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Gustavo G. Politis and Benjamin Alberti

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Contents

Figures

Chapter Six

The emergence of complex urban societies in Central Mexico

The case of Teotihuacan

Linda Manzanilla

Introduction

The Classic Horizon (the first nine centuries AD) in Mesoamerica is characterised by the first phase of macro-regional integration and the popularisation of a common tradition whose precedent is found in the Middle Formative Period. Such a common tradition includes the appearance of similar architectural forms, the establishment of vast exchange networks (of obsidian, jadeite, serpentine, cinnabar, feathers, hides, and other foreign raw materials), specialised crafts, the preeminence of temple institutions in economic and ritual control in Central Mexico, the sharing of the 260-day ritual calendar and the 365-day solar calendar, common religious thoughts dominated by the Rain-Thunder-Lightning God, and the spreading of writing systems.

The expansion of urban life in well-planned cities is one of the main hallmarks of the Classic Horizon in Mesoamerica; in the cities specialised services and crafts were acquired. These first urban centres show internal social differentiation based mainly on occupation. The pre-Hispanic cities of the central highlands of Mexico were multi-ethnic centres that took advantage of the occupational skills of foreign groups, strategic sites with respect to resource availability, loci of huge demographic concentrations, as well as manufacturing and exchange centres, capitals of large states, and planned settlements.

Teotihuacan was the first vast urban development, with a surface area of 20 km^2, containing more than half the population of the Basin of Mexico at that time. Its population has been calculated to have been between 40,000 and 200,000 inhabitants; its degree of urban planning and its density were unsurpassed in pre-Hispanic times. It was the pilgrimage centre *par excellence*, the place where sacred space and time were created, the archetype of the civilised city, the most sacred realm, and the mythical *Tollan* where crafts flourished. Even though its catchment area was limited to the Basin of Mexico (and probably the Valley of Toluca), in other respects, such as exchange and ritual relations, it included the regions of Puebla-Tlaxcala, Morelos and Guerrero, and the Valley of Tula. Teotihuacan established alliances with Monte Albán in the Oaxaca Valley and various degrees of intervention in the Mayan area. Enclaves of the city have been located in the Guatemalan highlands, on the Gulf Coast of Mexico, and probably in Michoacán.

With the collapse of the Teotihuacan state in the late Classic and Epiclassic Horizons, there was a rearrangement of power spheres, the 'balkanisation' of political units, in Cholula, Cacaxtla, Xochicalco, Tula, El Tajín, in the states of Puebla, Tlaxcala, Hidalgo and Veracruz, all neighbouring regions of the Basin of Mexico.

ARCHAEOLOGICAL RESEARCH AT TEOTIHUACAN

Archaeological research at Teotihuacan started in the seventeenth century with Sigüenza y Góngora (Schávelzon 1983), and continued in the nineteenth century with Antonio García Cubas, both parties working on the Pyramid of the Moon. Towards the end of the nineteenth century, William H. Holmes (1897) wrote a monograph emphasising that Teotihuacan was a true city, with extensive domestic quarters (and therefore not merely an uninhabited ceremonial centre); he further states that its inhabitants were primarily cultivators and craftsmen. Also at the end of the nineteenth century, Leopoldo Batres (1906) excavated the Pyramid of the Sun, the Temple of Agriculture, the Subterraneans, and the Temple of the Priests as part of the commemoration of the centennial of Mexican independence.

In the early twentieth century an interdisciplinary project directed by Manuel Gamio in the Teotihuacan Valley was carried out, culminating in the publication of the volumes entitled *La Población del Valle de Teotihuacan* (Gamio 1922). The research included sections devoted to the physical and biological environment, the pre-Hispanic population, colonial history, and the modern inhabitants. Gamio explored the Ciudadela, the Temple of the Feathered Serpent, and the Temple of Tlaloc.

Further research was carried out in the mid-twentieth century by Linné (1934, 1942; in the apartment compounds of Xolalpan and Tlamimilolpa), by Armillas (1944) and others (in the apartment compounds of Atetelco and Tetitla, and in the Viking Group), by Cook de Leonard (1957a, 1957b), and by Noguera and Leonard (1957) in the northwestern sectors of the valley.

