

NEW LIGHT ON THE MOST ANCIENT MAYA*

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Recent discoveries have greatly extended the known period of human occupation of the Maya Area in Central America, and also indicate greater social complexity at an earlier date than hitherto envisaged. Human presence from the early Holocene at least, and sedentary village farming from the second millennium bc, form the base on which the initial stages of Maya civilisation developed in the first millennium bc. Long distance exchange networks, including contact with the Olmec of the Gulf Coast and with the highlands of Guatemala, developed during the first half of that millennium: trace element analysis of obsidian, jade and other materials has allowed precise sourcing and route networks to be suggested. After 500 bc there is evidence of rising population size, density and nucleation, with monumental architecture at sites such as El Mirador, Lamanai, Tikal, Nohmul and Cerros indicating an organised society with strong central control. Intensive agriculture utilising drained wetlands probably began at this period, and towards its end in the early centuries A.D. a coherent iconography and hieroglyphic writing appear, to be adopted as vehicles for dynastic propaganda by the ruling elites of the Maya realms. Present evidence suggests that the Classic Period of Maya civilisation (A.D. 250–900) is the second, rather than the initial phase of a truly complex society.

In 1979 Gordon R. Willey gave a distinguished Huxley Memorial Lecture in which he adumbrated an 'holistic' view of Classic Maya civilisation in Central America in the first millennium A.D. (Willey 1980). He took four themes, of subsistence, settlement patterns, socio-political organisation and ideology, which he saw as systemically interlinked, and showed how perceived imbalance in the relationship between these subsystems in the functioning of ancient Maya society led to successive emphases in research in the four fields. Willey also showed how enhanced understanding of Maya ideology could in turn feed back into an appreciation of the role of the symbolic in something as basic as subsistence production.

Taking Willey's holism as axiomatic, I am going to examine the evidence for an earlier development of complex society in the Maya area than was apparent until very recently, for the appearance of the sinews of civilisation in the Preclassic period which ended in the third century A.D. In so doing I follow the formal chronological scheme for New World prehistory laid out by Willey and Phillips (1958), in which the Classic period of A.D. 250–900 (defined as the time during which the Maya erected stone monuments bearing precise calendar dates in the Initial Series format [Thompson 1950]) was followed by a Postclassic lasting until the Spanish conquest in the sixteenth century, and preceded with

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equal logic by a Preclassic or Formative period beginning with the first sedentary settlements. This was placed formally at 1500 B.C.: since radiocarbon dating had barely begun to make an impact, and the relationship between raw and calibrated carbon dates had not yet been perceived as a problem (Suess 1967) this was essentially an educated guess.

The concept of the Preclassic was of a period of village-farming cultures preceding the rise (seen at the time as a fairly rapid emergence) of 'civilisation' in not only the Maya Area of the Yucatan Peninsula and adjacent Guatemala, Belize, and western Honduras and El Salvador, but also to the west in the highlands of central Mexico. This unilineal model was modified fairly soon by the demonstration that the Olmec culture of the Gulf Coast region of Mexico had flourished in the first half of the first millennium bc at centres such as La Venta and San Lorenzo (Coe, M. D. 1970; Coe, M. D. & Diehl 1980).¹ Whether the Olmec had developed a society complex enough to merit the sobriquet of 'civilisation', as argued by Michael Coe (1968), or not, their substantial earthworks and long-distance transport of large boulders, which were worked into technically superb and artistically and iconographically accomplished sculpture, are evidence of advances far beyond those embodied in the 'Formative' concept.

Indications of advanced Preclassic developments came from other parts of central Mexico, from the Monte Alban II phase in Oaxaca by 200 B.C. and from Teotihuacan in the Valley of Mexico by the first century A.D. In the Maya Area monumental sculpture was known to exist in the Late Preclassic (450 B.C.–A.D. 250) towards its end at Kaminaljuyu, and some architectural elaborations previously considered characteristic of the Classic period were found at Tikal from the first century B.C. onwards (Coe, W. R. 1965), but the overall concept of the 'village Formative' remained remarkably obdurate well into the 1970's.

Over the past few years there has been a dramatic change in this attitude, stimulated by a number of developments: we now know the Maya, and people who were arguably their lineal ancestors, to have been in the tropical lowlands for millennia longer than we had thought; we know that a distinctively Maya cultural tradition had come into being by the late second millennium bc at the latest, and can therefore say clearly that the Maya were not the poor cousins of the Olmec and the highland peoples, but the authors of their own cultural history, creators rather than merely borrowers. This expanded temporal framework for the development of Maya culture has in turn made it easier to accept an earlier development of complex society in the tropical lowlands than had hitherto been envisaged.

