

Incorporation, integration, and irrigation at the ancient Maya site of Baking Pot, Belize

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Introduction

The Belize Valley Archaeological Reconnaissance Project (BVAR) has been investigating ancient Maya social organisation in the upper Belize Valley (Fig. 1) for seven years, employing substantial survey and excavation data for the purpose of studying intrasite variability (Conlon 1992: 69; Conlon *et al.* 1994; Conlon and Powis in press). Analysis has involved the use of investigative strategies of varying scales, one of which remains a constant and central focus of research, i.e., the corporate group (cf. Hayden and Cannon 1982). This paper provides an example of the use of corporate group analysis at the major ceremonial centre of Baking Pot (Fig. 2), and uses comparative data from the site core of Baking Pot, other major centres in the upper Belize Valley, and various other sources throughout the Maya lowlands.

Corporate group unit analysis

Hayden and Cannon (1982: 133) suggest that the lack of a single universal definition of the 'corporate group' is due to its application by anthropologists to different problems and contexts. For purposes of the present analysis the definition of corporate group will remain loose, and will include only primary characteristics, the most important of which is the concept of unity within nuclear and extended families and neighbourhoods, forming what are sometimes referred to as residential settlement clusters. The operational flexibility afforded by a loose definition gives archaeologists freedom to apply corporate group analysis to various aspects of intragroup relationships; provided the basic premise which constitutes corporate group units (i.e., residential coherency), is continually and objectively scrutinised. Since such groups may have been the units the ancient Maya recognised as socially and politically significant (cf. Chase and Chase 1987: 54) the most attractive aspect of corporate group analysis is the ability to identify and extract smaller archaeological units from the larger settlement continuum. Group analysis and the investigation of community (i.e., site) intrarelationshps have long been championed as the basis for settlement pattern studies (Willey 1956: 107). Group analysis can afford greater analytical insight, and bridging arguments can be more readily constructed (cf. de Montmollin 1988: 165). Archaeologists, however, must remain aware of the larger settlement continuum and its intrinsic inter-relatedness (cf. Hayden and Cannon 1982: 154, note 1).

Survey

Baking Pot is located in the Cayo District of western Belize, roughly equidistant between the major centres of Cahal Pech to the west and Blackman Eddy to the east. Several archaeological research projects have visited Baking Pot (Bullard and Bullard 1965; Ricketson 1931; Willey *et al.* 1965) but the site still remains relatively unexplored (Bullard and Bullard 1965: 7; Conlon 1993a: 173). Consequently, BVAR began a long-term, large scale, research project at the site in 1992 (Conlon 1993a: 173).

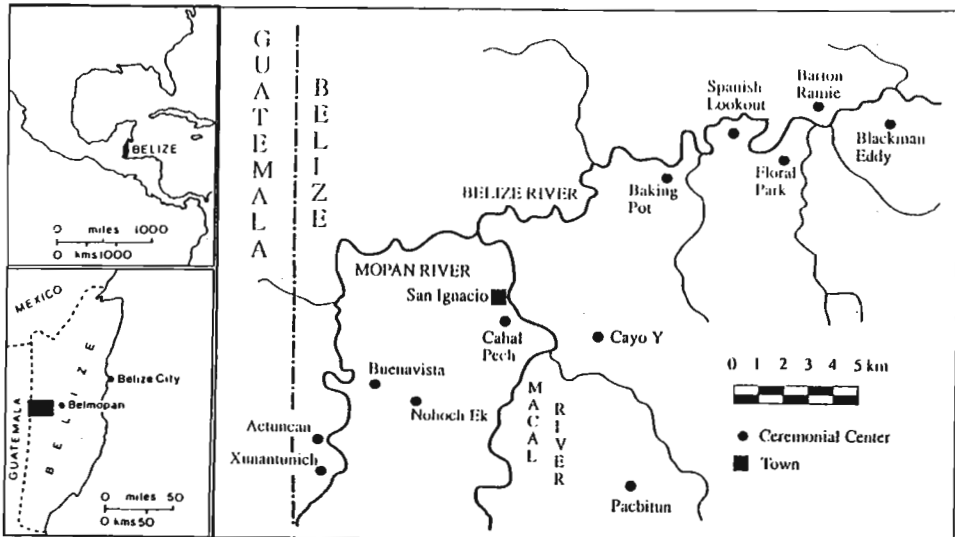


Figure 1 Ancient Maya centres of the upper Belize Valley

The Bedran group at Baking Pot is the courtyard, or *plazuela*, located approximately 2km southwest of Group II, on land presently owned by Señor Abdala Bedran (Fig. 3). The *plazuela* is configured similarly to group-focus patio-plans (cf. Ashmore 1981), the Plaza Plan II at Tikal (Becker 1983: 169), and east-structure focus-groups at Caracol (Chase and Chase 1987: 55). This surface configuration represents 'a recognisable degree of residential coherency', one of the proposed defining criteria of corporate group identity within any community (Hayden and Cannon 1982: 134-5), and was a major reason for choosing to investigate this particular group.

