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Plaza Plans at Tikal: A Research Strategy for Inferring Social Organization and Process of Culture Change at Maya Lowland Sites

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Advancing Maya Archaeology

Edited by Jeremy A. Sabloff

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Plaza Plans at Tikal

A Research Strategy for Inferring Social Organization and Processes of Culture Change at Lowland Maya Sites

Marshall Joseph Becker

The identification of architectural patterning among groups of structures at Tikal provides insights into the ways that the Classic Period Maya organized their residences and ritual complexes. Each group pattern, or "plaza plan," reveals an architectural grammar that can be used to understand urban and rural settlement patterns throughout the Maya realm. Recognition of these patterns, achieved through the use of the Tikal survey maps alone, provides a basis for developing effective research strategies for all Maya sites.

Plaza Plan data taken from maps and confirmed by archaeological testing enable us to reconstruct synchronic sociocultural interactions among the several "classes" within these proto-complex societies and to reveal the dynamics of activities within and among Maya "cities" during a single period of time. These architectural patterns also aid us in understanding the diachronic processes leading to the emergence of a complex society at the beginning of the Classic Period and the reverse processes leading to the devolution of these systems. Documenting these relationships enables the reconstruction of processes of culture change through time and space in this part of the Maya realm, serving to verify aspects of the extensive textual evidence that is now available.

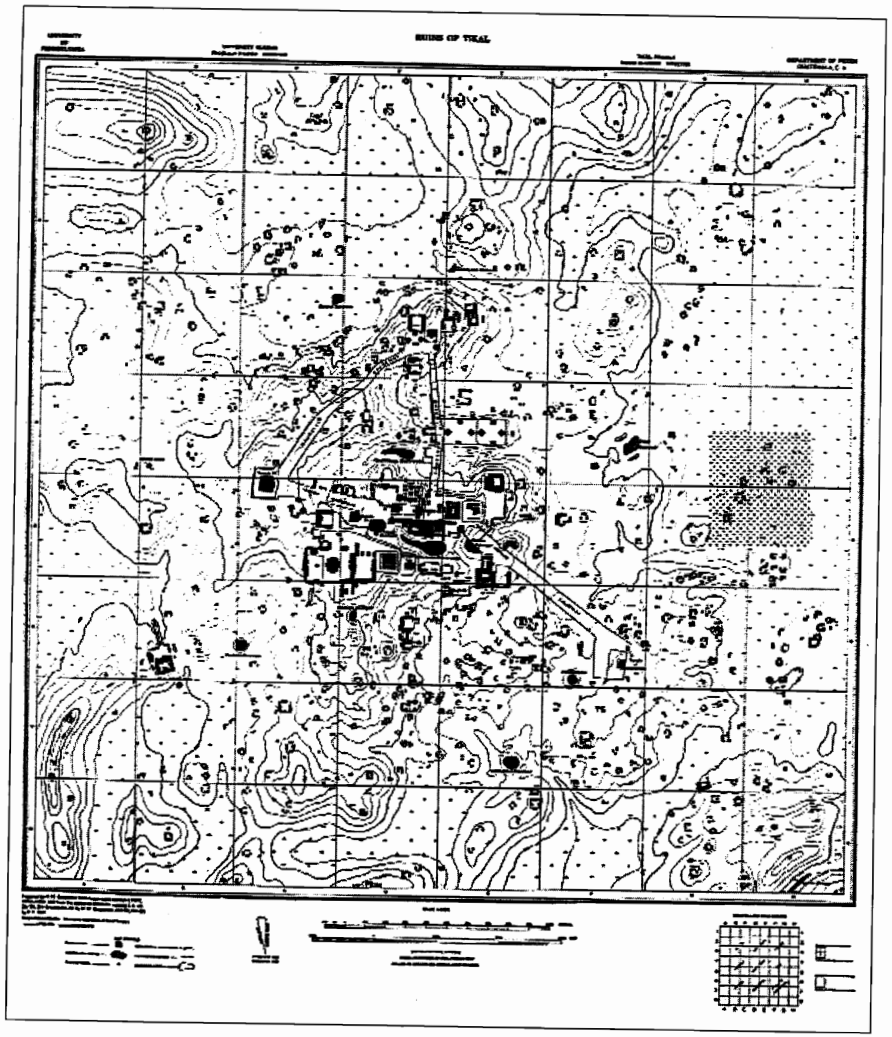

FIGURE 9.1

The Carr and Hazard (1961) map of the ruins of Tikal, Guatemala. The principal area at Tikal where groups conforming to Plaza Plan 2 can be found is in the shaded area at center right (see fig. 9.2).

PLAZA PLAN FORM REVEALS MEANING

Settlement research at Tikal in the early 1960s verified the accuracy of a major mapping project (Carr and Hazard 1961, fig. 9.1) and demonstrated that careful survey is an important element of basic

research in the Maya region. It was subsequently discovered that the form of an architectural group at this enormous Lowland Maya site can be more significant than its physical size (Becker 1971, 1999:197–205).

At other Maya sites, groups of structures continue to be evaluated using the absolute size of the buildings within the cluster and the technology employed in construction (for example, superstructures of pole and thatch versus masonry). Ranking groups by size may elicit information on status variables, or "ranking and stratification" (Becker 1988; Hendon 1991) among the families occupying or using these groups, but such descriptive archaeology provides only a limited reflection of cultural differences or processes of change through time.

Reviewing the literature two decades ago, Don Rice and Dennis Puleston (1981:138–39) noted that the study of "structure aggregates," as suggested by William A. Haviland (1963:466), would be the preferred way to examine Maya settlement patterns. This approach remained very much in the background as most research continued to focus on group size (see Willey 1982). Recently, the interpretation of social relationships among the residents of the extended families occupying these household groups has reemerged as an important subject of study (see Haviland 1988; Manzanilla and Barba 1990; Mcanany 1993) for two reasons. First, the study of residential groups aids in making more accurate estimates of populations; Maya ethnographic data indicate an average of about 25 people per extended family household (Becker 1971). Thus, the population of the 690 groups in the mapped portion of Tikal can be estimated at 17,250 people, if all of these groups were residential. The greater Tikal area may have had a population of around 25,000 people (compare Culbert et al. 1990). Second, as the functions of Maya houses become better understood, we see patterning among both residential and nonresidential groups.

The architectural patterns recognized in 1962 led me to propose that a group's form, whether residential or ritual, is more predictive than its physical size (compare Becker 1982, 1999). When applied to the architectural groups at Tikal, this approach amplifies the information gathered there during four decades of excavations. In addition, the examination of similarities and variations in form among household groups within Tikal, as well as among sites, provides a mechanism for formulating hypotheses regarding culture change in time and space.

MAYA COGNITIVE MODELS: THE DISCOVERY OF PLAZA PLANS

Each "Plaza Plan" (hereafter *PP*) recognized at Tikal conforms to an architectural grammar (cognitive model or mental map) employed by the Maya builders and users of these building clusters. PPs reflect those aspects of the architectural grammars that relate to the structures within a group rather than those that reveal individual-room function (see Hendon 1991; Harrison, this volume). Each grammar reflects cultural choices in the specific order in which the various components of a group were assembled and the form that they took. Each PP incorporates rules followed by the builders that can now be interpreted from excavated groups. At many sites the fundamental rules of these grammars can be identified from surface observation alone (Becker 1999, fig. 9.2). At other sites the grammatical rules may be less evident from the surface, such as at Piedras Negras, where rolling terrain masks details of structural form and orientation (compare Escobedo and Houston 1997).