Until less than a decade ago the earliest known human occupation of the Maya Lowlands (the arid, scrub-covered Yucatan Peninsula and the tropical forest zone of Tabasco, Campeche, northern Chiapas, Peten and Belize) lay no earlier than the first half of the first millennium bc (Berger *et al.* 1974): hence an origin for both Maya culture and its human bearers in the highlands or the Olmec area to the west was plausible (Adams 1977; Hammond 1977: 60–3). The initial radiocarbon dates for the Cuello site in Belize pushed the minimum date for settlement back a millennium and more (Hammond *et al.* 1976; 1977), demonstrating that maize-farming villagers with competent pottery and other accoutrements of Formative life had been established in Belize for centuries

before the emergence of the Olmec, and thus providing for the first time evidence for autochthonous development of the Maya cultural tradition. While some conservative critics of the Cuello chronology would see its origins in the last rather than the first quarter of the second millennium bc (e.g. Marcus 1984: 830), the independence of Maya culture is not thereby challenged.

Discoveries reported in the late 1970's and early 1980's made even the Cuello dates, so provocative in mid-decade, look modest: preceramic occupation was found in three widely separated areas of the Maya lands, ranging from the volcanic highlands of southern Guatemala to the northern Yucatan Peninsula. The Los Tapiales site in El Quiché, dating to the early Holocene (Gruhn & Bryan 1977), was complemented by a large number of Archaic sites found by surface survey in that province (Brown 1980). At Loltun Cave in the Puuc Hills of Yucatan a deep preceramic and ceramic sequence (with the transition occurring around 1800 bc) was reported (Velazquez V. 1980), and in coastal Belize the Ladyville fluted-base point of generic Clovis (or perhaps Turrialba) type (Hester *et al.* 1981) indicated an approximately early Holocene occupation. Numerous aceramic sites from Belize found by MacNeish have been seriated into a postulated six-phase preceramic sequence spanning the period 9000–2000 bc (MacNeish *et al.* 1980; Zeitlin 1984), but this is not as yet widely accepted. The transition from food-collecting to food-producing economies in the Maya Lowlands remains an important topic for further field research.

While late preceramic communities may have been farmers to some extent, the earliest certain evidence for the cultivation rather than collection of plants comes from the Early Preclassic Swasey phase at Cuello: the seed-grinding equipment reported from sites that MacNeish and his colleagues seriate as far back as 6000 bc is not accompanied by any evidence of the species or wild/cultivated status of the foods processed, although the manos and metates allotted to the final Progreso phase (3000–2000 bc) of the proposed preceramic sequence are indistinguishable from those of the succeeding Swasey.

At Cuello the remains of maize, both cob and kernel fragments, have been recovered by flotation from all levels, including the basal buried palaeosol (Miksicek *et al.* 1981). The earliest cobs were small in size, perhaps comparable with those from the preceding millennia in the Tehuacan Valley of highland central Mexico, but measurement of cupule fragments shows a secular increase in cob diameter (and inferentially in cob length, kernel size and overall productivity) through the Cuello sequence which suggests deliberate manipulation by the Maya of their agricultural resource base (Hammond 1982a: fig. 4.9). That maize was cultivated and not gathered from wild stands is clear from the introduced nature of the species, which is of highland origin, and which must have undergone the process of adaptation to the humid tropical lowland climate during the early second and, probably, third millennia bc before its more robust strains became the foundation of the Maya subsistence economy.

Maize-processing equipment is present at Cuello from period II of the stratigraphic sequence onwards; (it should here be noted that while periods O–IIIA were originally correlated with the Swasey phase as defined ceramically, in the period 2000–1000 bc, the revision of the ceramic sequence by Kosakowsky [1983] has restricted Swasey *sensu novo* to stratigraphic periods O–II,

with III–IIIA being correlated with the Bladen ceramic complex in the Xe sphere. For further consideration of the relationship between these ceramic complexes, the Cuello stratigraphy and the radiocarbon chronology see Hammond (1980: 188; 1984: 822–4). The earliest finds, fragments of a metate and mano reused in construction fill, are of a roseate sandstone from the Maya Mountains some 150 km to the south, and indicate that the early inhabitants of Cuello had a resource–procurement system extending well beyond the local area.

It is not my purpose here to examine again the archaeological record for the earliest sedentary communities in the Maya lowlands in detail, but only to note that many aspects of the Maya cultural tradition had become established at an early date. To maize agriculture we can add a ceramic technology and style ancestral to those of the Xe, Mamom and Chicanel spheres of the Later Preclassic period, the use of plaster-surfaced platform architecture with timber-framed and daub-walled thatched superstructures, and the organisation of such buildings around a central plaza or patio. Such characteristics are Mesoamerican as well as Maya, and show that in the second half of the second millennium bc the Maya lowlands were as culturally advanced as many parts of the highland zone.