The arbitrary limit surveyed by BVAR eventually encompassed an irregular shaped plot of approximately 17ha overall. Smaller clusters of mounds such as the Miami, Boca Raton, and West Palm groups represent individual corporate groups which cluster around the Bedran group and form the larger settlement unit designated the 'Bedran settlement cluster' (Fig. 4). Reconnaissance was undertaken over a wider area in order to supplement the survey database and to assist in defining settlement cluster limits for developing future investigative strategies. Approximately 750m to the northwest of the Bedran group is a similar settlement configuration designated the 'Naxima settlement cluster'. The separation between these two settlement clusters was determined from the lack of visible mounding roughly midway between them, and provided a reasonable indication of settlement cluster limits. The diverse, multi-tiered, settlement morphology represented in this area is suggestive of a similarly complex system of social organisation (cf. Willey *et al.* 1965: 580).

Excavation

Group dynamics are reflected, in part, by the changing demands of populations (Ford 1981: 151), but these changes are only evident through the progression of time; thus excavation is vital to analysing intragroup dynamics. Another reason for employing excavation is to define structure morphology, because similar surface forms can represent different developmental sequences (cf. Haviland 1981: 117). In order to assess

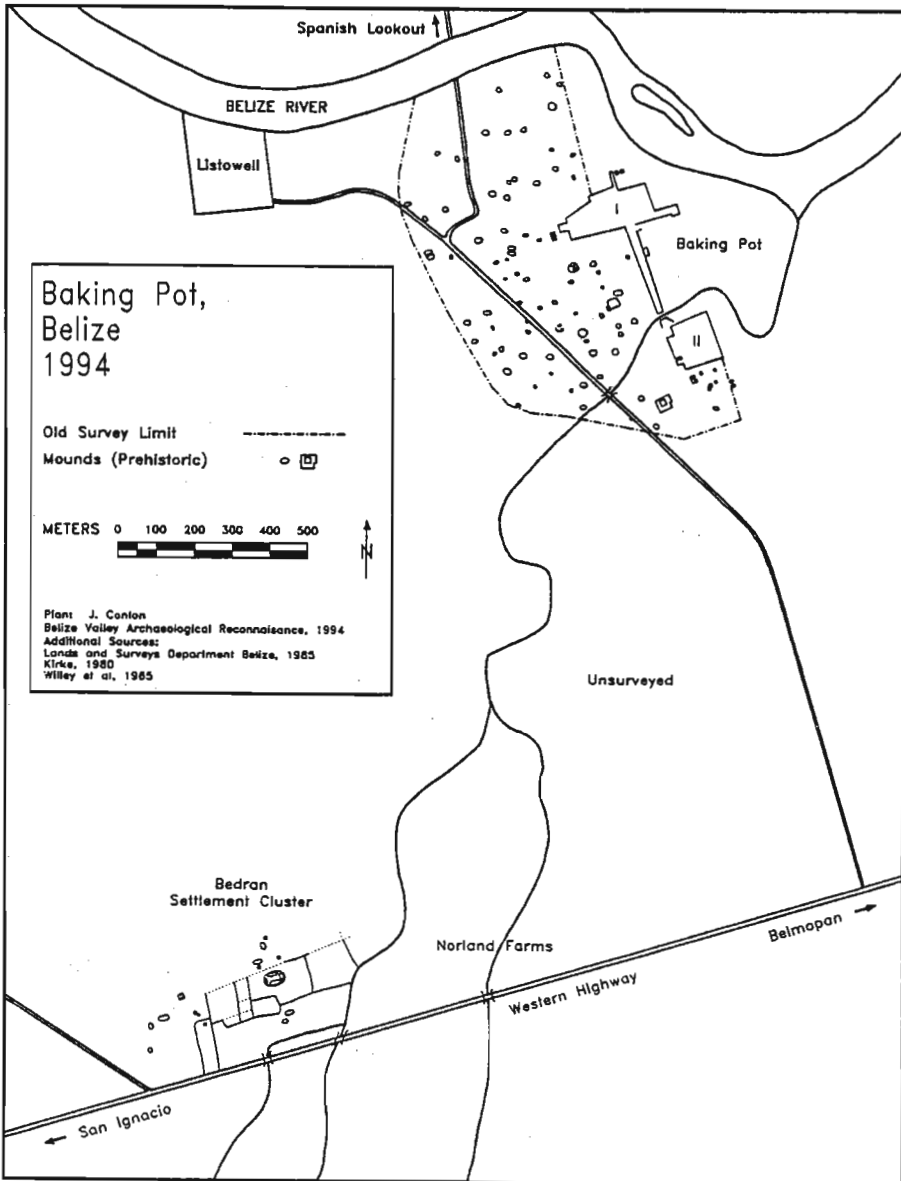


Figure 2 The ancient Maya centre of Baking Pot

the development of the Bedran group's corporate characteristics, and interrelationships at the Bedran settlement cluster, excavation was undertaken. The primary goal was to acquire data that would aid in building a diachronic development for the *plazuela* group (cf. Willey 1953: xviii; Willey *et al.* 1965: 15), and then to provide a basis for intragroup comparative analysis. Excavation data from surrounding groups of settlement also provided a basis for intracluster comparative analysis (cf. Scarborough and Robertson

