

YUCATEC INFLUENCE IN TERMINAL CLASSIC NORTHERN BELIZE

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Excavations undertaken during 1978 and 1979 at Nohmul, Belize are believed to cast new light on the demise of the Maya. Investigations revealed Terminal Classic-San Jose V material intermixed with Late Classic to Early Postclassic Yucatec material in a single-unit refuse deposit. More importantly, striking architectural similarities exist between structures at Nohmul and Chichen-Itza; Structure 20 at Nohmul proved to be of the "patio-quad" type known previously only from Chichen-Itza, and Structure 9 of Nohmul may be put forth as a "Caracol" (Chichen-Itza Structure 3C15) counterpart. On the basis of excavations at Nohmul, it is implied that there is an association between Toltec Chichen-Itza (Sotuta) and the Terminal Classic periods to the south (San Jose V-Tepeu 3), in that the two are overlapping, if not coeval. Should this be the case, new alternatives relating to the Maya collapse must be considered.

Architecture is a critical class of archaeological data which is frequently employed to examine relationships between regions or sites in the Maya area (Satterthwaite 1936, 1941, 1943-1954; Smith 1961; Andrews V 1979a). Architecture can give added insight because it is a "nonportable" artifact. Although architectural ideas can be transferred or "diffused" from one area to another, unlike small, "portable" objects, a structure cannot be traded. The presence at widely separated sites of structures that are clearly analogous in form and construction techniques indicates a degree of shared ideological and/or functional concepts. Duplication of complicated architecture would require direct communication, a common "cultural" base and/or, at minimum, the presence and influence of at least one member of a group of technicians. The presence of comparable architecture, both in form and technique of construction, at Chichen-Itza, Mexico and at Nohmul, Belize, when combined with resultant artifactual analysis, suggests that a particular type of relationship existed between these two sites.

NOHMUL, BELIZE

The site of Nohmul is one of the largest in northern Belize and presents a long history of both archaeological excavations and Maya prehistory. Nohmul (see Figure 1) was first investigated by Gann (1939, 1943; Gann and Gann 1939) in the earlier half of this century and then by the Corozal Project in the 1970s (Hammond 1973, 1974, 1975, 1977). These various excavations showed that the site of Nohmul proffered a sequence from Preclassic to Late Postclassic. The east-central plaza of Nohmul was chosen for investigation by both the 1978 Corozal Project and the 1979 Corozal Postclassic Project because of indications that the majority of this portion of Nohmul dated to or later than Late Classic times.

Nohmul Structure 20

During the 1978 season excavation centered on Structure 20. Surface indications posed the possibility that the structure was of a unique architectural style for northern Belize and thus possibly Postclassic in date (N. Hammond, personal communication). The unexcavated Structure 20 appeared to present a building, almost 20 m², with one western, frontal door (see Figure 2). Prior to excavation, it seemed that this structural arrangement might be similar to Postclassic architecture of the "Tulum" style in Quintana Roo, Yucatan (Lothrop 1924; Mason 1927; Sanders 1960; Andrews IV and Andrews 1975). Its placement in the East Plaza and the way in which it blocked access to Structure 19 implied that it would prove to be of later construction than the

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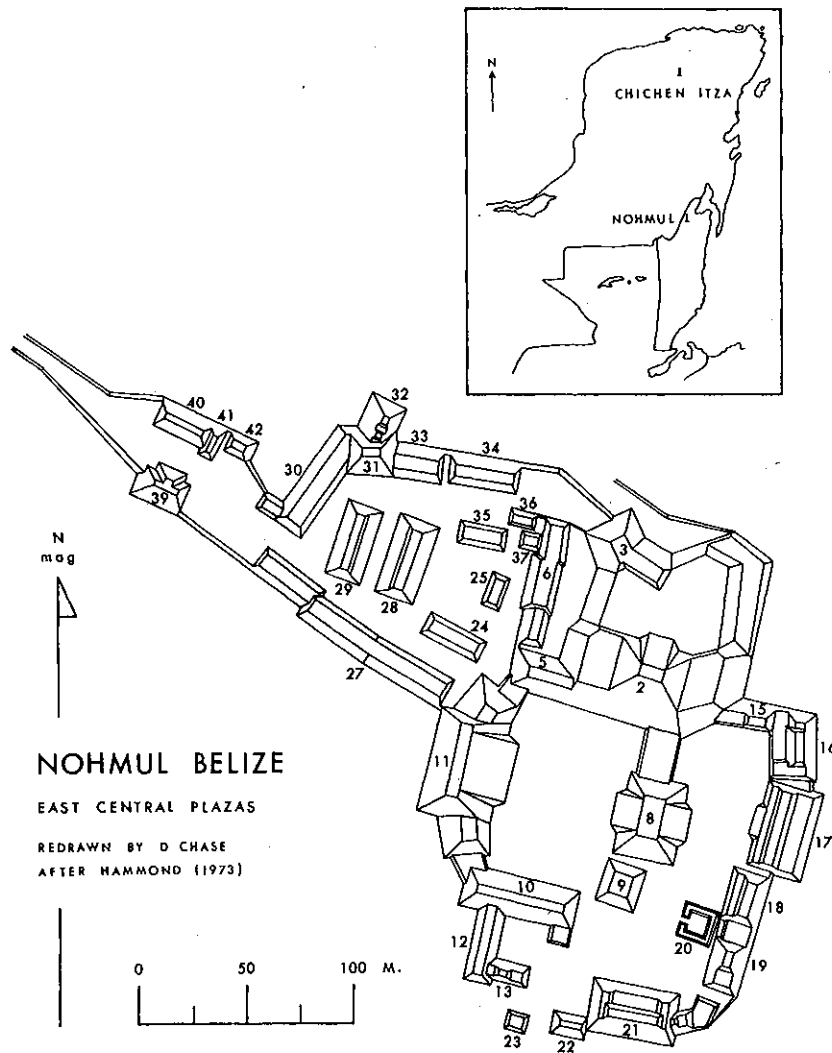


Figure 1. Map of the eastern part of Nohmul, Belize, with an inset of the Lowland Maya area showing the locations of Chichen-Itza and Nohmul.

presumed Late Classic Structures 18 and 19 to its rear. It was hypothesized that Nohmul Structure 20 might mirror the Terminal Classic to Late Postclassic continuum found at Structure 139 in Nohmul (Hammond 1974, 1977:57-58; Heighway 1973; Heighway and Barry 1975:15-29; Pring 1975:203).