Surface observation of the group's arrangement and the form of the structures provides the first level of identification for a PP. Statistical analysis of building measurements, gained through excavations, is the second level. Analysis of other unique traits, such as burial or cache placement and contents, is the third level of analysis. For PP2 and PP3 (see below), the extensive work at Tikal has permitted us to refine our ability to distinguish between two very similar architectural patterns and to infer residential functions for both of them (compare Laporte and Iglesias 1999). These three levels of identification should lead to the consideration of a fourth level—why changes occur through time (P. S. Martin 1971:3–4). It remains our ultimate goal to determine what factors led a Maya family to follow one template in the construction of their residence rather than any of the others. The appearance and proliferation, as well as the disappearance, of various plaza plans through time also serve as useful indicators of cultural change within ancient Maya society.

On the basis of the first three of these levels of identification and analysis, we can conclude that those groups at Tikal that are oriented around a single plaza, with a relatively square and tall structure on the east and relatively low, rectangular structures in other positions, conform to a distinct arrangement now designated as PP2. Consideration

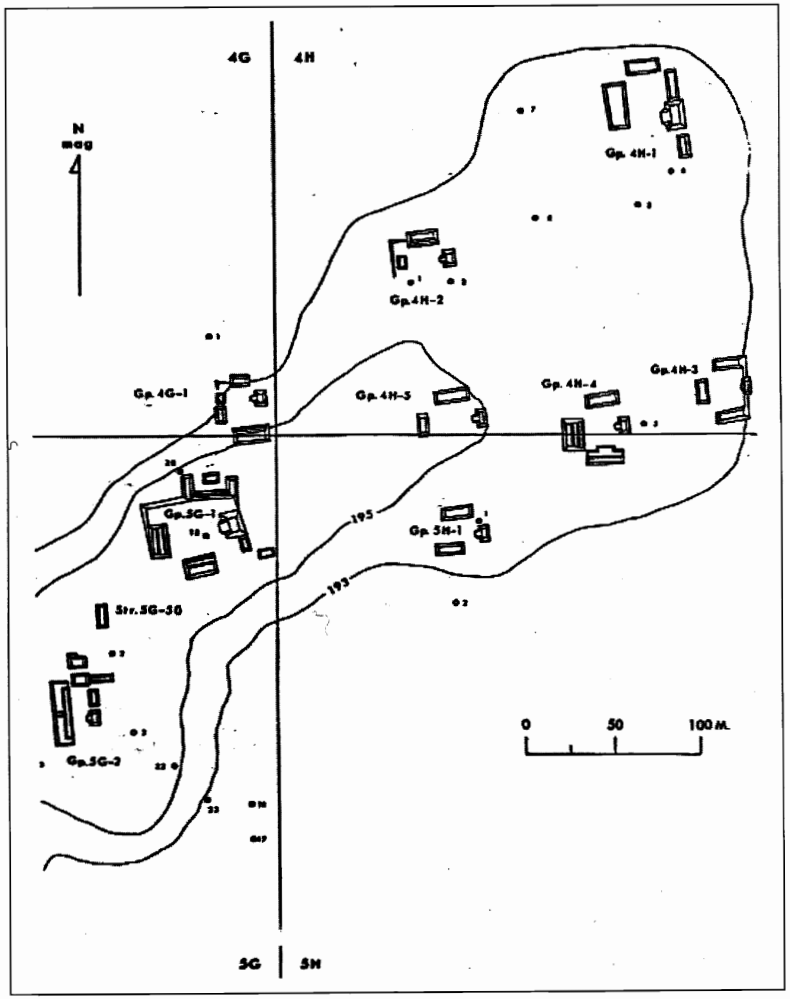

FIGURE 9.2

The peninsula on the eastern side of the city of Tikal, on which nine groups conforming to Plaza Plan 2 were identified. This plan was redrawn by Becker (1971, 1999) after excavations in 1962.

of other traits that distinguish the structures on the east from those in other positions indicates a ritual function for the former as a shrine (family temple or oratorio) within the context of a residential group. The nonsquare, noneast buildings are inferred to have served other

domestic purposes, such as "bedroom," dormitory, men's house, kitchen, or storage area. Details of these relationships and extensive PP2 data from other sites are presently being gathered (Becker in prep.).

At all sites excavation is essential to confirm observations made during the course of mapping. Excavation also reveals elements of the grammar not evident from the surface, such as associated mortuary complexes. The definitions provided below for ten PPs at Tikal need to be scrupulously followed when making evaluations of PPs at other sites. The statistical data related to PP2 (Becker 1999) and other plans are as essential to their specific identifications as are the details of patterning noted by C. Jones (1969) for twin-pyramid groups.

Plaza Plan 1

Following the verification, by excavation, of the "temple-on-the-east" pattern central to PP2 (Becker 1971), I searched for other architectural patterns (PPs) at Tikal (Becker 1982). Among those found was an architectural pattern already described by Shook (1957:48) as a "twin-pyramid" group (also W. R. Coe 1962:479; C. Jones 1969:128–29, 141). The "grammar" defining "twin-pyramid groups," including architecture, building positions, and stela pattern, led to my suggestion (Becker 1982) that this plan should be considered as PP1 because it was the first predictable group pattern identified at Tikal.

The regularities of the PP1 architectural grammar, with its associated monuments, enabled C. Jones (1969; compare Becker 1982:117) to identify a seventh example of a PP1 near Tikal's East Plaza and to suggest the presence of two other examples near Temple IV. C. Jones (1996:1, 91) concluded that PP1 groups served as Katun markers. Since PP1 groups have no association with residential buildings, they must have had only ritual and calendric functions. PP1 groups can be compared with parallel examples at Uolantun, a small site near Tikal, as well as at Chalpate, on the eastern periphery of Tikal, and at Yaxha (Laporte, this volume), where some PP1 elements vary from those at Tikal. Other examples of PP1, as well as variant forms of PP2 such as PP2B, continue to be recognized at other Lowland sites (see Becker in prep.).

Plaza Plan 2

The frequency and distribution of PP2 within a site and among

sites provides a means by which many Maya cities can be compared. PP2 can be initially identified by the presence on the center of the eastern side of the compound of a relatively square, relatively tall, and often relatively small structure (Becker 1999). These structures are now commonly called "shrines" (see below). Of the 690 architectural groups delineated at Tikal, a total of 96 (14 percent) were predicted to conform to PP2 solely on the basis of their mapped configurations (Becker 1982). Dennis Puleston's (1983) study of the South Brecha at Tikal, extending 12 km. out from the site center, identified a total of 128 architectural groups, of which 19 (15 percent) conform to PP2. The remarkable similarity in these percentages and their random appearance throughout the test area suggest that PP2 has a consistent distribution throughout the greater Tikal region.