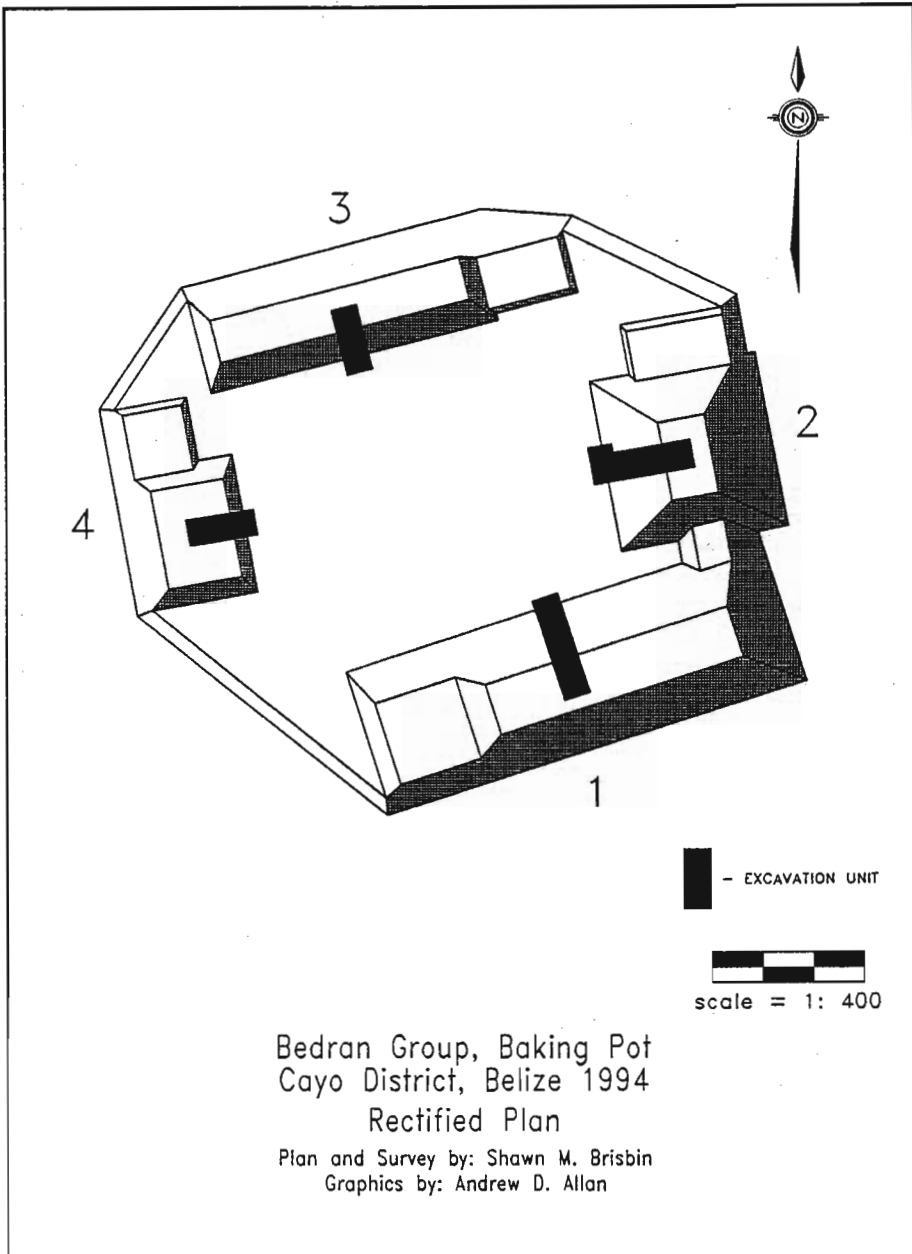


Figure 3 The Bedran group

1986: 169). The acquisition of excavation data for comparative analysis has been a major research goal of the BVAR Project in the assessment of intracommunity group dynamics (cf. Awe 1992a: 68; Awe and Brisbin 1993: 7; Awe and Campbell 1992: 3-4; Cheetham *et al.* 1993: 153; Conlon 1992: 88; *ibid.* 1993b: 182; Iannone 1993: 12; Powis 1993a: 97).