By the early first millennium bc, if not slightly earlier, the archaeological record shows that long-distance exchange networks linked the Maya lowlands with the highlands of Guatemala and perhaps still further afield: the first obsidian appears in Bladen phase contexts at Cuello, from the San Martín Jilotepeque source near Chimaltenango which supplied most of the Middle Preclassic obsidian so far analysed from the lowlands. This source is some 450 km from Cuello as the crow flies (as are the later-utilised sources of El Chayal and Ixtepeque); a spangle-shaped blue jade pendant from a late Bladen phase burial (F215) has its closest parallels in form and material at La Venta, the major Olmec site some 550 km to the west, and is a further indication of Olmec interaction with the more distant parts of the Maya area.

Those interactions are of three kinds, of decreasing direct Olmec involvement as one progresses eastwards: the most intensive Olmec presence is at sites where monumental sculpture in the metropolitan Olmec tradition is found, along with pottery in Olmec style. Such sites are found along the Pacific slope of southern Guatemala and El Salvador, at Tzutzuculi, Izapa, Abaj Takalik and Las Victorias (Chalchuapa), and in northern Chiapas at Tenosique and Xoc. The second area of contact, overlapping and extending beyond the first, has portable Olmec objects found in contexts that suggest deposition by persons familiar with Olmec ritual behaviour: the object and its meaning are still linked. Examples include the cache from Group A at Seibal (Cache 7: Smith 1982: 243), the offerings in the Middle Preclassic cemetery at Copan (Fash 1982), and possibly the cache at Chacsinkin, Yucatan (Andrews in press). The third area is one in which isolated objects of Olmec origin appear in Maya cultural contexts detached from their original meanings: their presence was presumably the result

of prestation or down-the-line exchange. The Cuello pendant, together with several other blue jades of possible Olmec origin from the site, falls into this category, as do several disparate pieces: a piece of string-sawn blue jade from Moho Cay, off Belize City; perhaps the jade clam-shell effigy from Kendal in the Stann Creek District of Belize (in which case the clearly Late Preclassic hieroglyphic inscription is an addition several centuries later); and just possibly the fine blue jade Olmec head from Cozumel, which although it was found in a Late Classic tomb could have arrived on the island centuries earlier.

These ripples of Olmec contact are complemented by Maya cultural movement in the opposite direction, westwards through Chiapas and the Isthmus of Tehuantepec (Demarest 1976) in the middle of the first millennium bc. The period from about 700 to 400 bc, the latter part of the Middle Preclassic, is however still obscure, although from what we now know of the Early and Late Preclassic it was in these centuries that the cultural development of the Maya began to accelerate. Archaeological deposits of this period are in most cases that we know buried beneath the constructions of the Late Preclassic, with or without a further increment of Classic period activity, and will be difficult to investigate on any reasonable scale. Nevertheless, what happened in the late Middle Preclassic, and why, is one of the most crucial research topics in Maya archaeology today: here lies the key to the genesis of Maya civilisation.

By the beginning of the Late Preclassic around 450 B.C. we now see, as the result of recent research, a totally different Maya society from that envisaged in the village-formative model. At the small site of Cuello (which even at its period of greatest population and prosperity was never more than a large village) there was a radical reorganisation of the ceremonial core of the community: the enclosed patio bordered by thatched (and in one case stone-walled) buildings on raised platforms a metre high underwent a ceremonious deconsecration in which the superstructures were burnt, their platforms were slighted and the courtyard was filled with rubble (Hammond 1980). The termination ritual included the scattering of jade beads in the scar left by the chopping away of the façade of one building, and the blocking of the doorway of another by large blocks torn from its platform, even while access to the building over the rubble was maintained by a pavement of limestone slabs laid over the courtyard fill. The major event in the ritual, however, was a mass sacrifice in which a depression left in the centre of the fill was filled with the butchered remains of at least twenty-four people, all, or almost all of them, young men. A number of pottery vessels confirm a date of around 450 B.C., and the remains were accompanied also by half a dozen carved tubes of deer bone with complex designs in low relief with many overlapping planes (Hammond 1980: fig. 5). Two of these, one a vortex of swirling volutes, the other a serpentiform, show the elaboration of an established art style; the others depict an interwoven motif (Hammond 1980: fig. 5c) which is clearly that of the *pop* woven mat of Classic

Maya iconography. The mat is commonly used in vase-painting and sculpture as a symbol of royal power, reflecting the fact that a ruler took his official seat on one so that the mat had the same metaphorical meaning as 'throne' does for us. Thus we have at about 450 B.C., in this sacrificial context where power has demonstrably been exercised, the icon of regal potency: it is tempting to argue that by the end of the Middle Preclassic the Maya were ruled by men who had established both the reality of power and its symbolic expression.

