable difference among all the sites investigated in terms of size, but considerable differences in function as well. The two largest classes of sites (Classes 1 and 2) differ from one another mostly in terms of size and numbers of specific civic/ceremonial features; both Class 1 and 2 sites include most of the special civic-ceremonial features ^{noted earlier} shown in the features chart (fig. 1-8) as well as multiple examples of large residential buildings or complexes. Both classes must also have functioned as important commercial centers, serving a specific hinterland. Class 3 sites, however, while showing some of the civic/ceremonial features which are prominent at Class 1 and 2 sites tend not to include ballcourts, large pyramid-temple structures or hieroglyphic inscriptions, suggesting that they (Class 3 sites) may have functioned as important residential nodes but would have to be considered as secondary civic/ceremonial centers.

The smaller sites (Class 4-6) are not only considerably smaller than those in Classes 1-3, but show few, if any, civic/ceremonial symbols, particularly those of any great size, and generally include no more than one large residential building or building complex. These sites appear to be essentially residential in character and their inhabitants would need to travel to the nearest large (Class 1-3) site for most non-daily activities, including commerce.

2) The four largest Puuc sites (Oxkintok, Uxmal, Kabah and Nohpat), all of which are in the Santa Elena district (fig. 1-2), have densely built-up central core areas containing massive buildings, platforms, and pyramids as do some of the next largest sites such as Acanmul, Xcorralche 1, and Yaxalxiu. Other large (Class 2) sites such as Yaxche Xlabpak, Muluchtzekel, Yaxhom, and to some degree, Sayil, have fewer really large structures and show more dispersed plans. For example, the largest building at Yaxche Xlabpak has only 15 rooms but its various sub-units spread out over a considerable area. Yaxhom, which

has even more outlying groups, spreads out over more than eight square kilometers. The heavy concentration of the largest sites in the Santa Elena district might be accounted for by their proximity to some of the best agricultural areas in the Puuc region (Dunning, 1990) but this would not account for the different site layouts noted above (concentrated vs. dispersed) since the sites with the most compact core areas are in relatively flat, open spaces rather than the more confined valleys which characterize the huitz dominated Bolenchon district to the south.

3) The large number of Class 1 and 2 sites (at least 13) and their distribution in space (fig. 12), suggests that political power in the greater Puuc region was not concentrated at one regional "capital" or super-site, as appears to have been the case in some other regions. Both Kurjack (1971) and Dunning (1990) have suggested that the relative equality in size and number of civic symbols among the largest and important Puuc sites indicates that power was decentralized and distributed among a number of different Puuc elite groups, none of which was able to dominate the whole region. Possible exceptions to this picture are Oxkintok, which appears to have been the largest and most important site in the northwestern sector of the Puuc region throughout most of the late and terminal classic periods (Lopez de la Rosa and Velazquez, 1992), and Uxmal, which appears to have achieved a dominant position in the eastern Puuc sector by the end of the Terminal Classic period. Dunning (1990) has suggested that Uxmal's very late rise to power near the end of the Puuc florescence may be related to its connections and/or competition with Chichen Itza, which at that time was the dominant force in the Northeastern Plains area.

4) There are significant differences between the western and eastern sectors of the Puuc region in regard to density of occupation, number and distribution of major sites (Class 1-3 sites), and period(s) of occupation. The eastern sector, which I have called the Puuc heartland, is extremely densely occupied, with sites of some size spaced out around 3 kilometers on centers and major sites spaced out at around 7-9 kilometers on centers. While there is some amount of early architecture at sites in the eastern sector, particularly Early Puuc architecture, buildings in the later Puuc styles (Colonnade, Mosaic, Late Uxmal) tend to dominate the scene, particularly at the larger sites. In

contrast, the western zone appears to have been more sparsely settled (fig.) throughout most of its history and major sites are spaced out anywhere from 10 to 25 kilometers on centers. At the same time, there is a heavier concentration of buildings in the earliest Puuc styles (Early Oxkintok and Proto-Puuc) at sites in the western sector and both Colonnade and Mosaic style buildings represent less than 20 percent of the total at most western sites.