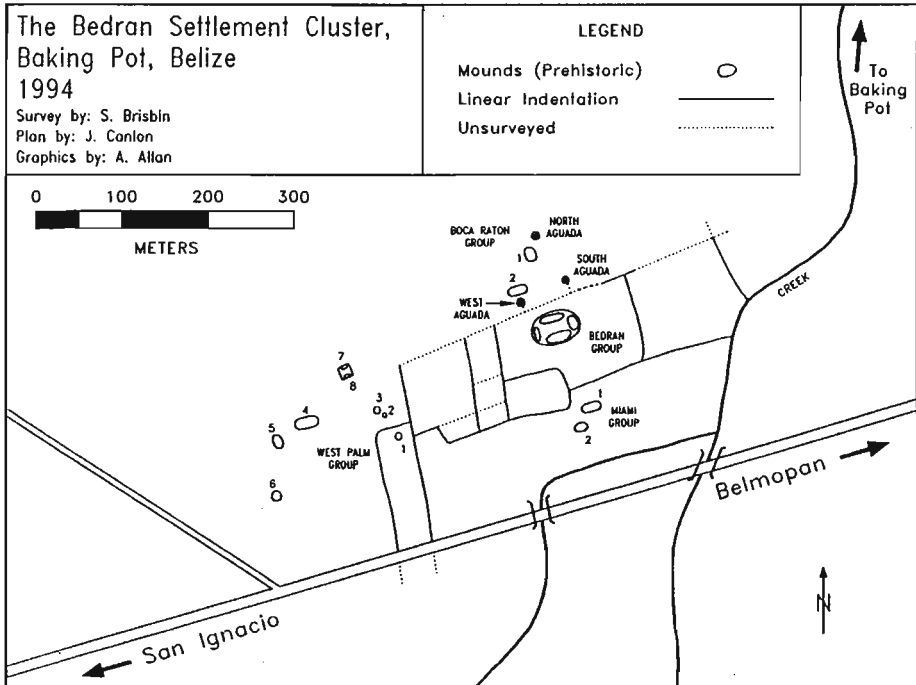


Figure 4 The Bedran settlement cluster

Results and interpretation of investigations

Incorporation

The unity demonstrated by the *plazuela* configuration evident in the surface morphology of the Bedran group is the primary indicator of corporate group status of the second type, as described by Hayden and Cannon (1982: 142). What the surface morphology does not reveal is at what stage the Bedran Group established its corporate group identity. Other factors concerning strength or coherency of the corporate group must also be considered when estimating the point of crystallisation of any corporate group (Hayden and Cannon 1982: 147). These factors include size and complexity of architecture, and how these evolved over time. This section provides a brief synopsis of the distinguishing corporate characteristics of the Bedran group.

Mound 1, located on the southern edge of the *plazuela*, has the largest volume in the group, and is one of the two tallest mounds in the group, the other being mound 2. Construction fill began as medium ballast in the late Early Classic period (c. AD 550) and was eventually replaced by a clay-based fill. Mound 1 continues to include a greater proportion of plaster-surfacing of substantial thickness (assumed to relate to quality). This differentiation can be taken to indicate a heightened status for mound 1, in comparison with mounds 3 and 4, which display tamped-clay living surfaces. Mounds 3 and 4 are the two lowest mounds in the Bedran group and also displayed more domestic features such as *manos* and *metates* for food preparation; a hearth; intermediary platform terraces where daily household activities probably took place; and midden debris, which included remains of deer, turkey and peccary (Conlon 1993b: 195).

Although only one, Late Classic (c. AD 800), dedicatory partial-vessel cache was recovered from mound 1, this is suggestive of an elevated status, and may indicate that the mound housed the lineage head of the Bedran group (cf. Ashmore 1992: 178). The physical attachment of mound 1 to mound 2 by a small ancillary platform probably occurred around AD 600, when the first *plazuela* floor was constructed, and this, coupled with their similar dominant heights within the group, suggests a symbolic unity. The physical connection between mounds 1 and 2 would have consolidated the group's residential coherency. From this time the Bedran group can be considered a 'corporate group'.

Mound 2 is located on the eastern edge of the *plazuela*, a favoured location for family shrines in the Maya lowlands (Powis 1993b). This location, coupled with the squareness of this mound in relation to the other three in the group, was suggestive of a non-domestic function; and it was no surprise to find ritual deposits concentrated within the mound. However, the elaborateness of some of the deposits uncovered in this relatively ordinary mound was unexpected (Fig. 5). Mound 2 concealed 12 interments and 24 caches in the main building and another two caches in an ancillary platform. The quantity and quality of caches and burials recovered from mound 2 demonstrate a high degree of ceremonial activity and adeptness in employing a wide spectrum of ceremonial practices, which is a good indicator of the Bedran group's power. Power based upon descent and kinship also involved control over land and labour (Hayden and Cannon 1982: 150-151; Hendon 1991: 896), and, in particular, over resources in the corporate group's immediate environs (cf. Hayden and Cannon 1982: 134, 148).

Integration

The Bedran group is representative of a highly cohesive corporate group, as demonstrated in its architecture and ritualistic diversity. On its own, the Bedran group would seem to display a high degree of autonomy. However, the Bedran settlement cluster did not exist independently - it existed and thrived within the limits of the Baking Pot community. As the Miami, Boca Raton, and West Palm groups are smaller corporate groups of the larger Bedran settlement cluster, so the Bedran settlement cluster is a corporate group segment of the Baking Pot community. The question remains as to what degree the Bedran group and settlement cluster operated autonomously within the community, and to what degree it was integrated with the core of Baking Pot. Presumably there will have been a need for political unity in the community of Baking Pot, and this unity should be indicated somewhere (cf. Willey 1953: 381). As in the preceding section, the discussion here concentrates on characteristics of architecture, artefacts, and ritualistic practices, in order to examine potential integrative relationships.