During the Late Preclassic that power was used to control larger and denser populations, dwelling in more numerous, denser and more complex communities than had previously existed. Sites such as Tikal and El Mirador may already have had populations in the tens of thousands by the first century B.C., and many others must have emulated Seibal, Komchen, Lamanai, Edzna, Cerros and Nohmul by reaching several thousand inhabitants in size. In a well-surveyed region such as northern Belize we know that all sites of later importance were already settled by the Late Preclassic, and that there were four times as many Late as Middle Preclassic settlements, most of them larger than their precursors. Even though the longer span of the Late Preclassic and the masking effect of its deposits may exaggerate the contrast, there seems little doubt that substantial population growth occurred in the Maya lowlands in the second half of the first millennium B.C.

How were these people fed? Willey (1980: 251-3) has summarised the recent developments in the study of Maya subsistence, and the discovery that the *milpa* cultivation of annually-cleared fields by extensive swiddening was supplemented in the Classic period by the construction of hillside terraces and wetland drained fields. While terracing seems to have begun either at the very end of the Late Preclassic or the beginning of the Early Classic, in approximately the third or fourth century A.D., drained-field construction is certainly present in the Late Preclassic and may begin rather earlier. The early date of 1110 ± 230 bc (I-7877A: Puleston 1977: 452) from San Antonio, Albion Island, on the Río Hondo in northern Belize for canal construction is now discounted, but even so a possible origin in the Middle Preclassic is allowed (Bloom *et al.* 1983). At Cerros the small patch of drained fields is an integral part of the canal system at the site, dated by Scarborough (1983) to 200-50 B.C., and radiocarbon dates for the extensive fields at Pulltrouser Swamp, to the east of Nohmul, suggest construction coeval with that site's florescence in the early centuries A.D. (Turner & Harrison 1983: 256). There is thus adequate, while not overwhelming, evidence for a degree of agricultural intensification in the Late Preclassic involving the creation of artificial econiches, which must have in turn involved some superordinate organisation of labour.

Organisation of subsistence production can be tied to a contemporary organisation of craft production in the manufacture of the tools needed for canal and field construction. The evidence for this comes mainly from the chert factory site of Colha, lying amid swamps in the coastal plain of northern Belize, along a stream which has exposed a massive bed of chert nodules. The site, first investigated by the British Museum-Cambridge University Corozal Project in 1973 (Hammond 1974), has since 1979 been intensively surveyed and excavated by the Colha Project (Hester 1985, and references therein). Within the 6 km² of

settlement some 9 per cent. of the thousand structures so far identified are chert workshops, of which at least thirty-two were operating in the Late Preclassic period. Debitage deposits up to 1.5 metres thick attest to the intensity of production, and the limited and standardised range of Late Preclassic tool forms indicates a production-line economy. The commonest tool type was a large oval axe or hoe—a general purpose hacking and chopping tool—and almost as common was a distinctive adze with the cutting edge formed by a final tranchet blow. The waste flake removed by this, nicknamed an ‘orange peel’ because of its resemblance to a segment of discarded rind, is the most striking item ofdebitage found at Colha. Hester (1985: 197) regards the 2.1 million tranchet adzes, which the Colha Project’s sampling suggests were produced during the Late Preclassic, as ‘undoubtedly a conservative estimate’. Other distinctive Colha products included a triangular-bladed ‘dagger’ or ‘stemmed macroblade’, and the combination of the tool forms and the characteristic striped or honey-coloured chert make Colha exports easily recognisable at other sites. The workshops seem to have been the main suppliers for other sites in northern Belize, around Pulltrouser Swamp, at Cuello, Nohmul and Cerros, and to have traded tools perhaps as far west as Uaxactun and El Mirador in northern Peten: their rate of production was geared to a regional, not a local economy.

An economically organised Late Preclassic Maya society is most strikingly visible in the major public buildings at the larger sites (many of which were initially assumed to be of Classic date from their sheer size). At Komchen, the precursor of Dzibilchaltun in northern Yucatan, a densely nucleated community covering some 2 km² had grown from Middle Preclassic origins by the fourth century B.C. At its centre lay a plaza 150 by 80 metres, enclosed by five large platforms with a total of more than 60,000 cubic metres of construction fill. Three are broad, covering 3000–3900 square metres and still standing up to 7.5 metres high, while the other two are long, narrow, high structures approached by two stairways each. Two of the larger structures are linked by a raised *sacbe*, the earliest such causeway known at a Maya site. The population of Komchen, around 3000 strong, is estimated to have required a sustaining area of farmland up to 20 km in diameter, unless presently undetected methods of agricultural intensification were practised (Andrews *et al.* 1981).