Structure 20 was excavated using a combination of quadrat and transect techniques in an attempt to define its architecture, plan, structural development, period of occupation, and probable function. A 20-m by 20-m excavation was laid out and oriented on the assumed axis of Structure 20 so as to circumscribe the entire structure. This larger area was then subdivided into four parts; two opposing 10-m by 10-m squares were excavated areally so as to expose half of the structure; this area was planned and the exposed profile sectioned. Additional areal excavation resulted in the exposure of 60% of the building. A further excavation through the low platform between Structures 18 and 19 on the Structure 20 axis yielded information on the relationships between these three east plaza buildings. Additional axial trenching in Structure 20 allowed for an understanding of the method of construction.

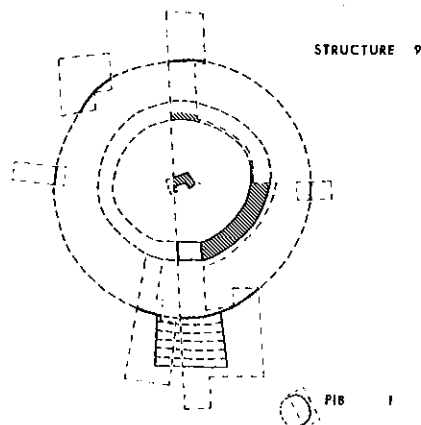
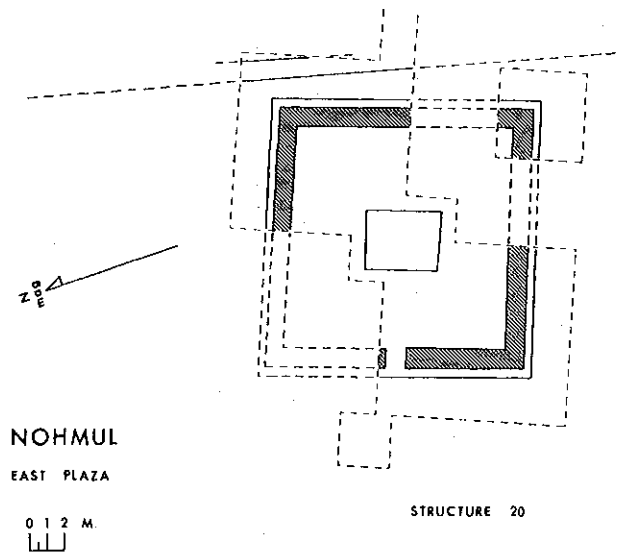


Figure 2. Plan of excavations undertaken in Structures 9 and 20 in the East Plaza area of Nohmul. The feature designated "PIB 1" dates to within the last 10 years.

Nohmul Structure 20 (see Figure 3) is 15.6 m^2 and has a single 1.20-m-wide west-set doorway. The walls are approximately 1.10 m thick and rest upon a plinth. This plinth is about 0.50 m deep and rises approximately 0.20 m from the plaza floor. A later pavement abutted the doorway area of Structure 20. Within the structure is a patio 3.2 m long and 4.2 m wide. This interior patio is stepped down from the interior floor level. From the amount of stone recovered in the collapse, the structure's outer base walls must have risen to approximately a meter above the plinth and most likely supported a perishable superstructure. No postholes were found in the walls. The exterior of the walls was finished with thick stucco that had been painted in red and blue; a possible stucco adorno, perhaps from the perishable roof, was found in collapse in the interior portion of the structure.

No burials or caches were found associated with Structure 20. A large refuse deposit to the rear of the structure, located on the floor that abuts Structures 18 and 19 and upon which Structure 20 was built, contained many reconstructable vessels; these included San Jose V forms, Puuc and Thin Slate, Achote Black, double-mouthed jars, and grater bowls. Fits were found between small ceramic fragments in the interior sunken court area and larger, reconstructable rims from the rear refuse deposit—indicating that this material was deposited during the use-life of Structure 20. This dump contained utilitarian and household objects in the form of abundant mano and metate fragments, lithic material including several flint cores, a bark beater, a ceramic spindle whorl, and “domestic” plainware pottery. It also contained shell and bone; much of the bone was cracked and/or burned and was both animal and human in origin. Based on the material from within this refuse deposit, the final use of Structure 20 is presently judged to have been at least partially domestic. The structure dates in terms of use and construction to Terminal Classic times. Because of the paucity of structural renovations and the suspected relatively short deposition life for the refuse deposit (i.e., there are fits between lower and upper levels), it is proposed that the use-life of Nohmul Structure 20 was relatively short. Further analysis of this refuse material should provide insights into the artifactual assemblage used by the inhabitants of Structure 20.

Patio-Quads: Comparative Data

Because no architectural entities similar to the Nohmul patio-quad are known within the Classic periods in the central Maya Lowlands, comparative data for architectural form and dating were sought elsewhere and found at Chichen-Itza in the structures termed “gallery-patios” by Ruppert (1943, 1950, 1952) and Ruppert and Smith (1955), which are here defined as “patio-quads.” A patio-quad is a quadrilateral superstructure, usually square in shape with roofed interior space and a single formal entry with free access to all its parts, but with a centrally placed, usually sunken patio. The four varieties of patio-quads are represented in Figure 4.