During the 1960s, three large projects were undertaken: the Teotihuacan Mapping Project, under the direction of Millon (University of Rochester), the Teotihuacan Valley Project under Sanders (Pennsylvania State University), and the *Proyecto Teotihuacan* of the Instituto Nacional de Antropología e Historia (INAH), co-ordinated by Bernal (Manzanilla 1988). The first culminated in the publication of a detailed photogrammetric map of the ancient city of Teotihuacan, and a general interpretation of the various sectors (Millon 1973, 1981, 1988). The second included extensive regional surveys, as well as some test pits (Sanders 1966, 1970, 1986, 1987, 1994, 1995), which were later extended to other sectors of the Basin of Mexico, including Texcoco, Iztapalapa, Chalco-Xochimilco and Zumpango. The final report included a macro-regional model of settlement patterns (Sanders *et al.* 1979). The third project was devoted to the excavation and reconstruction of the civic and ceremonial core of Teotihuacan, as well as some élite apartment compounds (Bernal 1963; Acosta 1964; Séjourné 1966). Many particular studies emerged from these projects during the 1960s and 1970s, and included subjects such as vegetation, fauna, pottery, lithics, architecture, apartment compounds, demography, etc.

In the Puebla-Tlaxcala Valley, the German Foundation for Scientific Research was responsible for a large project involving historical geography, settlement patterns, ethnohistory, and excavations in Cholula and Cacaxtla (Kirchhoff 1968; García Cook 1981). In the 1970s, the great urban centre of Cantona, in the northern state of Puebla, was first surveyed (López de Molina 1986). Furthermore, in the Valley of Morelos, particularly at Xochicalco, settlement pattern research (Hirth 1978) and excavations (Saenz 1975) were carried out.

During the early 1980s, INAH's 'Teotihuacan Archaeological Project 1980–1982', under the direction of Rubén Cabrera (Cabrera Castro *et al.* 1982a, 1982b, 1991), explored two élite apartment compounds in the city, located to the north and south of the Temple of the Feathered Serpent, the northwestern compound of the San Juan River, the Street of the Dead compound, and some domestic structures.

Recent projects at Teotihuacan include the excavation of the Merchants' *Barrio* by Krotser and Rattray (1980); Manzanilla's analysis of domestic life at Oztoyahualco 15B:N6W3 (Barba

and Manzanilla 1987; Barba *et al.* 1987; Manzanilla and Barba 1990; Manzanilla 1993, 1996); Serrano's exploration of burials at San Francisco Mazapan; Cabrera's and Cowgill's excavations in the Temple of the Feathered Serpent (Cabrera Castro *et al.* 1990; Sugiyama 1989; Cabrera Castro and Cabrera 1991; Serrano *et al.* 1991); Spence's research at the Oaxaca *Barrio*, Tlailotlacan (Spence 1989, 1992; Rattray 1993); INAH's *Proyecto Especial 1992–94* under Matos' general direction, in the Pyramid of the Sun platform, in Group Five Prima, and in the Ventilla *Barrio*, this last under Cabrera's direction; and Manzanilla's study of a system of tunnels under the northern part of the city (Manzanilla *et al.* 1989; Arzate *et al.* 1990; Barba *et al.* 1990; Chávez *et al.* 1994; Manzanilla *et al.* 1994; Manzanilla 1994a, 1994b; Manzanilla *et al.* 1996). There is also a vast amount of information on the Classic Horizon of the Basin of Mexico from the 'Metro Project', of the Direction of Salvage Archaeology of INAH, particularly those of Line 7 in the sector of Molino del Rey, the Candelaria Church in Tacubaya, San Pedro de los Pinos, and the Bancomer Centre in Universidad Avenue of Mexico City.

SETTLEMENT PATTERNS AND URBANISM

Formative settlements in the Teotihuacan Valley

The settlement sequence of the Teotihuacan Valley began in the late Formative Cuanalan Phase (300–1 BC; Table 6.1). The villages of this phase were self-sustaining settlements that exploited a vast variety of resources (Manzanilla 1985): lacustrine (snails, freshwater fish, turtles, rushes, migratory fowl), alluvial plains and lake shores (maize, squash and bean cultivation; wild tomato, prickly pear, Mexican hawthorn, and leguminous wood gathering), and finally, forest products (pine and oak wood, white-tail deer, hare, and rabbit hunting).

The inhabitants of the Cuanalan village, located at the outlet of the San Juan River into the Texcoco lake, lived in wattle-and-daub houses measuring 5 × 5 m on clay and sand concretion platforms. The houses were disposed around common open spaces, where activities such as food preparation in hearths and ovens were carried out (Manzanilla 1985).