Komchen is notable at this early date in the Late Preclassic for its high density of construction, but impressive though its central structures are, they are dwarfed by those at Late Preclassic sites further south, in the rainforest zone of Peten and Belize, which developed from the third century B.C. onwards. Among the smaller and later of these developments is Nohmul, lying on the limestone ridge east of the Río Hondo and west of Pulltrouser Swamp: excavations since 1982 have shown that the East Group of the ceremonial precinct was constructed at the end of the Late Preclassic, as a large plaza on top of a ground-levelling platform, bordered by an ‘acropolis’ on the north and by smaller structures on the east and west. The plaza itself covered an area 130

metres across and at least as long, and the 'acropolis', a massive platform with a basal area of 6,000 square metres and 10 metres high, was built in one continuous operation of limestone blocks quarried nearby. It contained as much material as the entire Komchen plaza group, and together with the fill for the flanking mounds and the great plaza itself, the amount of limestone and *sascab* marl quarried and laid in the centre of Nohmul approaches 100,000 cubic metres.

On top of the 'acropolis' were found the post holes of a large timber hall, three aisles (7 metres) wide and at least seven bays (20 metres) long. It had been built coevally with the completion of the 'acropolis', and was later dismantled and the post holes filled in when a temple-pyramid was raised on the south edge of the platform overlooking the great plaza. The hall was not of temple plan, and was too large to be a house: we interpret it as the perishable precursor of the stone-built 'palaces' or 'range-type structures' that are a common constituent of Maya ceremonial precincts in the Classic period, and which are thought to have housed the rulers and their administrative apparatus (Hammond *et al.* 1985: 192–196).

The centre of Nohmul is a 'twin-group' precinct, a layout found at other sites in central and northern Belize; I have previously (Hammond 1981: 165, 185) claimed that this is a Late Classic site plan, but the recent work at Nohmul makes me suspect that it may be of Late Preclassic origin. Examination of the *sacbe* linking the east and west groups at Nohmul, and of the single large pyramid in the west group during the 1986 season will test this hypothesis.

Large pyramids of Late Preclassic date exist at other sites in the Rio Hondo–Rio Nuevo drainages of northern Belize: at Cerros the entire ceremonial precinct is of this date, while at Lamanai, 55 km south of Nohmul, Str. N10-43 has been shown to be contemporary, and to stand some 30 metres high (Pendergast 1981). Both Lamanai and Cerros share with El Mirador, Nakbe and other sites in Peten the cluster of three small temples on top of a large pyramid, a layout apparently characteristic of the Late Preclassic and perhaps deriving from the small platform-bordered courtyard precincts of earlier sites such as Cuello).

In the Peten, Str. 5C-54 at Tikal, the major structure in the 'Mundo Perdido' group in the southwest of the site core, has long been known to be of Late Preclassic date and large size, again measuring more than 33 metres in height. Recent excavations have shown it to have inset stairs flanked by some half dozen massive terraces, and the surrounding buildings exhibit a concentration of Teotihuacan architectural influence indicating that the impact of that distant metropolis on Maya culture at Tikal was even greater than had hitherto been demonstrated. Whether this impact is as early as the end of the Late Preclassic, or whether it falls in the fifth century A.D. with the already-documented Teotihuacan influence on royal burials and monuments in the Great Plaza area will no doubt become clear when the recent work is published. What does seem highly likely is that Tikal was a major city in Late Preclassic times, with its centre around the Mundo Perdido group, and that the focus of ceremonial activity shifted northeast to the dynastic cult centre of the Great Plaza during the first part of the Early Classic period after A.D. 250.

A similarly large community existed at Seibal, where the excavations of Willey and Smith in 1964–1968 have recently been published in a form (Smith

1982) which enables us to see that the spectacular Terminal Classic occupation of the site centre (particularly in Group A, and to some extent in Group D) was but a veneer of refurbishment of a substantial pre-existing ceremonial precinct of Late Preclassic date. Even though several of the main buildings (e.g. A-3, A-14) are late, the plazas and their surrounding substructures including the largest pyramid at the site (A-24, which with its flanking minor buildings A-23 and A-25 is a variant on the trinal plan noted at Lamanai, Cerros and El Mirador) are firmly dated by the pottery to the Cantutse Chicanel phase.

Several sites have major earthworks for defence or water control that have been dated to the Late Preclassic: the 1200-metre long main canal at Cerros (Scarborough 1983) is one example, Looping in from the coast to isolate the ceremonial precinct and an additional area of site core with a total area of 37 hectares, the Cerros canal could have combined the functions of demarcation, drainage, defence and access by canoes to the settlement.