The small room, or inset shrine, that existed on the western facade of structure 2 - second of the Bedran group - around AD 700-50 is strikingly similar to that of room 1 on structure II-A at Baking Pot (see Bullard and Bullard 1965: 64, plate IV). Around AD 750-75 the inset shrine was modified (cf. Loten and Pendergast 1984) to incorporate a small platform which resembled the niche above the masonry altar also found in room 1 of Structure II-A at Baking Pot. This platform modification capped a cache of six vessels, including two sets of lip-to-lip vessels (cache 13). Schele (1990: 156) stated that 'dedication and termination caches are documented at almost all Maya sites. These include the lip-to-lip caches found at Tikal, Uaxactun, and the north-eastern Peten and Belize'. The inclusion of a shrine inset for the specific purpose of housing ritual

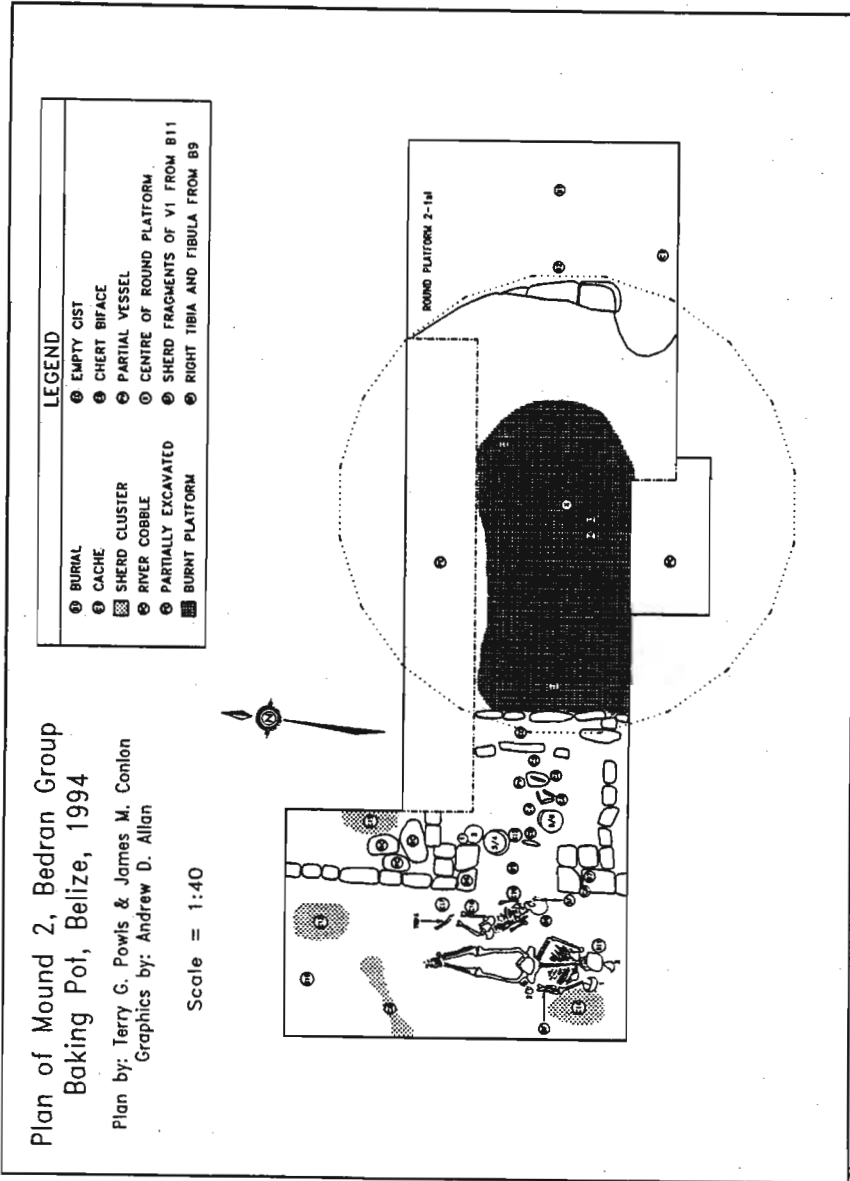


Figure 5 Plan view of excavation at mound 2 of the Bedran group

paraphernalia, such as effigy censers representative of gods and/or ancestors, or even the human heads of the ancestors themselves (Tozzer 1941: 130; Welsh 1988: 196), was apparently an important feature within major site centres (cf. Laporte 1993: 310). Its inclusion on a microscale in the Bedran group signifies a strong inter-relationship with the core elite of Baking Pot. Similarly, the existence of ancillary platforms forming the north and south wings of mound 2 at the Bedran group is also a replication of core monumental architecture (Awe, pers. comm.).

Architectural conventions were requisite in core monumental architecture to

communicate authority. At Cahal Pech there is a room specifically designed for one of the ruling elite (Awe 1992b: 77). This also occurs at Baking Pot in group II. The rooms were probably part of the living display of lineage authority while niche areas are likely to have contained some form of ritual paraphernalia intimately linked with lineage authority. The significance of these 'rooms' is further demonstrated by the temple inscriptions of Palenque. Both mythological and historical events are recorded in texts of temple structures, including births, accession and blood letting (Schele 1990: 143). The seating glyph in room 1 of structure A-1 at Cahal Pech is a similar communicative manifestation (cf. Awe 1992b: 77).