In the rest of the Basin of Mexico, a model of intercommunal complementarity may have existed: Terremote Tlaltenco specialised in lake resources; Coapexco in manufacturing grinding instruments; Ecatepec in obsidian distribution and so on, in what Sanders (1968b) has called the 'economic symbiosis' model.

During the Tezoyuca Phase (100 BC to AD 1) the location of some settlements changed to the summit of mountains and hills. Sanders (1968a; Sanders *et al.* 1979) mentions that for the first time there is a differentiation between centre and dependent settlements: the centre settlements had monumental architecture surrounded by domestic quarters. The mountain-top sites would have derived from a competitive social environment.

A little later, a drastic change took place: the emergence of Teotihuacan as a huge urban centre, with rural settlements in the rest of the Basin of Mexico. Sanders *et al.* (1979) have hypothesised that massive relocation of the population to Teotihuacan may have had a coercive component. However, in the last centuries BC, due to the eruption of the Xitle volcano in the southern sector of the Basin of Mexico, one of the largest Formative sites – Cuicuilco – was deserted (Córdova *et al.* 1994). Recently, other Late Formative sites, destroyed by contemporary volcanic eruptions, have been found on the eastern slopes of the Popocatepetl volcano (Uruñuela y Ladrón de Guevara and Plunket Nagoda 1995). The demographic rearrangements provoked by the eruptions resulted in the migration of people from these regions, and from Texcoco, to the Teotihuacan Valley, already inhabited by local villages (Manzanilla 1985).

The so-called Patlachique Phase is partially contemporary with the Tezoyuca Phase. During this

Table 6.1 Chronological sequences in Central Mexico

	Basin of Mexico	Puebla-Tlaxcala Valley	Oaxaca Valley	Tula Valley	Huaxteca	Veracruz
	(modified from Millon 1981)	(García Cook 1981)	(Winter 1989)	(Cobean and Mastache 1989)	(García Payon 1974)	(García Payon 1974)
1250 AD				Fuego		
	Tollan		Monte Albán V			Destruction of El Tajín
1000 AD		Texcálac		Tollan	V	
	Mazapan			Corral		Tajín VI
			Monte Albán IIIb–IV	Prado		Tajín V
	Coyotlatelco			Chingú		Tajín IV
500 AD	Metepec		Monte Albán IIIa		IV	
	Xolalpan	Tenanyécac				Tajín III
	Tlamimilolpa		Transition II/IIIa			Tajín II
250 AD				Formative Terminal		
	Miccaotli Tzacualli		Monte Albán II			Tajín I
1 AD						
	Cuicuilco					
		Tezoquipan			III	
250 BC			Monte Albán I	Tepeji		
	Ticomán					
500 BC						
		Texóloc	Rosario			

time, there were three large settlements – one in the northwestern sector, another near the lake, and a third in the central–northern sector of the later city.

The Tzacualli Phase (AD 1–150, after Rattray 1991) is considered by Sanders and Millon to be the first urban stage, with a large settlement (4 km^2) located in the northwestern part of the valley (Oztoyahualco), although recent explorations in the sector do not support the idea of a dense urban settlement at that time (Manzanilla 1993). At this stage Teotihuacan was probably the largest Formative site in the Basin of Mexico.

A new settlement pattern was thus created in which the vast majority of the population was concentrated in an urban setting, and the remainder was rural. The northwestern sector of the valley, a sector deprived of running water but profuse in raw materials for construction (volcanic scoria, basalt, and tuff), was first occupied by groups of people who may have built their houses around three-temple plazas. These groups would have participated in the construction of the first monumental structures: the Pyramid of the Sun and the Pyramid of the Moon (Figs 6.1 and 6.2), followed by the Temple of the Feathered Serpent (Fig. 6.3). Soon a vast amount of construction material was needed to build a huge city, material that was mined by tunnelling the volcanic scoria under the tuff (Manzanilla *et al.* 1989; Manzanilla 1994a, 1994b; Manzanilla *et al.* 1994). When the Street of the Dead (see Fig. 6.13) was demarcated, the population of constructors who formerly inhabited Oztoyahualco abandoned the sector and moved towards the central portion of the valley. Various factors thus contributed to the positioning of the city of Teotihuacan: its proximity to the obsidian mines of Otumba and Sierra de las Navajas; the presence of a concentration of freshwater springs; the position of the valley at the easiest access point from the Gulf Coast to the Basin of Mexico; the proximity of the lacustrine basin of Texcoco; and the existence of local raw materials for construction.