Tozzer (1957:41, 43, 54, 79–80) and Proskouriakoff (1946:26–27) note that the gallery-patio structures of Chichen-Itza are directly associated with “Mexican” influences and have no “Maya” precedents; they look instead to the Mexican highlands for analogous structures. Tozzer (1957:80) states that similar structures exist at Tula (Edificios 1 and 3), Tlamimilopa, and La Quemada but noted that in his opinion the association was not strong in terms of architectural similarities. Edificios 1 and 3 at Tula are, however, quite similar in both plan and form to the defined patio-quad structure type. At Chichen, all gallery-patio structures are dated to Chichen III times—A.D. 1150–1260 (Tozzer 1957:43)—and are taken to be representative of pure “Mexican” or “Toltec” influence and/or inspiration. Along with Chacmools and plumbate ware (Tozzer 1957:41), patio-quad structures are an important diagnostic of the Chichen III period.

Structure 20 at Nohmul is a roughly 16 m² structure facing west and oriented 17° east of magnetic north. By comparison, Pollock (1965:393) states that most “Toltec” structures at Chichen-Itza are 17° east of north in their orientation. Marquina (1951:14) points out that this orientation is common to the cities of central Mexico. The architectural trait of “low,” approximately 1 m high, base-walls that must have supported perishable superstructures, like those that occur at Structure 20, occurs at Isla Cilvituk (Andrews IV 1943:43, 73–74), at Santa Rita at Mound 9 (Gann 1918:83–85), and at Uaxactun in Structure A-IV, which Smith (1950:47) places as one of the latest, if not the latest, construction at Uaxactun.

The Mercado at Chichen-Itza (3D11) was constructed as a single unit (Ruppert 1943), as was the Nohmul patio-quad (see Figure 5); there is also a superficial similarity in these two structures in the evidence of interior burning in each. Data recovered during excavation would indicate that Nohmul Structure 20 must have had perishable wood columns in its interior to support its roof; one patio-quad at Chichen (5D3) also had wooden columns, while the others appear to have had columns of stone. The fact that Nohmul Structure 20 does not have an attached shrine is consistent with the data from Chichen-Itza since patio-quad structures that are “central” to the site of Chichen-Itza—specifically Structures 3D11 and 2D6 (see Figure 5)—do not have shrines; Structure 20 is also centrally located at the site of Nohmul. Structure 20 does not have a recognizable



Figure 3. Photograph of the 1978 Structure 20 excavations. The overall width of the excavations is 20 m. Structure 19 is the mound in the upper-right portion of the picture.

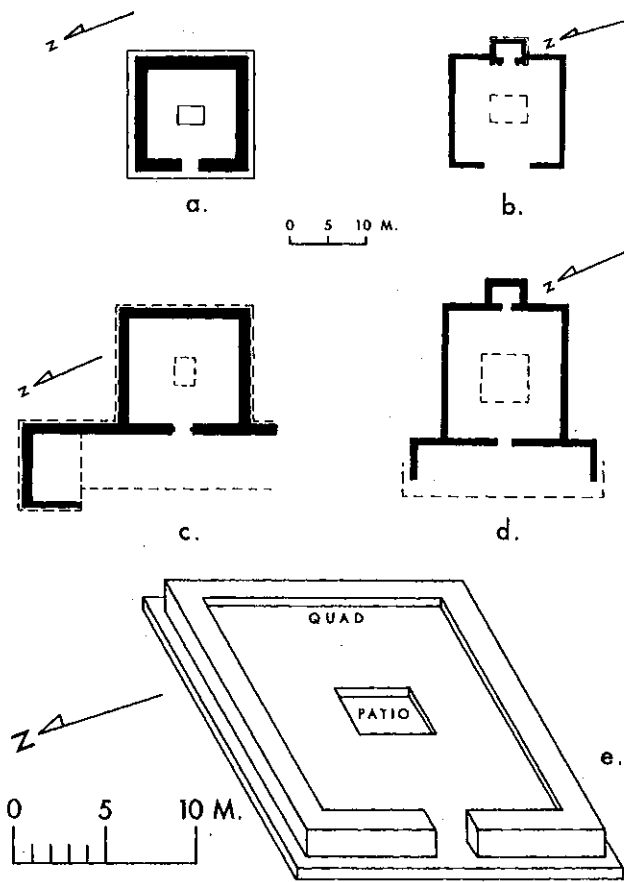


Figure 4. The patio-quad structure and its representational forms. (a) The basic patio-quad, after Nohmul Structure 20. (b) the patio-quad-shrine variant, after Chichen-Itza Structure 3C13. (c) The patio-quad-gallery variant, after Chichen-Itza Structure 2D6. (d) The patio-quad-gallery and shrine variant, after Chichen-Itza Structure 3B8. (e) Isometric representation of the basic patio-quad structure.

gallery. It must be noted, however, that the Nohmul example may have had a perishable wooden gallery at its front or that a partial gallery may yet be found attached to the northwest corner, as is the case for both Structures 2D6 and 4E4 at Chichen-Itza. The dimensions of the Structure 20 patio-quad also exhibit a close correspondence with its counterparts at Chichen-Itza (see Table 1). As indicated above, the probability that Structure 20 served, at least partially, a domestic function is indicated by the material in its rear trash deposit. Whether or not a domestic function may be assigned to those patio-quad structures at Chichen-Itza is unknown, although Freidel (1981:321-323) has suggested that they represent elite residences.

Other architectural similarities to Chichen-Itza in northern Belize can be found in data from San Jose where Thompson found a dais in Structure B4, Room B; this trait is noted as occurring only at Chacmultun and "Mexican Chichen" (Thompson 1939:233).