Enclosing a similar area and some 1900 metres in circumference, the rampart and ditch enclosing the core of Becan, Campeche (Webster 1976) probably never had water as part of the defensive system. The dry moat would have taken a force of 10,000 men only some forty days to excavate, and to raise the spoil into a rampart on the inner lip which could in turn have supported a palisade. Even without the latter, Webster estimates the total height of the defences from ditch bottom to rampart top as 11.6 metres.

By far the largest Maya entrenchments known, though, are those reported by Matheny *et al.* (1983) from Edzna, Campeche. The site lies on the boundary between the zone of surface drainage, with the headwaters of the Rio Champoton rising at the southern end of its long narrow valley, and the karst plateau of Yucatan. A canal 12.55 km long links Edzna to the *Pik*, a seasonally-flooded savanna which may in earlier times have drained overland (rather than underground, as now) into the river. Whether the canal served only to drain the flat valley soils for agriculture, or whether it also carried canoe traffic eventually to the Gulf of Mexico, is not known, but the other waterworks in the centre of Edzna are certainly consonant with the use of canoes for local transport. On the north side seven canals, the longest 1438 metres by up to 76 metres wide and with a capacity of some 108,000 cubic metres, fan out into the settlement zone and feed reservoirs at their inward ends. There were twenty-nine canals in all, with a cumulative length of 22 km and a capacity of 1.48 million cubic metres of water; when the twenty-seven reservoirs of up to 38,000 cubic metres capacity each and the fifty-eight shallow *aguadas* are added, the total water-storage capacity generated by the Late Preclassic inhabitants of Edzna is about 2.23 million cubic metres, the product of an estimated 1.68 million man-days of labour.

Within the canal system the most impressive single construction is the 'fortress' which lies at the head of the long canal to the *Pik* on the south side of the city centre. An area some 500 by 400 metres is surrounded by a moat up to 100 metres wide, apart from a causeway only two metres wide for access on the north. Spoil from the moat was used, 253,000 cubic metres of it, to construct a number of mounds within the 'fortress'. Matheny *et al.* (1983) consider that the area could have been a sacred as well as defensive precinct, citing the use of

reflecting ponds in Hopewell society in North America to repel evil spirits; even so, the moats would certainly have discouraged more corporeal attackers.

Late Preclassic construction on an even more colossal scale has been documented by the work of Matheny (1980) and others at El Mirador, a large site lying in the heart of the Maya lowlands close to the Peten-Campeche frontier between Guatemala and Mexico. First explored by I. Graham (1967), who proposed an early date based on the architecture, El Mirador has proved to be a collocation of superlatives. The central precinct, from the El Tigre pyramid on the west to the Danta complex on the east, is some 2 km long; the central portion of the site is a densely built-up area 1 km by 800 metres, bounded by a swamp on the west and by a long rampart with an outer ditch and a few narrow gateways on the other sides. Within it, the El Tigre pyramid rises 55 metres and contains about 428,000 cubic metres of construction fill, needing some five million man-days of labour. A short distance southeast the Monos pyramid is of slightly smaller size, and like El Tigre dates to about 150 B.C. The Danta complex is thought to be of similar date, but much greater dimensions; some of the construction is, however, of Late Classic date.

El Tigre supports on its top a trinity of temples, like those on Str. N10-43 at Lamanai; two large pyramids flanking the base of El Tigre make the same pattern on a larger scale. That on the south, Str. 34, has been the locus of detailed investigation by Matheny's project, which has revealed complex polychrome stucco sculpture on a grandiose scale, including human masks some 2 metres high and jaguar paws of equal size. The palette is restricted, with a cream ground, a dominant black, and red used for such details as claws and teeth. Similar colouring is reported by Freidel (1985) for the elaborate masks which adorn two tiers of the south façade of Str. 5C-2nd at Cerros, where there is also minor use of pink, orange and yellow. Freidel also notes a shift from this early palette to a broader one including many more yellow, green, and flesh tones, pastels and grey. At Cerros red is used for the ground, cream for the modelled elements of the masks and their accompanying 'polymorphs', and red again for highlighting. The derivation of architectural colouring in the Late Preclassic from ceramic technology, and the experimenting which led in the same period to the emergence of a polychrome pottery tradition, is not a topic which can be even adequately touched on in this article: but an iconographic response to what must have been seen as alchemical changes in materials (such as the red-black-red transformation of pottery under alternate oxidising and reducing conditions) is neither surprising in general, nor anything but what one would expect from a society of this complexity.