Figure 6.1 View from south to north of the Street of the Dead, the Pyramid of the Sun to the right, the Pyramid of the Moon in the centre back, and the huge volcano, the Cerro Gordo, further north.

Figure 6.2 The Pyramid of the Sun, facing west.

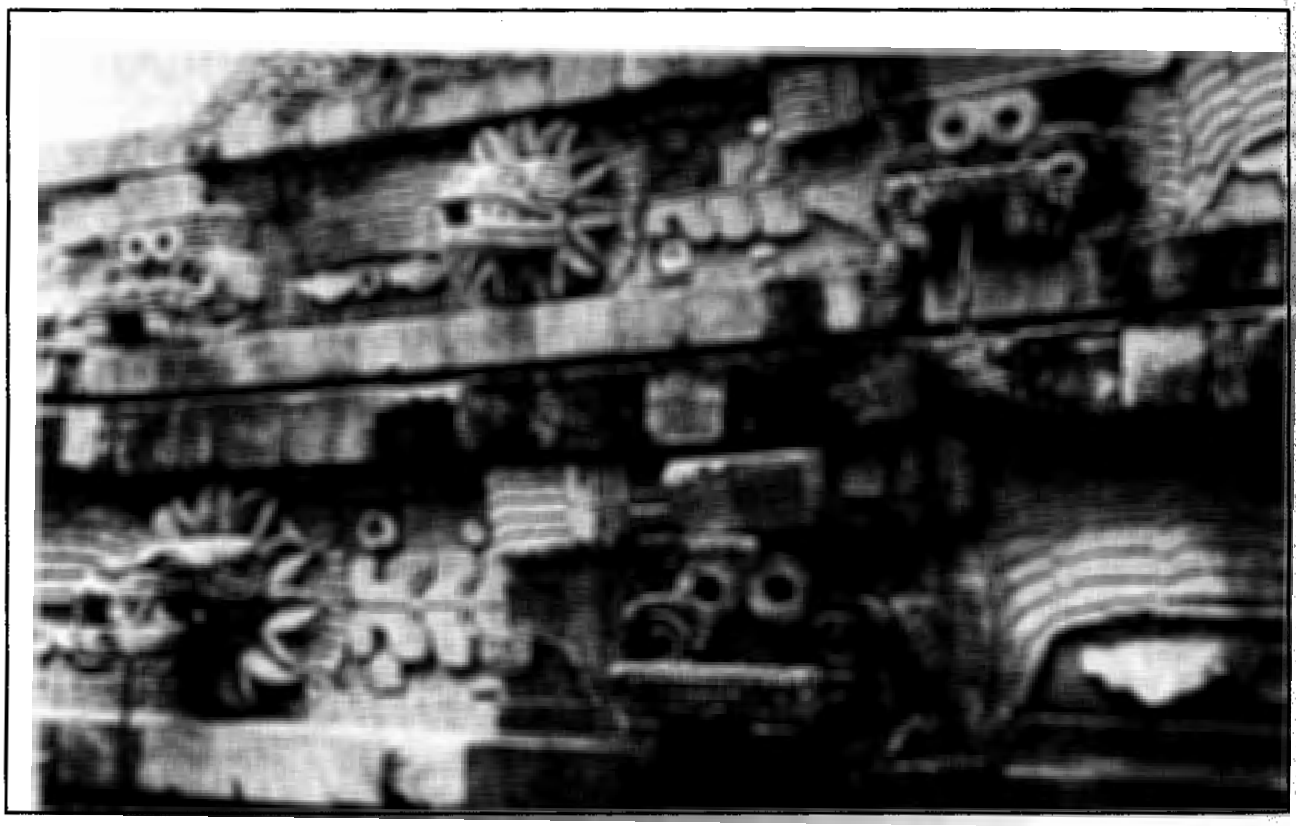

Figure 6.3 The Temple of the Feathered Serpent.

There are several ideas on the origins of the population concentrated in the Teotihuacan Valley at the beginning of the Formative Period. Linné (1942: 184) thought that Late Formative populations in the Basin of Mexico were related to the Bajío and West Mexican groups, and that afterwards groups from the Gulf Coast, who practised cranial deformation, may also have migrated to the Basin. With respect to the first point made by Linné, there is clear evidence of relations with Chupícuaro in the Late Formative sites of the northern half of the Basin of Mexico (Manzanilla 1985). However, Gamio (1920: 8) considered that Otomí groups populated the Teotihuacan Valley, and that groups from other origins arrived in the region subsequently.