Nohmul Structure 9

Investigations at Nohmul in 1979 focused upon Structure 9 (see Figures 2 and 6). This structure is located to the west of Structure 20 in the east plaza area of Nohmul. Based on the surface in-

Structure 9 at Nohmul was trenched in order to determine: (1) the construction techniques employed; (2) whether any earlier special constructions were present; (3) whether there were any axial special deposits; and (4) a construction date for the structure. Investigations began with a series of test excavations to determine the structural orientation prior to setting up an axial trench. These excavations quickly proved Structure 9 to have a round substructure with a frontal stair facing ca. 17° north of west. The substructure is approximately 14.8 m in diameter at the base; the stairway protrudes an additional 2.9 m. A plinth 10 cm deep and 40 cm high, similar to that in Structure 20, completely encircles the structure. This plinth appears to have been a single unit construction with the substructure walls. The circular substructure wall and plinth are continuous below the stairs. The stairs are appended to the substructure and have a coring of silt.

Wall stubs from the superstructure are also in evidence. This superstructure is also circular in shape with a diameter of slightly over 9 m. The door area was approximately 1.5 m wide and had a pavement between the jambs; this doorway area was in alignment with the western stairs. In the interior of the superstructure were the remains of a single central masonry support, very much in disrepair. At their highest point, the superstructure walls consisted of three courses of stone; prior to the collapse of the structure, however, these walls were probably slightly higher—as in the case of Structure 20. There is not enough stone debris to suggest that the walls rose much higher. It appears most likely that only the basal portions of the superstructure walls and central support were constructed of stone and that the rest of the superstructure was composed of more perishable materials.

The axial trench revealed, in addition to construction walls and differential fills, a floor level in existence during the earliest construction stages of the structure. Directly on axis and below the central support a 50-cm² area of burning just above the floor level was uncovered. Above this was "cached" a modeled stucco head that had originated from an earlier, demolished Maya construction. Small excavations were carried out in the corners formed by the juxtaposition of the

Table 1. Archaeological Information on Patio-Quad Structures.

Structure	Quad Dimensions	Sunken Inner Patio	Structure Orientation	Gallery	Shrine	Platform
Chichen 3D11	31 m ²	+	North	+	-	+
Chichen 2D6	14.5 m ²	+	West	+	-	+
Chichen 5B19	10 × 15 m	+	East	+?	-	+
Chichen 5B17	23 × 17 m	+	West	+	+ faces W	?
Chichen 6E3	18 m ²	+?	North	+	+ faces W	+
Chichen Chultun	19 m ²	+	West	+	+ faces W	+
Chichen 3B3	17 m ²	+	South	+	-	+
Chichen 3B8	17 × 15.6 m	+	West	+	+ faces W	+
Chichen 3C13	13.7 × 14.2 m	+?	West	-	+ faces W	-
Chichen 5C11	14 × 17.6 m	+?	West	+?	+ faces W	-
Chichen 5D3	16 × 17 m	+	North	+	+ faces W	+
Chichen 5D7	10.2 × 11 m	+	West	-?	+ faces S	-?
Chichen 4E3	16.5 × 17 m	+	West	+	+ ⁽²⁾ faces W	?
Nohmul 20	15.6 m ²	+	West	-?	-	+



Figure 6. Photograph of the 1979 Nohmul Structure 9 excavation. At this point, only one-quarter of the top surface has been cleared; later, fully one-half of the top surface of the structure was cleared. Additionally, an axial trench was placed through the center of the structure and carried to bedrock.

stairs and the structure to check for caches similar to those found in circular structures at Mayapan (Shook 1954:17, 1955); none were found.

Ceramics associated with the construction and use of Structure 9 suggest a Terminal Classic/Early Postclassic date as in Structure 20. Most of the ceramics in the core of Structure 9 indicate that they had been gathered up from a dumping area that contained San Jose IV and V material; model-carved pieces also occurred in this same fill as well as double-mouthed jars. Based on the ceramic relationships between Structures 9 and 20, it may be suggested that the two structures were complements to each other. No domestic refuse deposit was found behind Structure 9 as had been found behind Structure 20; the material within the core of Structure 9 is most similar to that found behind (east of) Structures 18 and 19, which is thought to be slightly earlier than that behind Structure 20. An argument can therefore be made for the two structures being coeval in use.

Round Structures: Comparative Data

Round structures have been noted throughout Middle America (Pollock 1936). Although they have a relatively wide distribution and appear to be comparatively abundant in Mexico, their occurrence in the Maya area is relatively rare and most usually associated with Postclassic occupation (see, however, Haberland [1958], Sidrys and Andresen [1978], and Hammond et al. [1979:103] for earlier examples). Unfortunately, detailed excavational information on round structures/platforms within the Maya area is frequently not available (see Table 2 for comparative data). Thus, many of those structures originally noted in Pollock do not allow for architectural comparison. Some of these may not actually be round (see Gann [1900:685] for an example), and most are not securely dated. Of those examples noted by Pollock (1936:115-116), the structure at Paalmul is clearly similar in many respects to Structure 9 at Nohmul, although it is more elliptical. However, no date is assigned to the building and the associated artifactual material is not discussed. Round structures at Mayapan (Adams 1953; Chowning 1956; Pollock 1936:109-113; Shook 1953, 1954, 1955) are generally dated to the Late Postclassic. They vary from Nohmul Structure 9 in lacking central supports. Additionally, no caches comparable to those at Mayapan were discovered in the Nohmul excavations. Tulum (Pollock 1936:117-118; Lothrop 1924) has a number of structural remains with circular platforms and small square structures; these appear to be later than Nohmul. Of those sites mentioned by Pollock, only Chichen-Itza provides comparative data of approximately the same (Terminal Classic/Early Postclassic) date as Structure 9. At Chichen, the Caracol (Structure 3C15) and the Casa Redonda provide examples of excavated structures which are roughly analogous to Structure 9. The Caracol, although very different in its latest form, had an earlier substructural platform which was completely circular with a single frontal stair facing west. At Chichen, those round structures with only basewalls representing the superstructure, such as Casa Redonda, are generally noted as being among the latest structures at Chichen.