The association of these rooms with other elements of elite manifestation has significant implications for Bedran. Specifically, the inclusion of the Primary Standard Sequence (PSS) in these room texts indicates temple dedication (Schele 1990: 143). Although not displayed on the architecture of the Bedran group itself the PSS is found on both the Orange Walk Incised vessel of burial 2, mound 2; as well as the Teotihuacan hollow-oven-foot tripod vase of cache 1 of mound 2 (Fig. 6). Similar types of *cacao* vessels have been found in tombs of high status individuals within site cores, such as at Rio Azul (Hall *et al.* 1990), though the Bedran hieroglyphic evidence of 'tree fresh *cacao*' is a unique manifestation (Reents-Budet, pers. comm.). The sanctioning by the core elite of this architectural replication, and concomitant ceremonial manifestations such as lip-to-lip caches and the ability to display hieroglyphic text, is highly demonstrative of socio-political integration between the resident core elite of Baking Pot and the Bedran group elite. As at the Tzinic group in the southern periphery of Cahal Pech (Conlon 1992; Conlon and Awe 1991) elite affiliation is further solidified by the inclusion of the flint and obsidian eccentrics of cache 3 at Bedran (cf. Iannone and Conlon 1993). At Bedran, this inclusive conformity confirms the entrenchment of the Bedran elite within the upper echelons of ancient Maya society.



Figure 6 Hieroglyphs from vessel 3 of burial 2, mound 2, the Bedran group

Other ritualistic deposits bear witness to the Bedran group's integration into the elite social spectrum of Baking Pot. Around AD 800, the intrusive burial 7 was placed upon the south column pillar of the shrine platform of structure 2-2nd. This interment was of an adult skull only, and its placement on the shrine platform is evidence for a practice of ancestral worship in which the head is retained for continued reverence and veneration (Tozzer 1941: 130; Welsh 1988: 196). Laporte (1993: 310) reports of niche areas on structures 5D-87-8 and 5D-82-5 at Mundo Perdido, and 5E-38 at the East Plaza at Tikal, the first having carved-stone human skulls on the sides and back of the niche. There is also a link between ancestral head worship at the shrine inset of Bedran as represented by the caching of an effigy censer in front of this niche architecture (Fig. 7). The sacrifice of an adolescent, dated to c. AD 750, found in Burial 9 in the *plazuela* at the base of mound

2 indicates that the apex of the Maya ritual spectrum had reached the Bedran group. This represents the culmination of increasingly elaborate ceremonial deposits. The ability to conduct ritual human sacrifice is the strongest indicator of the Bedran group's elite authority and entrenchment in the upper echelons of society.

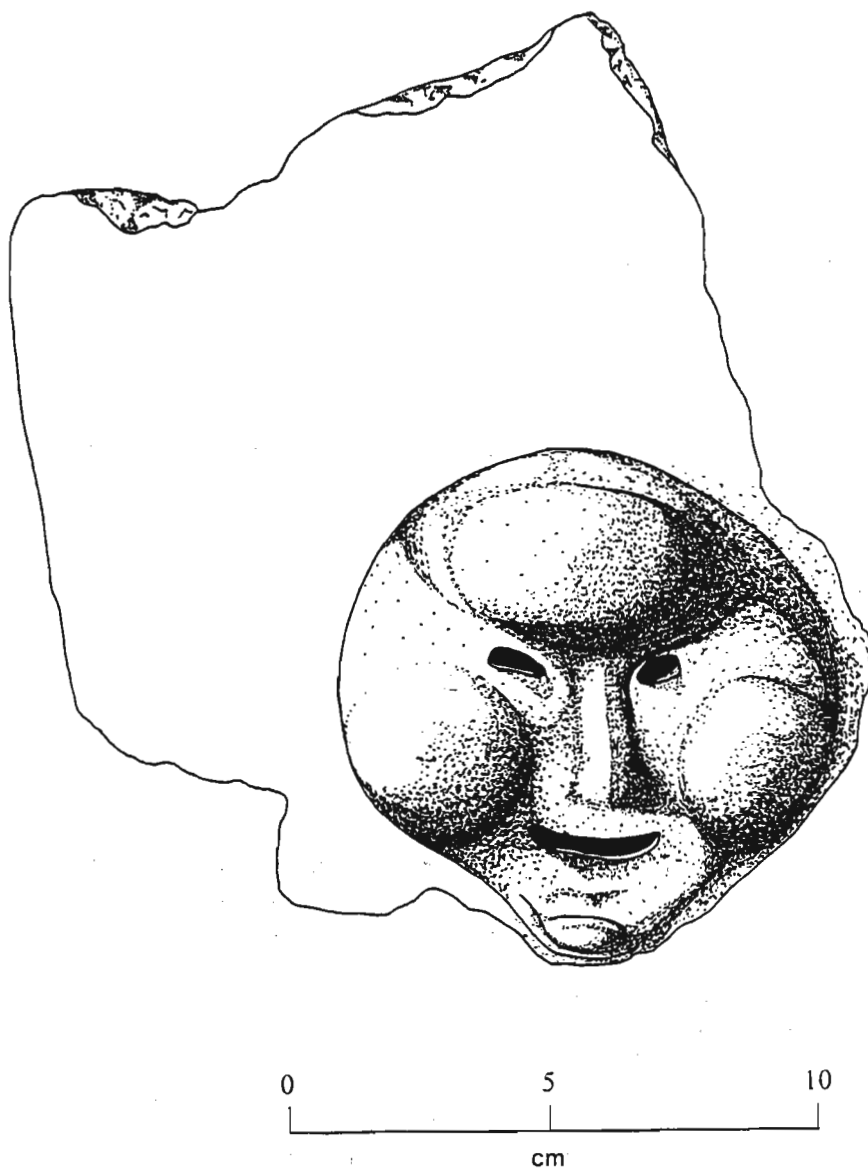


Figure 7 Effigy censer fragment from cache 16, mound 2, the Bedran group

The inclusion of regional influences, as well as ceramic evidence of long distance trade reaching the Bedran group from as far as the Chiapas of Mexico, raises the question