5) While there is only one known inter-site sacbe (Uxmal-Nohpat-Kabah), there are at least 16 Puuc sites with inter-site sacbeob, only 4 of which are in the western Puuc sector. Dunning (1990:221) has noted that in some cases the intra-site sacbeob connect important residential complexes with civic-ceremonial complexes. He cites Labna and Sayil as examples of this particular organization which he calls the "Labna Plan". Dunning argues that the Labna Plan is an idealized site core scheme which contrasts with a more common site core type, called the "Nohpat/Yakalxiu" model, in which the site core consists of acropolis or pyramidal compounds of civic/ceremonial structures arranged around a series of continuous courtyards, with adjacent residential complexes, sometimes surrounding the civic core on all sides. Interestingly, Kurjack (1990) has cited the same Labna sacbe and structure system as an example of a scheme in which the residential complexes (Palaces) of two distinct elite groups at the same site were joined together through intermarriage. In this case, the sacbe is seen as symbolizing the marriage bond between the two families or clans occupying the complexes at the ends of the sacbe.

For my own part, I have some question as to whether the "Labna plan" as visualized by either Dunning or Kurjack can be considered as a generic form since it seems clear that the intra-site sacbes differ considerably in terms of their orientations and the makeup of the structures at either end, suggesting that some as yet unidentified circumstances at particular sites gave rise to the internal sacbeob.

In regard to the single inter-site sacbe, which connects the sites of Uxmal, Nohpat and Kabah, there is some question as to whether the sacbe itself is an indication of Uxmal's dominant position in the Terminal Classic period; I suggested some time ago (Andrews, 1975), and still believe, that the sacbe was constructed during the ^{Puuc phase} Early Classic period when all three sites were still in their initial stages of growth. Taking another tack, Kurjack (1990) has suggested that Nohpat, rather than Uxmal, was the central focus of the

causeway system and that the roads built from Nohpat to Uxmal and Kabah were part of a scheme hatched at Nohpat to pit two powerful neighbors against one another. Regardless as to how the origin of the inter-site sacbe is interpreted, it does indicate "formal" ties between these sites that are not described for any other Puuc sites.

6) It is worth noting that at least 12 of the smaller Puuc sites (Class 4-6) include one very large residential structure or complex ("palace", range building, hilltop complex) but no important civic/ceremonial structures or symbols such as stelae, hieroglyphic inscriptions, ballcourts, sacbeob, or large pyramids. These sites are listed below, together with the number of rooms in the building or complex in question.

<i>Banquetatunich</i>	<i>26 Rooms</i>	<i>Sodzil</i>	<i>12+ Rooms</i>
<i>Chac II</i>	<i>12 + "</i>	<i>Xcanalcruz</i>	<i>14 "</i>
<i>Dzula</i>	<i>42 "</i>	<i>Xcanaheleb</i>	<i>12 "</i>
<i>Kom</i>	<i>13+ "</i>	<i>Xcavil de Yaxche</i>	<i>15 "</i>
<i>Nakaskat</i>	<i>10+ "</i>	<i>Xkakochna</i>	<i>13 "</i>
<i>Santa Ana I</i>	<i>25+ "</i>	<i>Xpostanil</i>	<i>14+ "</i>

The presence of these large residential compounds at relatively small sites is a further indication of the stratification of Puuc society, wherein families (probably extended families) of elite status enjoyed rather palatial surroundings even out in the countryside, while the balance of the inhabitants of the same community were housed in very small 1-3 room masonry buildings or pole-and-thatch dwellings. It seems reasonable to assume that the elite families living at the smaller sites were lower in the pecking order than their counterparts at the larger sites, and that the former enjoyed some form of protection by their larger neighbors, probably by reason of intermarriage.