With respect to the language the Teotihuacans spoke, Lehmann thought that they spoke the *Náhuat*, an archaic form of the *Náhuatl* language; Jiménez Moreno mentioned that during the first two centuries AD there were Nahua-totonac groups, but after the third century AD the Nahuas coexisted with Mazatec-popoloca groups. Manrique Castañeda pointed out that during the Classic Horizon in Central Mexico, Yutoaztec and Otopame groups coexisted (Chadwick 1966: 8; Manrique Castañeda 1975; Linné 1942).

Changes in urban planning

The Miccaotli Phase (AD 150–200) began with the demarcation of the Street of the Dead and the resettling of the population along its margins. It is the main north–south axis of the city (with an orientation of 15° 17' east of north), more than 3 km in length and 45 m in width. To span an incline of 30 m between the northern and southern ends, a series of stepped terraces was built along the axis.

It is possible that the main parallel and perpendicular axes were built through the use of pecked-cross markers located either in the central portion of the city (Viking Group, the Subterraneans, the Ciudadela; Hartung 1979), or in the neighbouring mountains (Cerro Gordo, Cerro Maravillas, and Cerro Colorado).

Another construction belonging to the Miccaotli Phase is the Temple of the Feathered Serpent (see Fig. 6.3), located on the margins of the San Juan river at the junction of the Street of the Dead with the East–West Avenue. The building was constructed in front of a huge plaza, and consecrated by a massive burial of symmetrical groups of one, four, eight, nine, eighteen, and twenty individuals (Cabrera Castro and Cabrera 1991: 28), which may have been related to the structure of the ritual calendar of 260 days (López Austin *et al.* 1991).

Other buildings related to this phase may have included the Temple of Agriculture, famous for its mural paintings, particularly one with a complex offering scene (see Gamio 1922), and the Viking Group, which had a residential function and contained the so-called 'mica floor'.

During the Tlamimilolpa Phase (AD 200–350, after Rattray 1991), the elements of urban planning at the site are clearly defined (Fig. 6.4; Millon 1973) as follows.

Firstly, we can see the existence of axes and streets: the Street of the Dead (north–south) and the East–West Avenue intersect to the north of the Ciudadela. The latter can be followed for more than 3 km to the east, and 2 km to the west of the Great Compound. Consequently, the two streets divide the city into four quadrants, in which the Ciudadela, situated in the intersection, would have had special importance. The division of important sites into four quarters could have been related to Mesoamerican cosmovision.

Kubler (1967; Millon 1968: 109) interpreted the representations of a vessel found in Calpulalpan as Tlaloc (Teotihuacan's symbol) and four companions (probably the representatives of the four quarters or four social groups) in relation to the quadrants. Three have the same headdress and are related to a serpent, a bird, and a coyote; the fourth is the only one with Tlaloc's eye circles, a different headdress, and a glyph representing its attire. It may be that one quarter was more important than the rest, being the earliest or the most prestigious.