The Caracol at Chichen may be subdivided into two building periods (Ruppert 1935:271-273; see also Pollock [1936:98]). The latest, represented by Structure 3C15-1st, is the Caracol as it now exists. This later building phase may be, in turn, subdivided into three construction phases. The later phase of Structure 3C15-1st A consisted of the Caracol superstructure as now known and of the larger completed squarish platform; the middle phase, or Structure 3C15-1st B, consisted of the Caracol superstructure and a round substructure with a plinth to the rear with a "T"-shaped frontal stairway. The time of construction between Structure 3C15-1st A and Structure 3C15-1st B was probably quite short. Structure 3C15-1st C is of primary interest to a consideration of Nohmul Structure 9, for the Caracol in this phase of its construction consisted of a superstructure and substructure of approximately the same proportions as Nohmul Structure 9. The Caracol substructure platform for Structure 3C15-1st C is approximately 18 m in diameter with an associated plinth counting for approximately 1.6 m of this diameter; the height of this substructure at Chichen is about 3.5 m as opposed to 2.8 m in height for the Nohmul example, which had a diameter of 14.8 with the plinth accounting for only 0.2 m of this diameter. The

Chichen Caracol superstructure measures 11 m in diameter; the Nohmul superstructure measures approximately 9 m in diameter. The earliest structure representing the Caracol or Structure 3C15-2nd lies directly beneath the superstructure for 3C15-1st and is a round platform approximately 3 m in height and 11 m in diameter.

Table 2. Architectural Information on Round Structures of Terminal Classic or Postclassic Date in the Lowland Maya Area.

Structure	Structure Diameter	Shape of Platform; Diameter	Structure Orientation	Other Information
Mayapan H-18	5.0 m	square	—	four stairs central support plinth
Mayapan Q-59	1.4 m	8.3 m square	faces E	functioned as an altar
Mayapan 1-126	6.7 m	3.8 m by 4.0 m square	faces S	rear chamber to structure; plinth
Mayapan Q-84	(with plinth) (perishable)	10.5 by 9.8 m circular	faces W&E	—
Mayapan Q-152	ca. 10 m	5 m to 12 m rectangular	faces W	—
Mayapan Q-59b	0.6 m	22.5 by 17.5 m circular	faces W	functioned as an altar
Mayapan T-70	1.2 m	2.2 m square	—	functioned as an altar
Mayapan Q-214	6.5 m (with plinth)	2.0 m rectangular with rounded back cor- ners; 10.3 by 8.3 m	faces E	rear chamber to structure; plinth
Isla Mujeres	square	circular 21 feet with plinth	—	four doors four stairs
Xcaret D-1	10 ft by 10 ft rectangular	circular with 3 ter- races; 13 m at base	faces E	plinth structure rests on small platform with plinth
Xcaret E-IV	3.5 by 2.0 m	square	faces W	structure rests on small platform with plinth
Xcaret E-III	6.5 m	round; ca. 12 m at base	faces W	structure rests on small platform with plinth
Yalku	rectangular 4.0 by 3.0 m	—	faces S	shrine in courtyard
Uomuil	circular courtyard 6.7 m	—	—	—
Xelha	—	Str. 8 = 15 m Str. 25 = 25 m Strs. 39, 40, 41 = ca. 4 m	—	—
Paalmul	5.0/8.2 m	—	—	—
Tulum 42	—	elliptical 18.7 by 14.3/ 14.8 by 11.5	faces W	—
Seibal Str. 79	ca. 1 m rectangular	square circular	— faces W	shrine associated with altar
Chichen Casa Redonda	9.0 m	18 m by 3 m circular	faces W	rear chamber to structure
Chichen 3C15 (early)	11.0 m	16.5 m circular	faces W	plinth
Nohmul Str. 9	ca. 9 m.	18.0 m circular	faces W	plinth
Becan Str. 16	—	14.8 m circular	faces NW?	inset stair no plinth
Puerto Rico	2.9 m	7 m conical	—	tower
		8.2 m diameter at base		ht. = 6.6 m

No stairs were noted for Structure 3C15-2nd or for Structure 3C15-1st C at Chichen. It is believed, however, that stairs did exist at one point and were probably similar to the crude stairway construction found at Nohmul. Such stair constructions, consisting of a pure dirt fill with stone facings, could be easily dismantled, and dismantling activity can indeed be inferred from Ruppert's (1935:Figure 347) drawings indicating that the plinth of Structure 3C15-1st C was "removed" from the western side of the substructure prior to the construction of 1st B. The western side is where such a stair would have been located. Although the proportions of Chichen Structure 3C15-1st C and Nohmul Structure 9 are only similar, their parts are almost identical.

Since 1936, other round structures have been found in the Lowland Maya area, specifically in southern Quintana Roo (Harrison 1979) and at Seibal (Willey et al. 1975). Of those published, however, only Seibal provides an example from a similar period of time. Structure 79 at Seibal (Willey et al. 1975:36) is a round platform composed of three terraces, a frontal stair as well as an informal rear one, and a rectangular superstructure; it dates to Bayal times. Other architecture of similar date also exists at Seibal and evinces Puuc affinities (Willey et al. 1975; Graham 1973; Sabloff 1973:126). Sabloff (1973:128) notes that the presence and location of foreign architectural traits at Seibal and a round structure "point to a foreign takeover." Based on our present knowledge of round structures, all that can be stated concerning their existence in the southern lowlands is that (1) they become more prominent in Terminal Classic to Late Postclassic times, and (2) they appear to be, at least initially, associated with an exterior influence.