Nine of the PP2 groups located in central Tikal are on a peninsula jutting into the Bajo Santa Fe (Carr and Hazard 1961, fig. 9.3). In 1962, six of these groups were excavated, and the other three were resurveyed. These nine groups provided the type-plan for PP2. Subsequently, six of the other 87 groups at Tikal that had been predicted to conform to PP2 were randomly selected for testing to validate the hypothesis that PP2 configurations could be recognized by surface survey and evaluation of architectural pattern. The 1963 excavations, focused on the east-lying structure in each group, demonstrated the predictive power of this architectural grammar. Each of these east-lying shrines includes high-status burial, in each case made prior to the construction of the first structure at each locus. Usually, each subsequent rebuilding was preceded by the intrusion of another high-status burial (Becker 1971, 1999). This associated mortuary pattern, plus ceremonial activity in the form of on-floor burnings, helps to indicate the function of these buildings, now identified as shrines. Only the largest examples of PP2 shrines were vaulted, with the smaller examples supporting only thatched structures.

A primary question that was asked regarding the definition of the PP2 architectural grammar concerns the validity of characterizing an entire group on the basis of the configuration and position of only one of its structures: east location plus high width to length ratio (>.70). Platforms of buildings in noneast positions in these groups have a low ratio of width to length (consistently <.70; Becker 1971, 1999).

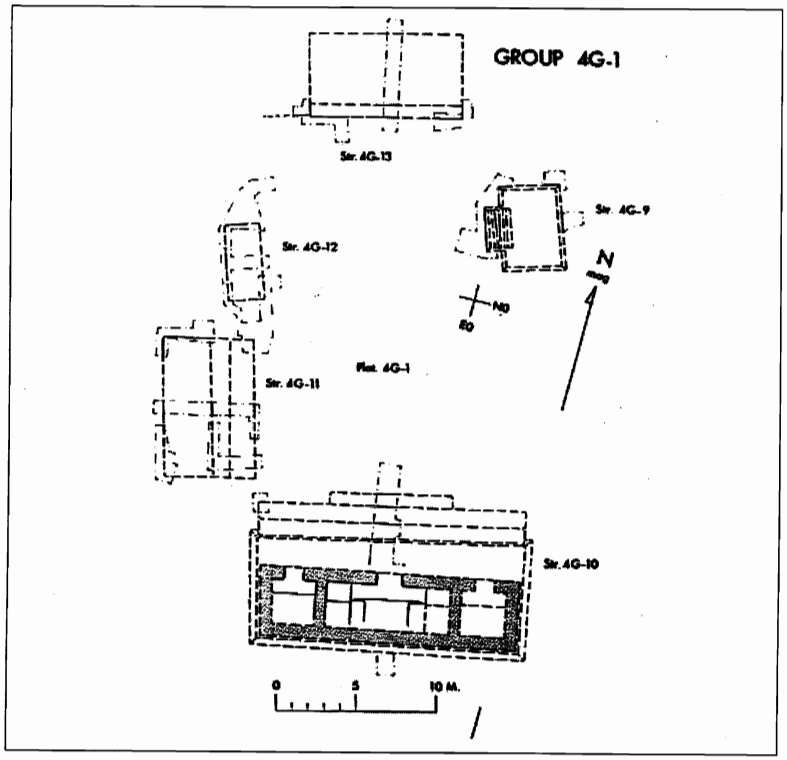

FIGURE 9.3

Tikal Group 4G–I. Detailed plan of one example of Plaza Plan 2 on the peninsula depicted in figure 9.2. The small shrine on the eastern side of the plaza is Structure 4G-9.

Excavations of PP2 groups provided specific architectural details characteristic of each east-located shrine (Becker 1999) plus precise measurements that demonstrate, when subjected to statistical analysis, that structures on the east of PP2 groups are significantly distinct in plan from all other structures in the same group. Squareness of structure plan remains the critical variable in identifying these "temples on the east" from surface survey alone.

Of particular interest at Tikal is the recent discovery by the Proyecto Nacional Tikal (PNT) of a second area with a clustering of PP2 groups. These are in the area of the Bajo Pital. That both clusters of PP2 groups at Tikal are in areas surrounded by bajo may not be a

matter of chance within this large and complex site. The relationship between the forms of residential groups and the bajos, a juxtaposition explored by Fletcher et al. (1987:23–26) at Calakmul, may also be a consideration in the location and interpretation of variant examples of PP2 (see Kunen et al. ms. A). The construction of residential groups using the PP2 grammar in areas near bajos may reflect a social phenomenon that remains to be elucidated.

Directionality, Origins, and Evolution of PP2

The location of the diagnostic structure or shrine on the east of PP2 groups calls to mind Clemency Coggins's (1980:729) suggestion that, among the Maya, "east" is invariably the position of honor. Maya maps that date from the Colonial era place east at the top. Ashmore (1991:200, 1998) addresses questions of directionality in Classic Maya site planning, providing valuable insights and interesting interpretations of the cultural processes underlying the organization of space among the ancient Maya. The earliest known examples of PP2 at Tikal date from the Early Classic period (Becker in prep.), suggesting an evolution from an earlier pattern in which the structure on the east is also significant. I believe that PP2 evolved from E-groups (PP10) and that the transition may be part of the process of social and cultural transformation leading into the Classic period throughout the Maya area.

Soon after the recognition of PP2 at Tikal in 1962, looters applied this predictive model at Tikal, Caracol, and most other Lowland sites with great success. Their functional application of these data to maximize the return on their efforts (see Pendergast 1991; Lynott 1995; Lynott and Wylie 1995) demonstrated the utility of this archaeological model. The application of this research strategy by scholars searching for tombs began with the proposal that Str. 16 was the burial locus of the kings of Copan (Becker 1980). Other archaeologists dealing with large sites have found these grammars useful in the organization of survey data and in making intersite comparisons. For example, Arlen Chase and Diane Chase (1994:54) believe that 60 percent or more of all groups at Caracol are "eastern shrine groups," as compared wiith only ca. 15 percent at Tikal (see Becker in prep.).

Studies of culture change as reflected in architectural change (Fletcher 1978, 1983; Freidel 1981b:311–14) offer a means by which

the transition to the Postclassic period can be understood. This change may be seen at Postclassic-period Lowland Maya sites, perhaps reflecting the devolution from organized, Classic-period PPs (see D. S. Rice 1988) that parallels a devolution in social organization (Becker 1988).

RECOGNIZING A GRAMMAR OF PPS AT TIKAL: EIGHT NEW EXAMPLES

The recognition of a PP2 at Tikal, with a residential function distinct from the public function inferred to be associated with PP1, led to the examination of the Tikal map to search for other PPs. Eight additional PPs were soon identified at Tikal, based on examination of the map alone (see fig. 9.4). Excavation enables us to verify these patterns and to infer functions for these groups. Each of the PPs must reflect some aspect of cultural dynamics essential to our understanding of the history and social organization of Tikal. A description of these eight plans follows.