We have, in fact, widespread evidence for the intellectual, as well as economic and social, organisation of Late Preclassic Maya society: the adornment of religious buildings with monumental architectural sculpture includes the examples cited from El Mirador and Cerros, and also structures at Lamanai, Tikal, and Uaxactun (the noted Str. E-VII-Sub, excavated half a century ago and the first major evidence for Preclassic cultural complexity). On the minor scale of portable sculpture and jewellery there are the matched sets of jade 'bib-head' pendants from Nohmul (Hammond 1974: fig. 7) and Cerros (Freidel 1979: fig. 9) each portraying three identical iconographic personalities (one duplicated in

each set of four), and set in architectural contexts as foundation or valedictory caches. The Cerros set, less disturbed by crushing than those from Nohmul, seem to have been laid at the four cardinal directions (Freidel 1979: fig. 5), and may join the imagery of the Str. 5C-2nd masks in celebrating the diurnal path of the sun from rising through zenith to setting and passage through the Underworld—a vertical-circle model turned flat on the ground, as argued by Coggins (1980) with reference to the ‘twin-pyramid groups’ at Tikal and other phenomena of the Classic period. The deities on the Nohmul and Cerros jades are also likely to be, in my opinion, those portrayed on the Pomona jade flare, of similar Late Preclassic date. Such ‘bib-head’ pendants are found through peninsular Yucatan: in the Sacred Cenote at Chichén Itzá (e.g. Proskouriakoff 1974: fig. 96–7) a total of ten have been found, while others come from much later contexts than their Preclassic origin, at Mayapan (D. Thompson 1955: fig. 2g) and Tancah (Miller 1982: 23–4), and from undocumented locations including Ake, Yucatan and Santa Rita, Belize, represented in early museum collections. While the evidence is not as firm as one would like, there is a reasonable possibility that the set of beliefs that produced these objects was accepted throughout the northern portion of the Maya Lowlands at least during the latter part of the Late Preclassic, a regional iconography overlapping with that indicated by architectural sculpture. The implications of this for the emergence of regional polities remain to be explored.

By the end of the Preclassic the rulers who controlled the Maya realms are emerging from anonymity: the presently earliest known Initial Series monument, Tikal Stela 29 of A.D. 292 (8. 12. 14. 8. 15 13 Men [3 Zip]), portrays a ruler, probably ‘Jaguar Paw’, and has on the back a hieroglyphic inscription with bar-and-dot numerals for the coefficients in the date. The imagery of the ruler portrait is well-developed, including a downward-looking head of a probable deified ancestor, a bicephalic ceremonial bar, and several god-heads (including at least one explicit Sun God, *Kinich Ahau*) in the costume and accessories. This collocation of the stela format, the ruler portrait, an hieroglyphic inscription, bar-and-dot numerals and explicit deity images is the culmination rather than the beginning of a process in which political power was advertised and reinforced: its elements can be seen appearing one by one in Late Preclassic sites across the Maya lowlands.

Tikal itself may have earlier stelae (e.g. M.S. 69: Jones & Satterthwaite 1982: 126), and Stela 2 at El Mirador has a ruler portrait and other details in a style which indicates a Late Preclassic date (Ian Graham and Peter Mathews, pers. comm.) the same can be said of the San Diego carving, with a long (but undated) inscription flanking an elaborately-dressed ruler (Ian Graham, pers. comm.), and there is increasing acceptance of the genuineness and early date of the looted ‘Hauberg’ stela now in Seattle (Peter Mathews, pers. comm.) There is so far, though, only one Preclassic monument from the Maya lowlands found *in situ*, in a context which demonstrates its date beyond cavil: this is Cuello Stela 1 (Hammond 1982*b*), a small plain monument set in a subrectangular pit cut into Platform 34 at that site, and subsequently sealed by five plaster floors of Late Preclassic date, of which the latest runs under the final Late Preclassic construction (Str. 350) of the small pyramid at the west end of the platform.

I have estimated the date of Cuello Stela 1 to be A.D. 100 on stratigraphic grounds.

Evidence for the use of bar-and-dot numbers around this time comes also from Cuello: an earlier phase of the pyramid (Str. 353: Gerhardt 1984) had in its upper surface the burial of a beheaded adolescent, accompanied by pottery vessels and several stamp seals of fired clay, with carved designs and loops on their backs for suspension. One of these bears a bar and four dots, the Maya coefficient for 'nine'. The stratigraphic position of the burial again suggests a date around A.D. 100.