of the size of the group's larger inter-relational sphere. There is enough evidence to indicate that the deposits and architecture of the eastern shrine at Bedran mirrored not only that of Baking Pot's group II but also similar manifestations in the site cores of Cahal Pech and Buenavista in the upper Belize Valley, at Rio Azul and Tikal of the Peten, and even as distant as Palenque. This is taken to suggest that the Bedran group inhabitants were very much a part of the upper echelon of society, entrenched within the core elite social stratum, and who participated fully within the 'Great Tradition' (cf. Gossen and Leventhal 1993: 211). The replication of core architecture at the Bedran Group, and the abundance and range of ritualistic deposits, demonstrates the groups 'right' to duplicate architectural and spatial convention. In turn this has associations of ritual significance, which defined power.

Irrigation

The final question remaining to be answered concerns the reason for this high degree of integration between the Bedran group and the core elite of Baking Pot. The answer revolves around the Bedran group's role, or function, in relation to the control of land and labour. The primary objective of the Bedran group leaders was agricultural production, as suggested by the ditched field system (Conlon 1993c). BVAR investigations revealed a more extensive network than previously reported (cf. Kirke 1980). A total of 1300m of linear irrigation canal was recorded but most of the lines continued outside the survey area and these are dotted in the plan (Fig. 4). This hydrological feature needs to be further chronicled before the entirety of the system is known. However, some observations relating to incorporation and integration are warranted here.

The ditched field system at the Bedran settlement cluster is similar to systems described at El Padernal near Rio Azul (Culbert *et al.* 1990) and Pulltrouser Swamp in northern Belize (Harrison 1990). The Bedran group system is described as 'ditched' fields rather than 'raised' fields because there is no significant build up of agricultural plots by canal construction (cf. Collier 1982: 345). Instead, surplus soils, such as the alluvial clay ubiquitous at the Bedran group, were removed for disposal elsewhere (i.e., in the construction of structures) (Conlon 1993b: 199). Also, the Bedran system is not a 'drained' field system, for, although drainage is an important aspect of the system at Bedran, the connection to the small creek which runs through the settlement indicates a potential intake of water provided by gravity-fed irrigation technology (cf. Mathewson 1984: 93). The increased depths from west to east, and the connection at two points to the natural creek running through the Bedran settlement cluster, also suggest that these ditches served more than a drainage function. A complex circulatory feeding route is indicated. Ditches do not flow directly to the creek or even to the larger and deeper 'outlet' ditches at the eastern end of the system. The small square plot formed by the ditches near the Miami group worked as a valve, redirecting water back towards the ditches to the west when conditions were drier, diverting water away from the outlet ditch draining to the natural creek which flows to Baking Pot and passes through the sacbe at the north base of group II (cf. Willey *et al.* 1965: 301). The ditched field system at the Bedran settlement cluster was a fully operational irrigation system.

Situated in 'slow drained lowlands' (Fedick and Ford 1990: 21-2), spot elevations along the ditches indicate a range of 0.15 to 1.9m in depth, with an average depth of between 30 and 50cm. Such depths would have been sufficient to penetrate the 15-20cm thick silty loam humus layer to the underlying orange-red clay. The exclusive use of

alluvial clay in Late Classic period construction fill, and the occurrence of solely Spanish Lookout phase ceramics recovered in ditch test excavation, indicate an inception date of *c.* AD 700. Further support for the prehistoric provenance of these ditches comes from the discovery that these ditches align exactly with the north/south axis of mound 2 in the Bedran group (both the *plazuela* group and the ditches are oriented about ten degrees east of north).

Although the ditched field system extends beyond the 17ha surveyed at the Bedran settlement cluster, this area alone has been used to estimate potential agricultural production. Under swidden cultivation approximately half of the 17ha of prehistoric agricultural fields would have been needed to produce enough food to support an estimated Bedran settlement cluster population of 50 to 70 (*cf.* Chase *et al.* 1990: 501). However, magnitudes of land and population may be less significant than how the land and labour were interrelated (Collier 1982: 346; Pendergast 1979: 25). What is important to note is that the system of ditched fields could have extended the cropping cycle and improved soil fertility (Fedick and Ford 1990: 22). With regard to intensive agriculture, Freidel and Scarborough (1982: 133, 152) have suggested that surplus production had a 'pecuniary motive', which allowed for a degree of 'subsistence autonomy' and commercial manufacture of products which provided the basis for trade. Though ditch construction was initially labour intensive, once in operation, there were relatively low maintenance requirements, and an extra 8 or 9ha of arable land would have been available for agricultural production.