Two types of round structures may be noted as existing in the Maya Lowlands. The differences between the two types may be indicative of function. Smaller round structures, of a building diameter of less than 5 m, occur with other associated structures at Mayapan (Shook 1954, 1955) often on axis to a larger construction located to their rear. In this case, these smaller round structures are hypothesized to be functionally equivalent to the shrines or altars which are often found in front of major Maya constructions. The second class of round structures to appear in the Maya Lowlands are those of a larger size that appear to function alone, or to be the major focus of a constructional unit; Nohmul Structure 9, Chichen Structure 3C15, and Seibal Structure 79 are clearly of this type.

Although Structure 9 was not originally hypothesized to be a round structure, this discovery, along with other information derived from the 1979 excavations, has served to augment the case for Yucatec influence in the East Plaza area of Nohmul. Architecturally, Structure 9, like Structure 20, suggests a strong Yucatec affinity—particularly with Chichen-Itza. Whereas round structures at Mayapan have medial supports [see Shook (1954, 1955)], Nohmul Structure 9 and Chichen's Caracol share the structural characteristics of a central support, round substructures, western orientation, and large structural size.

Although earlier round structures are noted for the Maya area (Haberland 1958; Sidrys and Andresen 1978), a precedent for the round structures that appear in the Lowland Maya area in the Terminal Classic period may be found in the Gulf Coast area (Pollock 1936) and specifically the Huastec region of northern Veracruz. The dates for the round structures of this latter region are, however, not secure. A precedent for the patio-quad form of structure, however, exists only in Central Mexico (see Tozzer [1957:41, 43, 54, 79-80], Proskouriakoff [1946:26-27], and possibly Sisson [1973] for Coxcatlan, and Bernal and Gamio [1974] for Yagul). No round structures or patio-quads are known from the Puuc area; both structural forms, however, occur at Chichen-Itza.

Nohmul Summary

The combination of Structures 20 and 9 at Nohmul, with their shared structural orientation, is believed to be sufficient to indicate the presence of a Chichen-inspired architectural assemblage at Nohmul. Thus far, a patio-quad and a round structure have been identified; both are placed in a central portion of the site. It is suggested that further excavation in the East Plaza area will produce a third member of this Chichen assemblage, that being a "palace" structure—most likely either Nohmul Structure 21 or 17 (see Figure 1). The question arises whether or not the Nohmul Chichen-style assemblage could have preceded associated "Toltec" (Tozzer 1957) architecture at Chichen-Itza and thus provide a precedent for it. The intrusive quality of the placement of both

Structures 20 and 9 would argue against this possibility; the placement of other structures at Chichen-Itza does not have this intrusive character but rather seems to present an in situ development.

DATING AND INTERPRETATIONS

While there are many ties among these centers, only a few sites closely duplicate each other, and it is apparent that a highly complex series of events was transpiring. The situation doubtless reflects that different seats of political authority existed, that all seats were not affected in the same manner simultaneously, that the seats showed varied responses and interacted differently among themselves, and finally, that there were plural forces at work in the destruction of the Classic order (Graham 1973:217-218).

The identification of a Chichen-related building complex in northern Belize in a San Jose V-Terminal Classic context has implications not only for the character of the Maya collapse, but also for our temporal frame of reference. In general, there are two problems that must be addressed with respect to the Nohmul data: (1) How do these data relate to other Maya areas in terms of dating; and (2) How do the Nohmul data affect our understanding of the Maya Collapse? Both of these questions help answer the larger question concerning the correlation between the archaeological sequences of the northern and southern Maya Lowlands.

Models for correlating the southern and northern Maya sequences may be categorized as being either "linear" or "nonlinear." Two versions of the "linear" model for the correlation of these two sequences exist. The first version is chiefly proposed by Andrews IV (1973; see also Andrews V [1979b:3]). In short, Andrews IV (1973:263) sees the Puuc area as being "totally and fully abandoned at the very time of the emergence of the Toltec hegemony over the northwestern peninsula." In this linear version, the Pure Florescent (or Puuc) period is held to have occurred largely after the southern Tepeu period, and Chichen-Itza to come long after the southern collapse. The second linear model is that followed by the majority of Maya scholars (see Willey [1971:99], Ball [1979a], and Andrews V [1979b:3]). This second linear variant proposes that the start of both Tepeu 2 and the Florescent period was essentially coeval. In this latter version, Puuc and the Late Classic Southern Lowland Maya are held to have coexisted. Chichen-Itza would thus have been subsequent to the "collapse."

Recently, Ball (1979a) has proposed two "nonlinear" models for correlating the northern Yucatec sequence. These have further application as aids to the interpretation of the southern Lowland events. In Ball's first nonlinear version (the Partial Overlap Model), the Puuc settlements are seen as being coeval with the southern Late Classic ones, with Chichen-Itza occurring in the northern Yucatan after A.D. 900 and coexisting with Puuc centers for at least a century before their abandonment. In Ball's second nonlinear version (the Total Overlap Model), Puuc is again held to be of Late Classic southern date, but leading directly into Hocaba (Mayapan), with Chichen-Itza (Sotuta) being but a regional variant of northeastern Yucatan and thus coeval after A.D. 900 with Puuc (Cehpech) ceramics.