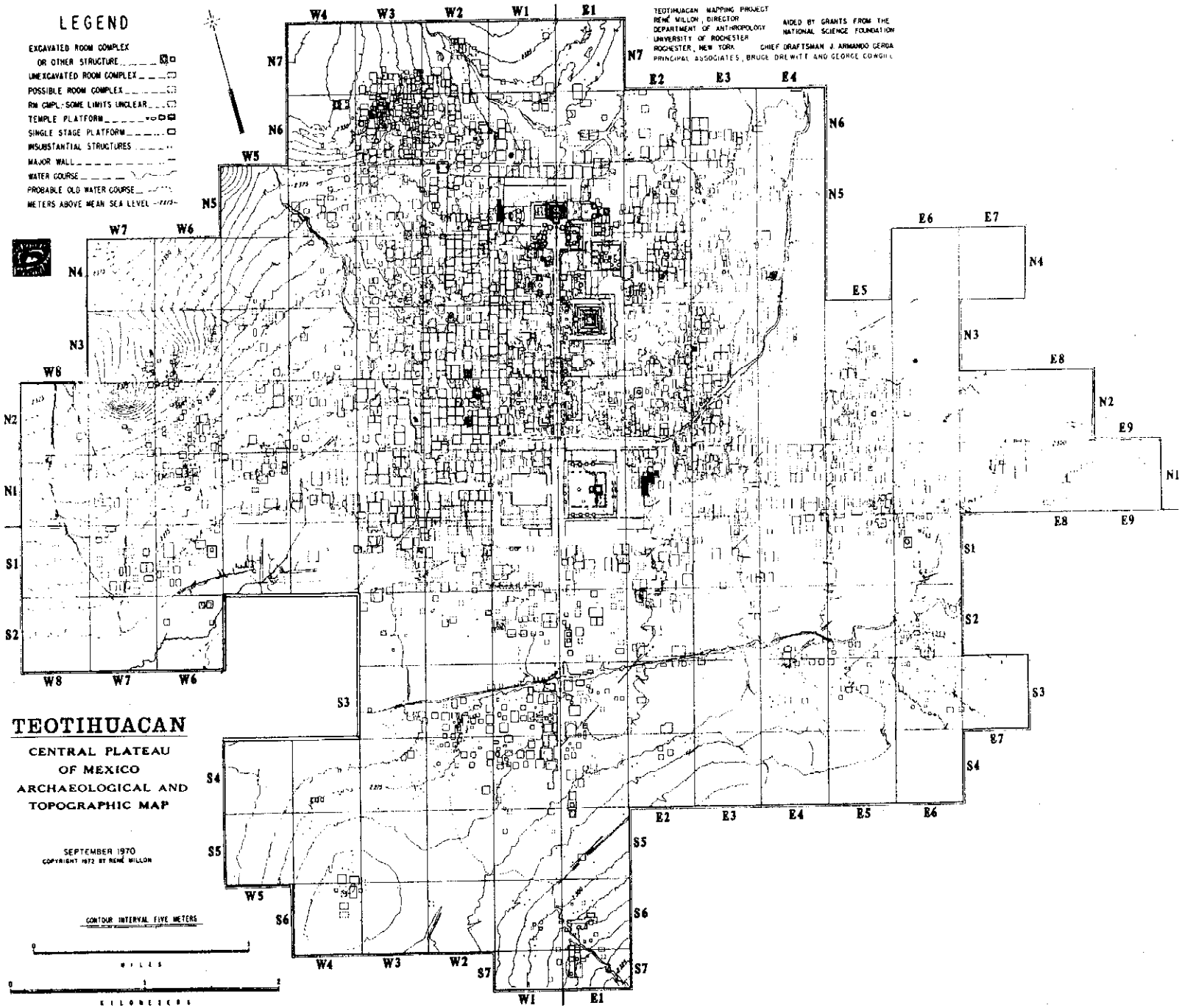

Figure 6.4 Map elaborated by 'The Teotihuacan Mapping Project' directed by René Millon (1993; Millon *et al.* 1973).

Nearly all the constructions were distributed along the streets; all run parallel or perpendicular to the main axes, and are demarcated at regular intervals. Furthermore, in the neighbouring mountain slopes some kilometres from the centre of the city, other constructions are aligned to the city's grid (Millon 1967: 41).

The second element is the water and drainage system: there seems to have been a supply of drinking water and a complex drainage system that derived from a reservoir 200 m to the north-west of the Pyramid of the Moon. Mooser (1968: 36) proposed that the small nineteenth-century dam in Las Palmas may have concealed a Classic Horizon dam. Furthermore, the San Juan river was channelled to follow the city's grid, and the San Lorenzo river, originally meandering, was restricted to a straight line because of its sudden flooding.

The internal drainage system included a vast network of underground canals that converged into a central one flowing parallel to the Street of the Dead, and discharging into the San Juan river (Sanders 1964: 124).

Thirdly, public and administrative constructions were placed along the Street of the Dead, although the particular functions of these buildings are not known. Recently, to the north and south of the Temple of the Feathered Serpent, two élite residential compounds have been excavated. According to Armillas and Cowgill (Millon 1968: 110; Cowgill 1992: 108), the Ciudadela may have been the seat of a dual government, and once the major religious and administrative centre of the city. However, the structures that border the Temple of the Feathered Serpent differ little from the vast range of apartment compounds, and we propose that the Xala Compound between the Pyramid of the Sun and the Pyramid of the Moon is also a possibility for the seat of the rulers.