Plaza Plan 3: The "Normal" Tikal Residential Plan

Approximately 70 percent of the 690 architectural groups at Tikal are residential clusters with a simple rectangular arrangement, generally with low rectangular platforms evident on two or more sides (for example, Gr. 7C-XVII, see Becker 1982). This PP developed during the Preclassic and remained common at Tikal, the size of the structures becoming larger during the Classic period. PP3 is also the most common group arrangement at Calakmul, with PP5 probably the second most frequent (Fletcher et al. 1987:94–96).

Some PP3 groups include one or more vaulted buildings that range greatly in size, reflecting family resources. These regular ("white bread") groups have no shrine on the east and no distinct mortuary complex. As is the case in PP2, some PP3 groups are small (Gr. 3B-XI, Haviland in prep.b), while others are extremely large (for example, Gr. 6D-V, Iglesias 1987). Refining the identification of PP3 is one of the major contributions of a recent report by Juan Pedro Laporte and Josefa Iglesias (1999; see also Haviland in prep.b).

Plaza Plan 4: Central Altar Plan

The diagnostic architectural feature of these PP3-like residential groups, formed by only rectilinear structures, is a small platform (low

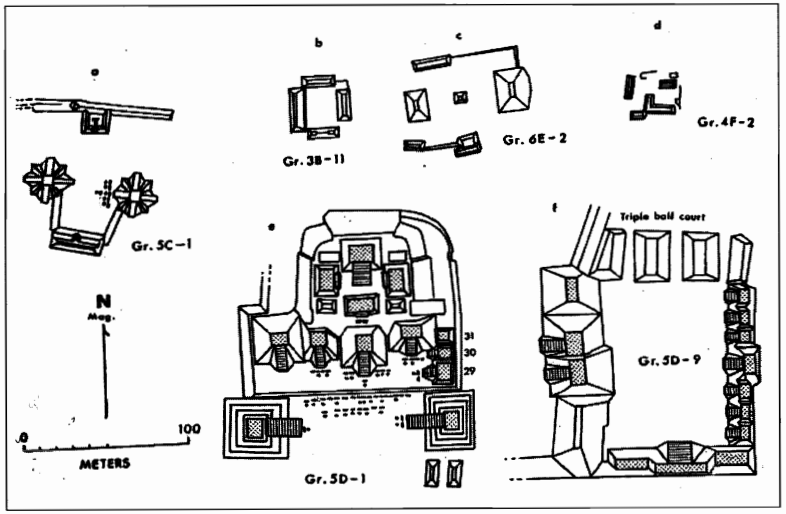

FIGURE 9.4

Examples of other Plaza Plans identified at Tikal, (a) *Plaza Plan 1, Twin Pyramid Groups (Gr. 5C–I),* (b) *Plaza Plan 3, example of a typical Tikal residential-group plan (Gr. 3B-11),* (c) *Plaza Plan 4, central-altar plan (Gr. 6E-2),* (d) *Plaza Plan 5, informal residential grouping (Gr. 4F-2), believed to be low-status residences,* (e) *Plaza Plan 6, the "Temple Triad" plan, as represented by the three northernmost structures on Tikal's North Acropolis (Gr. 5D-1), with an example of a ball court (Plaza Plan 8) at lower right, and* (f) *Plaza Plans 7 and 8, "Seven Sisters" plan and ball courts. Seven temples along the eastern margin are incorporated or linked to Gr. 5D-9, and the northern structures form a triple ball court.*

altar?) in the center of its plaza (fig. 9.4c). Since this diagnostic feature is often extremely small, these groups are detected only by careful mapping. One should note that the PP4s now known are usually in relatively large groups, probably because the diagnostic pattern in such groups is proportionally large and therefore easily visible during mapping. Thus, an example of PP4 composed only of small structures might have a relatively small platform or "altar" in the center of the plaza—a structure that could be invisible except through careful excavation. Excavations in several of these central, altarlike platforms found caches of diagnostic artifacts in the form of human "trophy heads" (for example, Tikal Groups 6E-3, 6F-1, 7F-15, 5C-3, 6D-1, and 10). The use of skulls as trophies and in caches is often noted in the Maya area but

remains a subject meriting further study (compare Becker 1996; see also D. Chase 1988; A. Chase 1994; Becker 1992; D. Chase and Chase 1998). The platform west of Str. 7F-30 (W. R. Coe and Broman 1958:figs. 2 and 3, feature 1) may reflect the presence of a PP4. This feature was covered ca. 10.1.0.0.0, perhaps with the entire group function being altered.

A possible example of an altar in the center of a group's plaza is the early-period structure that Laporte (1989:42) calls "banqueta" (Str. Sub-27 of Gr. 6C-XVI-Sub), located in front of Strs. Sub-23 and Sub-26 of this group. This location suggests that the 0.30 m.–tall structure may be a prototype of a PP4 platform. Haviland (pers. comm.) notes that some of the much later examples of these central "altars" at Tikal have *tablud-tablero* architecture. C. Jones (pers. comm.) suggests that some of these altars may relate to the Venus-Tlaloc deity complex that is also associated with ball courts. PP4 altars thus may be ancestral to the Venus platform at Chichen Itza, with its skull associations. Many other sites also have such structures (compare Becker in prep.), and PP4-like features appear as far away as Puebla, Mexico (Op. 11 and 12 of Plunket and Uruñuela 1998).

Plaza Plan 5: Informal Groupings

Structures in these groups are always small, never vaulted, and arranged in an irregular or "messy" pattern without an evident central plaza (for example, Tikal Groups 4F-II [fig. 9d], 4F-I, and 6F-IX; compare Ashmore 1981:49; Webster and Gonlin 1981). Although one might predict that the size and irregularity of such groups relates them to the lowest social class, it is significant that the smallest architectural groups at Tikal do not conform to PP5 but generally conform to PP2 or PP3.

Plaza Plan 6: "Temple Triad"

Temple triads (see also "Triadic Temples" in Folan et al. 2001) are best exemplified by Tikal's North Acropolis plan. These ritual groups include a series of major temples placed on the east, north, and west of a relatively large plaza (see fig. 9.4e). A PP6 arrangement developed on the North Acropolis at Tikal (Group 5D-II) during the Early Classic period and was rebuilt several times in this form throughout the Late Classic period (W. R. Coe 1964:411, 1967:42).

An important question in the evaluation of PP6 is the location of the most important structure in the group as defined by size or mass. My assumption is that the principal structure of such groups is always located on the north, as in the Tikal North Acropolis. This variable may shift through time at other sites (see Becker in prep.). Smaller variants of PP6 groups remain to be recognized. Coe (1990:943) refers to this pattern as a "trinal arrangement."

Plaza Plan 7: "Seven Sisters Plan"

In this plan, seven "temples" or ritual structures are situated along the eastern side of a rectangular plaza (for example, Group 5D-9 with Strs. 5D-92/99, see fig. 9f) of an elite residential complex. PP7 may be a variation or elaboration of Tikal PP2B (see above), but one found only in large and probably high-status residential groups (Maler 1911:52–55; Becker in prep.).