Whether or not the correlation of southern and northern Lowland sequences is linear or nonlinear, they all share one common aspect. This is the placement of Toltec Chichen-Itza at a date subsequent to the Classic Maya collapse. Although Ball (1979a:33) and Andrews V (1979b:8-9) note the possibilities that Puuc and Chichen-Itza may be contemporaneous, they date this simultaneity to after A.D. 900, or after the Maya collapse. Turning once again to the archaeological situation, the following ceramic data are relevant to this discussion. Yucatecan slateware was found at Uaxactun in Late Classic contexts (Smith 1955:35). At San Jose, Thompson (1939:231-232) argued that although Yucatecan slateware rested on the floors of buildings in several cases, it was (1) either deposited there after San Jose V occupation of the site, or (2) it appeared at the very end of San Jose V. Nohmul data would indicate that Yucatecan slate, both "thin" (Ticul) and "Puuc," is contemporaneous with San Jose V; the refuse deposit behind Structure 20 contains San Jose V material (Thompson 1939), Achote Black (Ball 1977:34-36), Sahcaba Modeled-Carved (Smith and Gifford 1966:162), grater bowls, double-mouthed jars (Sidrys 1976), Peto Cream Ware (see Ball [1977, 1979a]), Trickle Ware, Puuc Slate and Thin Slate, all in

association. In the northern Yucatan, Smith (1971:191) argues that grater bowls do not occur in the Cehpech complex and that they make their first appearance in the Sotuta complex, which is the ceramic complex represented in Chichen II and III, or during the Toltec presence at Chichen-Itza. There is also a close relationship between the slip utilized on San Jose V redware and Puuc redware of the Cehpech complex (J. Ball, personal communication); additionally, the fireclouding represented in San Jose redware could pass for slateware if found out of context. It is suggested here that a linkage existed between Terminal Classic occupation of Maya sites and Mexican occupation at Chichen-Itza. Specifically, it may be proposed that Cehpech (Puuc), Sotuta (Chichen-Itza), and Tepeu 3 (Southern Lowlands) are at least partially coeval.

It must be noted, however, that significant differences do occur between the ceramics of Chichen-Itza and Nohmul. No Fine Orange or Plumbate is thus far known from Nohmul as from Chichen, but Sacaba Modeled-Carved does occur. On the whole, there appears to be a larger Cehpech component in the Nohmul material than Sotuta-equivalent material. Peto Cream Ware and Thin Slate do appear to be contemporaneous, thus supporting the second nonlinear model presented above. In general, however, a consideration of the Nohmul ceramic data, in combination with the architectural data, indicates that Chichen-Itza was contemporaneous with and directly involved in the southern Lowland collapse.

Adams (1971:165), following Pollock (1965:393, fn. 27, 1952:238-239), questioned the placement of Chichen-Itza "in splendid isolation as the only major center extant in Early Postclassic Yucatan." Adams (1973:165) suggested that there is a serious misunderstanding on the part of Mayanists of the Terminal Classic period and that an alternative explanation for the collapse as viewed by Sabloff and Willey (1967) can be found in the derivation of the non-Peten-Maya invaders not from the Gulf Coast lowlands but "as refugees from the Toltec invasion, which itself resulted in the Chichen-Itza Florescence." Adams (1971:165) further noted that "if indeed Toltec Chichen can be placed in a period equivalent to Late Classic in the Peten, then derivation of the Seibal intruders as Maya refugees would be feasible" and "would make the concurrent southern lowland military disturbances more understandable."

Although Chichen-related influences have been noted for the Terminal Classic period in the southern Lowlands (Rands 1954; Sabloff 1973:125, 129; Thompson 1970:41), it is possible that the "Toltec" as represented at Chichen never reached the Peten heartland, except on a later horizon. That northern Yucatec influences reached the Pasion region in Late Classic times (Proskouriakoff 1950, 1951; Ball 1974; Graham 1973) is quite probable; these influences, however, were not directly Toltec-related. Ball (1974) notes that there are nonpeninsular influences on the Yucatec Maya prior to A.D. 1000, as early as the late eighth century, and that there appears to be more continuity in the north between Terminal Classic and Early Postclassic than from Late to Terminal Classic. He sees southward movement into the Peten-Pasion by northern groups on a relatively large scale until approximately A.D. 830. As there exists indication of northern intrusion at various central-southern sites, he suggests that the intrusion at Seibal is by a Chontal-influenced elite group from the north rather than directly from the Tabasco lowlands.

If one follows Adams's (1971:165) arguments in relation to the two facies of Terminal Classic stelae representations at Seibal as defined by Graham (1973), it would be possible to see both of these facies as relating to the Toltec intrusion into the northern Yucatan. Under this reconstruction, the personages represented in Facies A most likely emanate from the Puuc region of northern Yucatan. This is consistent with Ball's 1974 reconstruction. This northern origin at Seibal (Adams 1973:155; Sabloff 1973:131; see also Willey and Smith [1966]) is further reflected in the "Puuc-style" architecture, stucco work, stone sculpture and ceramics; no Seibal building is clearly of Chichen origin. The closest parallels for Seibal are to the Puuc buildings. The Facies B people (Graham 1973:213-217) may or may not have arrived with Seibal's Facies A people; the presence of these people at Seibal, however, seemingly precludes the Toltec presence. The Facies B people may in fact represent a force opposed to the Chichen-related Toltec.

Whereas Seibal and Nohmul both experienced some sort of intrusion during the terminal part of their histories, this intrusion is seemingly of a different nature at each site. At Seibal, stela erection continued as did the local ceramic tradition with the introduction of Fine Orange and

Grey Wares. A round structure was introduced to Seibal (Structure C-79) as well as a centrally placed four-sided structure (Structure A-13). Although Yucatec influences are claimed on the basis of stylistic analysis of the stelae and of the veneer stone work on buildings, Yucatec ceramics do not appear at the site. At Nohmul, both Yucatec ceramics and a Yucatec building assemblage appear; this would apparently indicate a closer contact to the north. Additionally, the Nohmul buildings are more strictly in the Chichen tradition, as opposed to those at Seibal.

Under the interpretation of the evidence given above, Graham's (1973:217) statement that "there were plural forces at work in the destruction of the Classic order" can only be emphasized. It appears that Seibal was more closely related to the Puuc and Gulf Coast area (western Yucatan Peninsula); this is understandable considering the geography. Nohmul, on the other hand, is closely allied to the eastern Yucatan Peninsula and specifically Chichen-Itza.