One monument which may demonstrate all of the features found on Tikal Stela 29, at a date anything from 150 to 300 years earlier, is the curious Altar 1 from Polol in the Peten (Proskouriakoff 1950: fig. 36*d*). Although Proskouriakoff assigns an Early Classic date to the small fragment (which could be from a tapering-sided stela as easily as from an altar), its design of two elaborately-accounted figures facing across a central column of glyphs is closely matched by Stelae 2 and 5 at Abaj Takalik on the Pacific coast (J. Graham 1977). The glyph column has a discernible Initial Series Introducing Glyph of simple form, and John Graham (pers. comm.) deciphers the *baktun* coefficient as a '7': if correct, this would give a date for Polol Altar 1 of A.D. 41 or earlier. Even if the *baktun* is an '8', however, the similarity to the Abaj Takalik monuments indicates a date no later than the early second century A.D., close in time to the archaeological evidence for stela erection and numeracy at Cuello.

A final and most persuasive piece of evidence for the intellectual complexity of Late Preclassic Maya society is the great jade ear-flare from Pomona, in the Stann Creek Valley of central Belize. Found during demolition of a mound in 1949, the flare was part of a tomb assemblage demonstrably of Preclassic date (Kidder & Ekholm 1951; Justeson *et al.* in press) from the pottery vessels. The assemblage also included four small full-figure jades with the heads of 'bib-head' pendants such as those from Nohmul and Cerros, and the layout of the jades in the Pomona tomb may match that at Cerros, with the flare taking the central position of the large fifth head at Cerros. The flare is of fine jade. Engraved on its surface are four profile deity heads, facing left and oriented with their bases towards the central perforation. Two are accompanied by blocks of hieroglyphic writing set above them, the other two by a long cartouche and a number, set below. Justeson *et al.* (in press) have shown that the reading order is clockwise, that the dialect is Yucatec, that the subject-matter of the inscription is concerned with accession, possibly of an early ruler of Yaxchilan, and that the four heads portray the Sun God (twice), the Maize God and a long-lipped god. Both sun gods are identified by the *kin* glyph in the cheek, and one has also the number 'four', of which he is patron; the maize god has a cleft head and his patronal number of 'eight' shown by a bar and three dots. The long-lipped god has the glyph *akbal*, 'darkness', in his cheek and has been identified by David Stuart (pers. comm.) as a head variant of the *akbal* glyph. We have a sophisticated combination of literacy, numeracy and imagery which suggests that Maya hieroglyphic writing has some antecedent history in the Preclassic for which we presently lack documentation.

One can also speculate that the design of the ornament on the Pomona flare

shows that a Classic period cosmogram, well-known from the 'twin-pyramid groups' at Tikal (Jones 1969; Coggins 1980), may have already formed part of Preclassic iconography and world view by A.D. 100: I suggest that the sun-god head and the long-lipped god opposite him mark the rising and setting of the sun, the beginning of light and the beginning of darkness in each day. This east-west solar trajectory formed the main axis of the Maya world, together with the noon zenith and the nightly nadir when *Kinich Ahau* passed through the underworld to the gates of dawn. My further, and rather more tentative, suggestion is that the second sun-god head with its patronal number represents the zenith, and that the maize god below marks the surface of the earth and its depths in which the life-giving crop grows. This interpretation would suggest a Preclassic origin for the vertical-circle model advanced by Coggins (1980). An alternative interpretation of the images, and one with a respectable backing in Maya thought, would see binary oppositions of light:darkness for the first pair of heads, and heat:cool/scorching dryness:moist life for the second (maize, with its green colour, being used as a synonym for 'water', 'jade', 'life', and 'precious', as the late Sir Eric Thompson showed many years ago). Whichever, if either, of these interpretations of the Pomona flare is correct, the syntactic structure of the quadripartite imagery is complex, and combined with the aspects of literacy and numeracy previously touched upon reinforces the notion of intellectual complexity in Late Preclassic society.

On the basis of such evidence, and the other characteristics of social complexity that I have outlined, we can now suggest that the Classic Period is the second phase of Maya civilisation, not the first, differing from the previous centuries perhaps under the influence of Teotihuacan contact in particular, and a wider range of external influence in general. To speak of 'Preclassic Maya civilisation' is no longer, as it for so long seemed, a contradiction in terms (Hammond 1980: 189).

¹ Maya chronology prior to the historic Classic period (post-A.D. 250) is based on radiocarbon dates (although a few inscriptions for the first three centuries A.D. are now known); since the divergence between radiocarbon and solar (calendar year) chronologies is only about half a century at 400 bc (= 450 B.C.), I have given all dates back to this point in calendar years B.C./A.D. For earlier dates I have used the 'bc' convention to denote an uncalibrated radiocarbon-based chronology: the lack of a discrepant historical chronology in the New World has resulted in the common use of this, rather than a calibrated chronology in solar years, by American archaeologists.

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