Plaza Plan 8: Ball Courts

Constructions identified as ball courts have long been recognized as a distinct type of Maya building group (Blom 1932:499; Strömsvik 1952; Scarborough and Wilcox 1991; C. Jones this volume). C. Jones (1996:86–87) also suggests an association between ball courts (PP8) and markets (PP9), a relationship that might be helpful in identifying both categories. A great deal is known about ball courts in Mesoamerica and elsewhere. Such knowledge of spatial distribution provides opportunities to use PP8 for comparative research on this complex (Whalen and Minnis 1996; Becker in prep.).

Plaza Plan 9: Markets

A common feature in a complex society is the presence of centralized and regulated markets. The late E. Shook suggested that markets must have existed within Classic-period Maya cities, and specialists such as R. Rands (1967:147, 149) note that markets must have been part of any system that produced complex and specialized goods. Hattula Moholy-Nagy (this volume) elaborates on this theme, noting that the artifactual evidence alone suggests that several markets existed within Tikal (compare Fry 1979, 1980). Markets may be identifiable by architecture designed to meet the needs of business activities (C. Jones, this

volume) and by the artifacts recovered from associated dumps. Identification of markets depends on finding large, open squares within a quadrangle formed by long, narrow structures that presumably held market stalls similar to those known from the *stoa* in Athens.

C. Jones (1996) offers convincing architectural data from the East Plaza at Tikal to suggest that the eastern portion had been used as a market area over a considerable period of time (but see Potter and King 1995:23–24). C. Jones (1996) notes that "stalls" in the Tikal market are only ca. 1.5 m. wide, suggesting that a form-function relationship is important. Public markets have been "recognized" at several other large Maya sites, such as Calakmul (in square M29, see May Hau 1990; Folan et al. 2001), Sayil (Tourtellot and Sabloff 1994:88, 90), Yaxha (C. Jones 1996:86–87), and Copan, where one is situated just west of the Acropolis area.

Plaza Plan 10: "E-Groups" and Astronomical Rituals

One of the earliest observations of regularities in Maya structure groupings was the recognition of a pattern reflecting astronomical activities ("E Groups"; see A. Chase and Chase 1995a). Near Tikal, ca. 1997, V. Fialko found an example of a large PP10 south of Navahuelal, associated with a huge pyramid and dated to the Middle Preclassic period (Laporte and Fialko 1990:47; see also Green 1970). Laporte (pers. comm.) notes that E-groups are central to ca. A.D. 200 sites in the Tikal region and that many appear to date from the Classic period. I now believe that "E-Groups" were antecedents of PP2, with all surviving examples having early origins. At small, peripheral sites one might expect PP10s to continue in use into the Classic period.

The first clear delineation of an "E-Group" from the surface appears on C. L. Lundell's (1933) map of the Calakmul site core. Folan et al. (1995:315, fig.4) identify this group as Str. VI on the west, with the buildings of Str. IV on the east (compare Fletcher et al. 1987:fac.p.30). J. Bolles (in Ruppert and Denison 1943) provides details of the Calakmul E-group (Strs. 4 and 6 in Sq. M29; see May Hau et al. 1990; Folan et al. 2001; compare Carrasco et al. 1999:50, fig.2) and also notes that similar groups could be found at Hakun and Uaxactun.

"Excavations" at Uaxactun (Ricketson and Ricketson 1937:105–8; A. L. Smith 1950) revealed a group of structures with associated monuments erected in a pattern reflecting astronomical and calendric functions. Oliver Ricketson (1937:105–8) describes the pattern as including a series of three "temples" along the eastern margin of a plaza, with another "temple" (Str. E VII) on the west serving an "astronomical" function. Laporte (in prep.) continued this research at Uaxactun during the 1974 and 1984 seasons. Karl Ruppert (1940) listed 19 architectural groups similar to the E-Group at Uaxactun within 100 km. of that site, and other examples have been reported from elsewhere in the Maya realm (Blom 1924; Laporte 1993; see also Becker in prep.).

Although A. Chase associates PP10 with the beginning of the stela cult and Coggins (1980:731) suggests that PP10s are ancestral to twin-pyramid groups (PP1; see also Schele and Mathews 1998:180), I believe that PP10 groups are precursors of PP2. I suggest that Tikal Gr. 5D-XI is an analog to the Uaxactun "E-Group" complex, with Str. 5C-54 (Tikal's principal "Lost World" pyramid) on the west and Strs. 5D-84, 86, and 88 as the eastern trio (see Laporte 1989:figs 135, 138). Laporte and Fialko (1990) identify Burial PNT-022 as the earliest associated with a Tikal E-group, noting that it is set in front of the central platform. I believe that this easily tested thesis relates to the later PP2 mortuary complex, and I offer two predictions. First, I believe that a mortuary complex will be found associated with the central structure on the east of E-groups. Second, I think that traces or remnants of solstice markers will be found flanking the central structures of the first Early Classic examples of PP2.

THE TEN PLAZA PLANS NOW IDENTIFIED

Overlaps in the elements that are diagnostic of each of these architectural grammars are strikingly rare. Data derived from excavations in noneastern structures within PP2 groups at Tikal and in various buildings from groups conforming to PPs 3, 4, and 5 all seem to reflect the use of these groups as household units (residences for an extended family). Differences in various details of arrangement among the groups may reflect social-class differences—a matter to be considered in future research. Excavations at Tikal in 1963 were focused on PP2 and PP3 groups in order to demonstrate the accuracy of the map and indicate differences that could be seen only through archaeological recovery (Becker 1999; Haviland in prep.b). The success of this program led to a more intensive program by the Proyecto Nacional Tikal

(PNT) to explore group variations in one part of Tikal and to compare PP2 groups (for example, Gr. 6C-IX and XV) and PP3 groups (6C-I, XVI) with the much larger structure assemblages that are less easily classified (for example, Gr. 6D-VI, XVII: see Iglesias 1987; see also Laporte and Iglesias 1999). New data from these excavations allow us to infer functions from the PPs, providing a separate line of research (compare Becker in prep.).

ARCHITECTURAL GRAMMARS VERSUS GRADATIONS BY SIZE

Among archaeologists interested in settlement studies, fascination with structure size has detracted from research on architectural grammars. Very small structures, usually unseen by even the most diligent mappers, were sought at Tikal in a special project directed by Bennett Bronson. Research targeting very small structures continues in the Maya area (compare King and Potter 1994:65; Webster and Gonlin 1981). Considerable success has been achieved recently in the Northern Lowlands, where surface visibility is good. These studies may provide us with important clues to the organization and social structure at Maya sites. More problematical in Maya studies is not the attention directed toward large architectural groups but the belief that relative size is the only variable that matters.

The Three Bears and Other Fairy Tales

The viability of predictions based on the arrangements that can be identified in architectural groups is a primary concern of this chapter. We have established that group form alone has extremely high predictive value as relates to the behaviors of the group's occupants or builders. These predictions hold true *regardless of the absolute size* of the group. While economic variations may be reflected by differences in the size of architectural groups, other speculations based on the size of structures within a group are of little use in explaining how the Maya lived. Attempts to infer site organization and meaning from the relative size of specific residential groups (Webster 1998:17) risk creating circular arguments. The evaluation of any large group as the residence of the "elite" requires confirmation through sets of architectural and artifactual evidence that remain to be determined (see Webster 1998:24).