Discussion

The first indication of social integration and residential unity at the Bedran group coincides with the *plazuela* construction dated to *c.* AD 600. This followed closely the trend in *plazuela* formation, most evident during the Tiger Run (AD 600-700) and Spanish Lookout (AD 700-900) phases, 5km downstream from Baking Pot at the minor centre of Barton Ramie (Willey *et al.* 1965: 293). However, the AD 600 inception date of the *plazuela*, and concomitant corporate group identity for the Bedran Group, occurred 100 years after the initial construction of the primary structure in the Bedran group (structure 2-1st). The initial settlement around AD 500 may be related to increased Protoclassic population (*c.* AD 1 - *c.* AD 300) (Ford 1990: 171) and the need to access more marginal agricultural lands. However, since incorporation (*c.* AD 600) lagged behind initial settlement of the Bedran group (*c.* AD 500), and the ditched field system lagged even further behind (*c.* AD 700), secondary land use may not have been the impetus for initial settlement. As Collier (1975: 77) argues, lineages emerged as corporate groups only under conditions of moderate land shortage, while very scarce land, and very abundant land, led to intensive individual competition (*cf.* Hayden and Cannon 1982: 150).

The following developmental sequence is likely to have existed. The initial settlement, characterised by a solitary round structure, suggests a significant social status from the outset (*c.* AD 500). The incorporation of the Bedran group *c.* AD 600, coupled with the absence of the ditched field system, suggest an integrative union based upon a social contract, such as marriage. Thus the initial minor elite lineage settlers were possibly elevated by a union with either a major or minor elite lineage of the site core of Baking Pot. Finally, around AD 700, the construction of the ditched field system emphasised the economic importance of the territory of the Bedran settlement cluster and

further solidified the corporate nature of the Bedran group. Surplus food production for consumption by those inhabiting the high-density area nearer the Baking Pot site core is one probable function of the Bedran group. A second, or alternative, mode of production could have included the growing of commercial crops for elite distribution and consumption. These crops could have included *cacao*, cotton, and *copal*. The production of surplus agricultural products had benefits for the Bedran Group, the inhabitants of the affiliated settlement cluster, and the site core elite of Baking Pot. Crop production probably operated under contractual obligations of mutual interdependence between the core elite of Baking Pot and the periphery residential elite of the Bedran group.

Summary

Hayden and Cannon (1982: 147) have suggested that larger corporate groups, such as the Bedran settlement cluster, might have been relatively weak, owing to the relative autonomy of individual families within the settlement cluster. The evidence from the Bedran group does not support this hypothesis, demonstrating that the potential for settlement cluster weakness was overcome by the integration of the Bedran group ruling lineage with the core elite. Through this inter-relationship the Bedran lineage leaders displayed their ability to access and display manifestations of paramount power, intensifying and bolstering their own 'right to rule', and circumventing individualistic autonomy within their realm of settlement. The advantages to settlement cluster cohesiveness outweighed any disadvantages that contractual obligations with the core elite might have entailed. In this case it would be difficult to imagine any minor ceremonial centre not actively pursuing integrative relationships with a hierarchically superior core elite. In view of this, minor centres that show little architectural, artefactual, or ritualistic similarities with site core manifestations should be considered to lack the right of accessibility to such features. This lack of accessibility to integrative features should be considered representative of 'poor cousins' of core elite (cf. Ford 1981: 158). A lack of communicative power features may be the result of a diminished exploitable resource base (cf. Hayden and Cannon 1982: 149) and the inability to acquire high status items through integration with the core elite social stratum.

The balance between site control and corporate group autonomy may have been 'maintained through close and loose kinship ties' (cf. Awe *et al* 1991: 29), ties which likely played a role in establishing the Bedran group in the locale it inhabited. The Bedran group was highly integrated by the end of its existence (c. AD 900), and one can conclude that there was no less than a core-affiliated sublineage elite presence, and possibly even a primary elite presence, directly related through descent, or marriage, to the ruling family of Baking Pot. Thus, the corporateness demonstrated c. AD 600 was consolidated in the Bedran group and may have been the result of a core elite contractual arrangement (via marriage or political appointment), with a second corporate intensification c. AD 700 (for the purpose of economic pursuits) at the inception of the ditched fields. Monitoring agricultural production for community distribution and/or consumption was the main function of the Bedran elite in the Late Classic period (c. AD 700-900) (cf. Adams and Culbert 1977: 6; Scarborough and Robertson 1986: 174).

Conclusion

The delineation of the Bedran settlement cluster is a fortuitous circumstance because the neighbourhood, or *barrio*, the third type of corporate group, is the most difficult to

recognise (Hayden and Cannon 1982: 146-47). This is especially true for the Maya lowlands where terminal occupation-phase surface features indicate a high density of mounding in the immediate peripheries of major ceremonial centres. Two kilometres away from the core of Baking Pot this group-masking effect of high mound density is not apparent. Reconnaissance suggests that the similar residential neighbourhoods of Bedran and Naxima encompassed an area of roughly 50ha each. Future investigators employing an extensive and intensive excavation component may be able to reveal that corporate groups of the third type existed before these community segments had become obscured by later infilling of settlement (cf. Willey *et al.* 1965: 573). The current investigative focus of several research projects on the upper Belize Valley will eventually produce a considerable comparative database with which to assess corporate group identity and intracommunity relationships. In order for Mayanists to explore models of ancient Maya social organisation at the macro, or regional, scale, microsettlement comparative analytical techniques will need to be more widely employed. Corporate group analysis should be recognised as an effective tool to analyse intracommunity relationships vital to reconstructing site intrarelations and, subsequently, the reconstruction of regional organisation.

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