Fox (1980:46) has recently differentiated between what he terms the "Toltec pattern" as opposed to an "Epiclassic Mexicanized pattern" for the highlands of Guatemala, claiming that the Toltec pattern succeeded the Mexicanized one in the Lowlands. Unfortunately, what Fox (1980:45) associates with "Mexican," i.e., "long buildings, round or oval-shaped temples, round pillars of colonnaded buildings, I-shaped enclosed ballcourts, and the like," are equally representative of "Toltec." While it may be possible to accept his postulated difference between "Toltec acropolis" sites as opposed to "Mexicanized intrusive civic plaza," the Nohmul example in northern Belize exemplifies a blending of his two distinctions.

It has been argued here that the phenomena represented at the sites of Seibal and Nohmul represent the existence of two separate, contemporary events in the southern Lowlands. Seibal represents a "Puuc" phenomenon while Nohmul represents a "Chichen" phenomenon, consistent with Ball's (1979b:51) "model of eastern Puuc-Chichen-Itza competitive conflict." While Fox (1980:51) sees all "Mexican" or "Toltec" influences in southern Mesoamerica as having derived from the Gulf Coast, it can also be argued that there was a *pincer movement* into the Maya Lowlands during the "Terminal Classic" that mirrored political events in the northern Yucatan. The competitive spheres represented by Puuc Uxmal and Toltec Chichen are here also held to be evident in the differences evinced between Seibal and Nohmul. In this alternative view, Yucatec Chichen influenced the eastern Lowlands, while the Puuc area influenced the western Lowlands. Though the absolute origin of these influences may have lain in the Gulf Coast, the immediate origin lay in the political differences of "Terminal Classic-Florescent" Yucatan.

CONCLUSION

Both architectural and artifactual evidence presented here could link the Maya collapse in the southern Lowlands either directly or indirectly to the rise of Mexican Chichen-Itza during the Terminal Classic period, and strengthen the probability that "Toltec" Sotuta and San Jose V overlapped. While the exact mechanisms behind the collapse and the relationships between the various groups of people responsible for it are still as murky as ever, it is significant that Chichen-Itza may be cross-dated to events far to the south, events that occurred in the final moments of the Classic Maya period. In fact, it may be necessary to return to one of J. Eric S. Thompson's (1927:12-13; Becker 1979:31) original explanations for the "abandonment" of Classic Maya sites: it may have resulted from the effects of the Mexican invasion. Thompson's hypothesis may be modified by recognizing that the advent of Mexican invaders into the Maya area most likely acted as a catalyst and spurred on certain other Maya groups to invade the southern lowlands, thus forming a "pincer" movement from east and west on the central Peten and causing its "collapse."

While it is argued here that the builders of Nohmul Structures 20 and 9 were probably closely related to "Toltec" Chichen, the same cannot be argued for the final events at the site of Seibal. It is in fact necessary to reconsider Adams's arguments that Seibal's foreign presence may have consisted of refugees from the rising Toltec power. In light of the close relationship between Nohmul and Chichen-Itza, it is also necessary to reexamine Cowgill's (1964) hypothesis that the Lowland Maya were forced to resettle in the northern Yucatan.

The Nohmul data can fit either the partial overlap or the total overlap model for the Cehpech/Sotuta spheres described by Ball (1979a). In the partial overlap model, Nohmul Struc-

tures 9 and 20 would date from the period of time when the Chichen Toltec peoples were beginning to take over areas of Puuc control (Ball 1979a:30) and would thus represent a southern Chichen outpost in a convenient location. Due to the admixture of Cehpech and Sotuta materials, Nohmul occupation would have to represent early Chichen dominance. Seibal, more purely Puuc, would be slightly earlier, but still overlapping.

In the total overlap model, favored by Robles and Gonzales (Ball 1979b:48-49), Nohmul would again be the locus of a Chichen outpost; however, it would also be roughly contemporaneous with Seibal, Puuc centers, and Toltec Chichen. Andrews V's (1979b:9) objections to a total overlap model can be partially answered here in that many of the common trade items, be they Sotuta X-Fine Orange or Balacan Z-Fine Orange, do not occur at Nohmul Structures 9 or 20 at all. This suggests the existence of different trading patterns, with not everyone getting the same items even when they were geographically close. This is similar to the situation noted by Graham (1973:217-218) for Terminal Classic Peten.

In summary, the Maya Collapse has become more complicated in all of its ramifications with the discovery of the Nohmul data. Ceramic correlations seemingly need to be modified to accord with one of Ball's (1979a) alternatives—most likely the second nonlinear model presented above. If Chichen-Itza is contemporaneous with the events transpiring in the Terminal Classic Southern Maya Lowlands, this raises the distinct possibility that political events in northern Yucatan were directly responsible for the Lowland Maya Collapse, and that Toltec Chichen may have acted as a counterbalance in the eastern Lowlands to Gulf Coast-inspired events evident in the western Lowlands.

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FUNCTIONAL VARIATION OF MAYA SPIKED VESSELS: A PRACTICAL GUIDE

Michael Deal

Ethnoarchaeological research has made valuable contributions towards our understanding of the functional variation of specific artifacts and features. The use of spiked vessel-forms among modern Maya groups, as well as the depictions of spiked vessels in the surviving Maya codices, suggest that spiked vessels have served a relatively wider range of functions (although invariably in a ritual context) than most Mesoamericanists have suspected. A critical review of the spiked vessel phenomenon, using the codices, the archaeological literature, and recent ethnographic data is presented as a guide for future archaeological interpretation.

Ethnographers generally do not concern themselves with the detailed descriptions of material culture which are important to archaeologists' problems and interpretations. Given the increas-

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