Thus, "Goldilocks and the Three Bears" provides us with an important cautionary tale for interpreting studies that seek meaning in the relative size of architectural groups.

The "Three Bears" approach to Maya architecture involves the use of "group size," variously calculated, to evaluate the social class of the users of specific groups of structures (architectural complexes). These size-related studies yield descriptions of architectural groups that always sound like stories about the three bears. One may ask, "What is the gender of the baby bear?" One does not know because it is irrelevant to a story in which size is emphasized. Now that gender has an important place in archaeological interpretation, the story of the three bears—like size-based analyses of groups—may not be relevant (see Becker 1999). Although commonly employed, the "three bears" approach has not produced any useful predictive models, despite the fact that groups of large size yield useful data in the form of objects and texts. These findings reflect riches and very possibly elite status, but "going for the gold" lacks methodological order and explanatory value.

In Maya archaeology, as in modern American society, the distinction between elite and rich is rarely addressed and remains unclear to most scholars (see D. Chase and Chase 1992; Moholy-Nagy, this volume). Patterning among architectural groups at Tikal, rather than size, produces data that are useful in understanding factors other than wealth (see Hendon 1991). At Tikal the range of variations in the absolute size of the individual groups conforming to a specific pattern is vast. Wealth, as reflected by group size, is not correlated with any particular PP. Since any specific PP (for example, PP2) at Tikal was built in all sizes (Becker 1982, 1986, 1999), use of architectural grammars may provide an important research strategy for understanding what these groups mean both at Tikal and at other Maya sites (compare Ashmore 1987).

Tikal PP2 groups range in size from extremely small to extraordinarily large, with the largest PP2 groups within greater Tikal exceeding the size of many small Maya sites. This indicates that something else is involved in the configuration of these groups—something embedded within the culture that transcends status or wealth. Inasmuch as the form of a specific PP is more predictive than the evaulation of the size of the architectural cluster, this suggests that a nonranked view (heterarchy) of these groups might be useful.

HETERARCHY

Classic-period Maya houses sharing the same PP vary in size from quite simple (see Pyburn 1989) to very elaborate. While the most elaborate houses might represent high-status or elite residences, Gair Tourtellot (1988:362) notes a lack of correlation between dwelling size and wealth or status. Ranking "houses" or "courtyard groups" by size in areas where discrete architectural groups are common is an extension of the regional rank-size analysis of Maya sites pioneered by Adams and Jones (1981; see also Adams 1982). But many enormous residential groups within Tikal are located far from the elite residences on the Central Acropolis. We may be seeing the earliest "suburbs" in the New World, with the traditional "center city" people at Tikal living near the Great Plaza and their "commuting cousins" living in impressive residences such as Gr. 7F-I or Gr. 6B-II (the "Barringer Group"), both of which conform to PP2.

Heterarchy, as an alternative to hierarchy (Ehrenreich et al. 1995) among the Maya, is a research focus of E. King (2000), who examines Maya settlement patterns using a "multiscalar, dialectical" approach. Carole Crumley (1987) addresses the problem of trying to order data using contemporary notions of social stratification and class. She suggests that hierarchichal arrangements based on size of structures, for example, may not reflect the cognitive systems of the people who created the evidence that is recovered by archaeology: "Heterarchy may be defined as the relation of elements to one another when they are unranked or when they possess the potential for being ranked in a number of different ways. For example, power can be counterpoised rather than ranked" (Crumley 1995:3, 1987:158). This approach provides a means by which we can understand some of the issues regarding size variations in residential groups that share the same PP. King (2000) also provides inferences regarding heterogenous, or nonhierarchichal, social forms based on findings of regional rank-size analysis.

Crumley (1987) notes that confusing the hierarchichal nature of Maya settlements by ranking them by size, with implied complexity, obscures our ability to elicit patterns from the archaeological evidence (see also King and Potter 1994:67). Social classes may be blurred in the archaeological record by the conversion of wealth into architecturally elaborate groups. While Classic Maya society clearly had a hierarchichal sociopolitical structure (Feinman 1995; Marcus 1995:13–16, 19–20, 27–29), the considerable variation in the size of PP2 groups and other types of groups demonstrates the need to consider how the concept of heterarchy might be useful. The many size-ranking models proposed for the Maya have generated no predictive means by which we can understand variability within Maya society, except for differences in wealth (see Marcus 1995:25–27). A shift of emphasis in Maya settlement studies toward the form of clusters of buildings (PPs) representing households or other units, along with the correlary realization that the individual parts need to be evaluated independently, provides momentum to this line of research.

The term *nonhierarchichal*, applied to PPs, suggests that there is no way of ranking these groups rather than that there are various ways of ranking them, as by size. Crumley (1995:4) also notes the important point that "governmental heterarchies (e.g., peer polities; Renfrew and Cherry 1986) can move over time to become hierarchies and vice versa" (Crumley 1987:164–65). These changes may occur without the need to invoke what can be termed the "rhetoric of collapse." David Potter and Eleanor King (1995:21) note that there is no evidence of elite or hierarchichal regulation of many aspects of the Classic Maya economy, such as corvée labor, nor any evidence for an elite controlling local economies. Perhaps, as King (2000) suggests, Maya society during the Classic Period had achieved the complexity that is apparent from variation in architecture (wealth) without a hierarchichal social structure (compare King and Potter 1994; Potter and King 1995; Palka 1997b). A hierarchichal economic structure is evident from wide variations seen in the size of various groups sharing the same PP, but differential access to wealth does not correlate with sociopolitical power. Therefore, shifting resources (wealth) may have been a factor in the changing power structure at Maya sites and may reflect "dynastic" changes that are documented in the ancient texts.

PLAZA PLANS AND CULTURE CHANGE THROUGHOUT THE MAYA AREA

The ten distinct PPs at Tikal provide a typology that may subsume most groups within any Maya city under a relatively smaller number of headings. Thus, the grammars defined above can be used to order the

archaeological data more effectively (Becker 1971, 1982), allowing us to study processes of cultural change through time and space (de Montmollin 1988). All this, of course, depends on the evaluator's having good site maps and skill at pattern recognition.

Variations in Classic-period Maya sociopolitical organization are increasingly evident both within and between sites (Hendon 1992), but there are many elements shared among these ancient city-states. PP2, as defined at Tikal, is a group arangement commonly distributed throughout the southern Maya Lowlands (Becker 1971:16–18) and easily identified far beyond this region. Recognition of elements of a PP2 configuration at Quirigua (Becker 1972) enabled me to predict the origins and functions of Structure 6, first cleared some 100 years ago. This was an early demonstration that the architectural grammars defined at Tikal could be identified at other sites. The same theory regarding PP2 was also used to predict that Copan Str. 16 (Becker 1980:20–21) held the tombs of the kings of Copan.

Alterations in the PP of a group reveal cultural changes in ways not duplicated through the study of the forms of individual structures alone. The continuities or discontinuities among these group patterns reveal a great deal about cultural continuity. Documenting the first appearance and the subsequent "evolution" of residential groups conforming to PP2 at Maya sites is but one way in which change may be characterized (see Hendon 1999; Ringle 1993).