7) There appears to be a hierarchy of Puuc residences, or residential types, analogous to the hierarchy of Puuc sites. For example, Tourtellot and Sabloff (1988:3) described the potential house structures at Sayil as follows:

the potential house structures at Sayil exhibit a six-step hierarchy from high-styled to vernacular, costly to cheap: namely, multistory (vaulted masonry) buildings, single-story vaulted buildings, single

story stone buildings without vaults, foundation braces, bare platforms, and chiches.

In connection with the first two categories noted above (multistory and single-story vaulted masonry buildings) my data shows that of a total of 591 buildings of these kinds recorded at sites throughout the Puuc region (Charts & ^{fig. 7}) 369, or 62 percent are small, 1 to 4 room buildings (one-story), 126, or 21 percent, have 5-10 rooms (one-story) and 96, or 17 percent, have ten rooms or more. The latter group includes both single-story and multistory buildings. For the most part, these masonry buildings appear to be residences, although some of the smaller buildings as found on top of stepped pyramids, are normally identified as temples. Some of the larger buildings might also have been used for non-residential purposes but these are in the minority.

While the pattern of distribution of all potential residential structures varies to some extent from site to site, the general pattern is that the larger sites (Class 1-3) tend to contain multiple buildings or building complexes of more than 10 rooms while most of the smallest sites (Classes 5 and 6) have no vaulted masonry buildings with more than 4 rooms. As noted above (No. 5) there are a few small sites with quite large residential structures or complexes, but these are the exceptions rather than the rule.

Within any specific site, the larger residences tend to be situated in or immediately adjacent to the site core while the smaller dwellings of all types tend to be found in the surrounding "suburban" areas. Such is the case at Sayil, for example, where both of the above general patterns can be observed. ~~(fig. 7)~~ My architectural survey at Sayil (Andrews, 1985) disclosed that there are about a dozen buildings in all with more than five rooms and that the two largest buildings (Great Palace with 94 rooms and South Palace with 22 rooms) appear to define the northern and southern edges of the central core area. In addition, virtually all of the larger structures (those with 5 or more rooms) are in or immediately adjacent to the site core. This pattern is replicated at nearly all of the larger sites, except at those such as Yaxhom, where large buildings are associated with secondary centers, some distance from the central portion of the site.

To summarize, the combined data obtained from both preliminary and more detailed site surveys of numerous Puuc settlements, coupled with architectural data from exposed building remains at nearly 150 of these sites, shows somewhat different settlement patterns in the two major parts of the

Puuc region (western and eastern sectors) as well as a differential distribution of architectural styles between the two sub-regions, the latter having temporal significance. The hierarchy of sites in the Puuc region, as delineated by Garza and Kurjack (1980), Dunning (1990) and myself, although differing in certain details, all point toward a Puuc political structure wherein a dozen or more very large settlements, under the sway of local elite groups, formed a loosely knit confederation of sub-regional polities (chiefdoms). Rank (or lack of same) seems to have operated the scale of entire sites, where the larger, and more important communities show numerous symbols of rank such as stelae, hieroglyphic inscriptions, sacbeob, and above all, large and important buildings. At the same time, within any specific community, social stratification is demonstrated by differences in dwelling sizes and types, as well as location with respect to the site core areas.

Competition among the sub-regional polities (Class 1 and 2 sites) for scarce natural resources, may have led to the temporary domination of the eastern Puuc sector by Uxmal toward the end of the Terminal Classic period, and a longer domination of the western sector by Oxkintok, which only postponed briefly the ultimate collapse of all communities large and small throughout the greater Puuc region. Even today, the Puuc region is only lightly populated and the numerous large communities constructed by the ancient inhabitants, now mostly reduced to collections of shapeless mounds, are only poignant reminders of past success at local scales, which ultimately led to failure at the scale of a whole region.