At Tikal the building that had originally covered Bu. 35 suggests that PP2 had Late Preclassic origins (Haviland et al. 1985). PP2 matured during the Early Classic period, became common during the Late Classic, and ultimately was used for 14 percent of all known architectural groups at Tikal (Becker 1982). The meaning of these changes and the possible evaluation of ideological and cosmological implications are based on data derived from site mapping alone (see Shaw, King, and Moses 1999).

The shrine in a PP2 residential group may focus or legitimize the power of a lineage head belonging to a specific kin group, or moiety. If so, then the shrine would define lineage association or membership. Association between the location of a household shrine and the residence of that lineage head may be noted from a cross-cultural perspective (Sanders et al. 1979; but see Hageman 1999). In the Maya

Lowlands the high degree of shared community interaction of the Preclassic period, with a ritual focus at the center of the village, was followed by urbanizing expansion during the Early Classic (see Feinman and Marcus 1998). This led to the formation of an "urban" royal elite, a specific class that lived in the Central Acropolis at Tikal (Harrison 1970), near the focus of the rapidly specializing, complex ceremonialism on the North Acropolis. Many but not all lower-status residents lived at some distance from this ritual center. Distance from the site center appears unrelated to wealth but may reflect differential access to power or to powerful people.

If the ritual focus of a PP2 household at Tikal was its own shrine and not the large temples built by the elite, this might reflect centripetal forces acting on rituals and might be associated with urbanization. We still do not know why some families wished to have their own shrines and others did not, but no concentric zonation is seen at Tikal or at any other Maya site. At Tikal the apparent clustering of residential groups with shrines (PP2) near *bajos* suggests an alternative theory (see Laporte and Iglesias 1999), possibly that PP2 groups represent immigrant families or specialists in some trade such as pottery production.

Plaza Plans and Temporal Change

The distribution of examples of PP2 throughout a site may provide important clues to cultural change and "urban" organization in Maya cities. Similarly, the decision of a group to change its PP tells us something about cultural processes. At present we remain unable to interpret this information. Examination of temporal change relating to PP2 reveals three variations in the construction of the diagnostic temple in the east reflecting cultural process. First, we can describe what appears to be the original category, in which the initial construction on the eastern margin of the residential plaza is a characteristic small shrine covering a new burial chamber that must be cut into the bedrock. Through time, accretions to this structure reflect the fortunes of the occupants of this residential group, but each subsequent stage of construction conforms to the size and shape rules, or grammar, for PP2.

A second category of PP2, "changed to," began its existence in conformity with a PP3 or other residential-group plan, but at some point this plan was deliberately altered to conform with the rules associated

with PP2. In these cases, the initial burial shaft had to be cut through the entire existing nonsquare structure on the east and down into the bedrock, as exemplified by Tikal Bu. 116, beneath Temple 1. The Temple I tomb represents the introduction of the PP2 concept into the very center of the Tikal ceremonial area, if the temporal origins of nearby Str. 5E-38 and the impressive burials within it are not earlier.

The process of "change" involved in the construction of Temple 1 as a "shrine" on the east required that the ritual burial "consecrating" the ground beneath it be made in a tomb that cut completely through (not just into) the existing structure at that site. Since that structure was not a shrine, the PP2 tomb had to penetrate the existing structure and go down into the bedrock. The ritual building, then "sealing," of that tomb performs a "cognitive" covering function, wholly or at least in part encapsulating the existing structure at that eastern location. Thus, Tikal Bu. 116 is not centered below Temple I, as is the case with an "original" PP2 shrine, but had been intruded through the southern part of the existing platform (nonshrine) already at this locus. The center of this platform lies north of the Temple I axis, but the tomb cut was required to go through the earlier structure as part of the grammar of PP2 construction.

This burial pattern beneath a structure on the east side of a plaza differs from the Tikal tradition of making interments of "kings" below the temples arrayed over the North Acropolis. In 1962 I predicted that no burial would be found beneath Tikal Temple II, III, or IV but that a major tomb would be found beneath Temple VI, which faces west from the east side of its plaza (see Becker 1982:119). Most of the first 22 rulers of Tikal may be buried within the North Acropolis (but see Laporte, this volume). The shift to a PP2 mortuary pattern at Tikal's epicenter that is indicated by the burial of Jasaw Chan K'awiil II (after S. Martin and Grube 2000, formerly Hasaw or Ruler A) beneath Temple I leads Haviland (1994) to suggest that Jasaw had his origins at Caracol, where PP2 is common. Jasaw may also have been the victor in a "war" with Tikal. In an alternative scenario, Jasaw's wife or consort comes from Caracol. The presence of Jasaw in a PP2 "shrine" at Tikal may reflect the introduction of PP2 to the Tikal elite from Caracol, where residential groups commonly conform to this plan (see above). Regardless of the origins of Jasaw Chan K'awiil II, this shift in mortuary ritual at Tikal

appears to signal an important alteration in the political history of the site. The burial beneath Temple I suggests that the rituals of people using PP2 had become the primary religious rite used at the site.

A third category of PP2 groups began by using the normal PP2 plan, but at some point the occupants chose to abandon this tradition and convert the shrine to a nonritual function. This important third category, "changed from," reflects a process that is the reverse of "changed to." The remodeling of the east building to serve a new purpose (see Webster 1998:16) is generally not evident from the surface (Becker 1971). This process can be seen in Bu. 35, located below Str. 4F-8 at Tikal and dated to the Manik ceramic period (see Culbert 1993:figs. 27 and 28). The same process applies to Quirigua Str. 6, which changed its function at some point (see Becker 1972).

The spatial and temporal distribution of architectural groups throughout the Maya realm, as well as their relative numbers, provide ample material for recognizing processes of culture change (see Haviland, this volume). Other models of cultural behaviors, elicited from ethnographic and documentary accounts, may be better at helping us to understand the thoughts, or cognitive processes, operating in the minds of the Maya who created these various PPs. Attempts to understand the Maya through the use of PP studies are slowly developing, and as we enter the new millennium, increasing numbers of young scholars are discovering the predictive values embodied in this approach.

What Do PPs Mean?

PP1 has calendrical-ritual functions, and PP2 commonly relates to a specific type of residential group that includes a shrine used in the veneration of the ancestors. The significance of many other PPs and their variations remains obscure. The assignment of function to any particular architectural group depends on the interpretation of "meaning" in the building plan and associated features. Ritual, domestic, or economic (market) functions must be implied by the analysis of the component architectural and other features within a group. These features, in turn, may offer clues to social and/or ethnic diversity. Some PPs at Tikal may reflect foreign influences. Central Mexican traits are known from Tikal, in ceramics as well as in art and architecture

(C. Jones 1996; Laporte 1989; Sharer, this volume), perhaps reflecting the presence of foreign individuals or emissaries (diplomatic missions, traders). The suggestion that the huge complexes of structure within sites such as Tikal and Calakmul were the residences of exiled or deposed rulers is but one of many possible interpretations. Anthropological data on moieties lead me to suggest that a specific large-building complex may be the residence of an internal affairs leader or of the person ("king") serving as the head of the internal affairs moiety, who regulated basic internal functioning within a complex city (Becker 1983, 1991). An association between a specific PP and "foreigners," through biological or other evidence, remains to be proven, but the possible relationship between PP2 at Tikal and Caracol warrants attention.

Identification of patterning among the residential and other groups at Tikal and surrounding sites is more effective for reconstructing the cultural variations within this part of the Maya realm than has been previously noted. As Héctor Escobedo and Stephen Houston (1997) suggest for Piedras Negras, the orientation of structures may be influenced by terrain in ways that alter the relationship between structure axis and astronomical orientations, but the range of variations at a single site and regional patterns remains to be investigated.

CONCLUSION

1. Synchronic Issues: Social Structure at Tikal

The recognition that structure groups (architectural clusters) are a significant area of research activity has led to the demonstration that their form provides a significant focus for research. Identification of "architectural grammars" or plaza plans (PPs) at Tikal, through surface inspection and excavation, provides us with a useful tool by which we can interpret the archaeology of this urban society. The identification of PPs enables us to predict site composition and Maya concepts of planning, to develop testing strategies at large Maya sites, and to apply sophisticated intersite research strategies, since PPs reflect the heterogenous architecture characteristic of a complex, urban society (compare Pyburn 1997).

2. Economic Structure

Wealth, and possibly social status, may be inferred from the size of Maya architectural groups, but the form of the group is critical in understanding social organization and group membership at Tikal and at other Maya sites. Variations within a single "pattern" of size, as a reflection of wealth, suggest that a review of these data from the perspective of heterarchy will prove useful. The wide range and multiple gradations in the quantity and quality of grave goods associated with burials at Tikal lead to the conclusion that considerable economic and/or social class differentiation existed at Tikal during the Classic period. The recognition of distinctions between class and wealth among the Maya is a task that might best be addressed in terms of studies of medieval Europe. During the medieval period, European sumptuary laws were used to control developing confusion in the expression of wealth among a growing mercantile population. Production and distribution of varied grades of goods reflect a production and distribution system that requires a complex market economy, leading us back to inferences made regarding PP9.

Economic variability can be placed on a relative scale through comparisons of grave goods. PP2 enables us to predict the location of a specific category of burials at Tikal, as well as at many other Maya sites in the Lowlands and beyond—burials believed to be those of lineage leaders. At Quirigua a knowledge of the PP2 grammar enabled an important burial to be located (Becker 1972). Sharer (this volume) suggests that a burial represents the founder of that city, based on the jade inlaid teeth, a jade bead in his mouth, and three vessels placed as offerings. The three-vessel assemblage, often including a small jade bead and small versions of other items, is the same pattern commonly found in association with burials in the shrines on the east of Tikal PP2 groups (see Becker 1999).

3. PPs and Patterning in Time: Diachronic Issues

In addition to working out synchronic relationships in a Classic-period complex state such as Tikal, links between PP2 and the earlier PP10 (E-groups) may reflect the shifts in rituals from the socially homogeneous Maya chiefdoms of the Preclassic to the heterogenous states of

the Early Classic period. Diachronic issues also include matters relating to Tikal's expansion beyond its "borders" (conquest, alliance) and to whether Quirigua was a colony or a subordinate of Tikal. As at Quirigua, the "founder" at Copan may have resided in a PP2. The evidence for the impact of outsiders on Tikal (from Teotihuacan?) may be associated with PP1, PP4, or PP10 (E-groups). The evolution of settlement over time at Tikal may be studied by examining the shifts in PPs. Sabloff (pers. comm.) suggests that continuities in these group plans through time may be indicated by patterns found at Late Postclassic–period Mayapan and Tulum and possibly at Cozumel. Other site maps in the Maya area and beyond can be evaluated to see whether the architectural grammars evident at Tikal have a regional distribution or are localized or even unique to Tikal. Specific testing of theories derived from these maps is essential to determining their accuracy and comparability for evaluating the architectural ("grammatical") record.

Plaza plans similar to those described at Tikal are found throughout the Maya area, and aspects of those patterns extend far beyond it. Each of these architectural aggregates may be characteristic of a particular site or period (compare Ashmore 1981:40). These patterns provide a means by which research strategies can be developed for excavations at other Maya cities, as well as offering units for comparing possible interplay between the various ancient inhabitants of the Maya Lowlands and the recognition of change through time.

The devolution of complex Lowland Maya polities, from the Classic-period city-states to the chiefdoms of the Postclassic period, was a slow process that began by the middle of the eighth century (W. R. Coe 1990; Hammond et al. 1998). Some possible exceptions worth noting can be found at sites such as Mayapan, but these also declined through time. "Complex" Maya society in the Lowlands certainly did not end with the imploding bang implied by the term *collapse* but with a slowly diminishing whimper.

DIRECTIONS FOR FUTURE RESEARCH

Excavations to test several theses embedded within the data base noted above include the following:

1. Excavation of Temple VI at Tikal, an excellent and very large example of a PP2 shrine.

2. Wide-area clearing, including taking to bedrock, of an entire architectural group plus its surrounding "houselot" (Becker in prep.) to seek hidden structures and features such as boundary markers that delineate group borders.

3. Wide-area excavation of isolated structures at Tikal to see if another architectural "group" (PP) can be identified or if these "isolates" are parts of groups without building platforms or otherwise undelineated houselots. Candidates are small structures such as Str. 7C-37, 38, 45, and 46 and the isolated structures at the ends of causeways.

4. Axial trenching of the central structure on the east of an E-group (PP10) and deep searches of their lateral buildings to test the thesis that PP2 emerged from PP10.

5. Extensive testing of the central "platforms" of PP4 groups, in addition to a parallel research program demonstrating the absence of small structures or altars in the center of the principal plaza of non-PP4 groups.

6. Excavations of Tikal's Barringer Group that are tied to excavation of Temple V, in a program seeking evidence for dual rulership. Since 1975, I have believed that the Classic-period Maya used moiety divisions in social structure and in political leadership (Becker 1975), and this aspect of their social system may have considerable antiquity. The identification of parallel social hierarchies within each moiety would enable us to answer many questions regarding the social structure at these sites (Becker 1983, 1991) and to interpret the texts in new ways.

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10

Thirty Years Later

Some Results of Recent Investigations in Tikal

Juan Pedro Laporte

After the work of the University of Pennsylvania Tikal Project ended, archaeological activity continued at the site, sporadically at first but continuously after 1979. Most of these projects were Guatemalan. At first, they were extensions of the work of the Tikal Project; subsequently, they had independent objectives and research designs. Thirty years and fifteen research projects have clearly added to the information obtained by the Tikal Project (table 10.1).

RESTORATION PROGRAMS AT TIKAL

Some of the research projects were carried out by the conservation and structural restoration programs at Tikal, the results of which can be seen when visiting the site. There are five programs of this type.

Fluted Palace Project

The work on Group 5E-XI between 1972 and 1980 was directed by Miguel Orrego and Rudy Larios (1983). Their report provides important data about architecture, burials, and chronology, as well as graffiti and other painted designs. Group 5E-XI, with its many palaces, began