The so-called Great Compound in front of the Ciudadela is the largest structure of the site, larger even than the Ciudadela. It consists of two 'U'-shaped wings (one to the north and the other to the south) surrounding a huge open space, with entrances from the Street of the Dead. Millon (1967: 83) states that the plaza could have housed the main market of the city, because of its central position in the city, yet this hypothesis has not been tested and we propose an alternative interpretation below.

The fourth element consists of the residential compounds: a series of multifamily residential structures surround the core of the site, at Tlamimilolpa, Xolalpan, Atetelco, Tepantitla, Tetitla, Zacuala, etc. (Manzanilla 1996). Furthermore, Millon (1968, 1970: 1080; Spence 1966) proposes the existence of a module of 57 m with apartment compounds housing 100, 50, and 20 people (possibly corporate groups, mainly devoted to crafts).

Apartment compounds are isolated from the streets by high external walls with no windows, thus providing privacy. Internal open spaces gave light, air, pluvial water (Millon 1967: 43), and small refuse evacuation (Manzanilla 1993).

Lastly, wards and sectors for craft production are evidenced by the existence of more than five hundred concentrations of raw materials and debris (many obsidian), which were considered to be workshops by Millon's project, although some may have been refuse dumps. Specialisation to the level of the type of artifact manufactured was noted: some workshops made prismatic blades, others bifacial tools (Millon 1968: 116). The greatest obsidian concentration lies to the west of the Pyramid of the Moon, which perhaps suggests state control (Spence 1987). Other workshops were devoted to the production of pottery, figurines, lapidary, polished stone, and slate objects, although only a few have been excavated.

There are also foreign wards: the Oaxaca *Barrio* (Tlailotlacan) to the southwest (Spence 1989, 1992; Rattray 1993); the Merchants' *Barrio* to the east (Rattray 1987, 1988), where circular adobe domestic structures with Maya polychrome pottery were found; and perhaps a small enclave from Michoacán on the western fringes of the city (Cabrera Castro *pers. comm.*).

Greatest demographic concentration

During the Xolalpan Phase (AD 350–650), Millon (1967: 46) observes a process of urban renewal as a result of excessive demographic growth. The city seems to have reached its demographic peak in *c.* AD 450–500, with a corresponding reduction in the neighbouring rural population; Millon states that the city contracted from 22.5 km^2 to 20.5 km^2.

At a regional level, Sanders *et al.* (1979: 108) propose that in addition to Teotihuacan, there were 10 provincial centres, 17 large villages, 77 small villages, and 149 hamlets in the Basin of Mexico. They further state that 50–60 per cent of the Basin's population resided in Teotihuacan, and that the rural population in the northern half (Cuauhtitlan–Tenayuca) exceeded that of the south by a ratio of four to one. Due to the fact that the population in the southern part of the Basin of Mexico (Chalco–Xochimilco) was smaller and more evenly distributed, Sanders *et al.* (1979) interpret this as the removal of people from earlier centres of power and authority.

Teotihuacan declines soon after: the core of the city is set on fire during the Xolalpan Phase as part of the first internal revolt. The traces of the fire are visible in Courtyard I near the Pyramid of the Sun, the Quetzalpapalotl Palace (Armillas 1944: 123; Bernal 1963: 15), and on the margins of the San Juan river. At the end of this phase many people abandoned the outskirts of the city. During Coyotlatelco times (c. AD 650–850) the site was still inhabited, particularly in its central and eastern portions, and was still the largest site in the Basin of Mexico. Several factors may have been involved in the collapse of Teotihuacan. For instance, there may have been nomadic incursions. Jiménez Moreno (1959: 1066) proposed that Otomí nomadic groups inhabiting the north of the valley could have been involved in the fire in the city's core. Then there is the possiblity of agricultural collapse and deforestation. Mooser (1968: 31) considered that the growth of the city provoked the destruction of nearby forests, so that what were originally advantageous natural conditions became adverse. Millon (1967: 48) adds that immoderate wood-cutting for construction and lime-processing produced erosion, which then caused a decrease in agricultural soil humidity. Barba (1995) calculated that the city needed two million cubic metres of calcium carbonate for its plastering, and thus 2.2 million cubic metres of wood (four times the surface of the valley floor). The decrease of annual rainfall and persistent drought around AD 650 in Central Mexico (García 1974; Metcalfe *et al.* 1989; Manzanilla 1992b; O'Hara *et al.* 1993), meant that many semi-nomadic or nomadic groups were obliged to migrate to more benign environments. The city may therefore have suffered from food shortages and an increasing process of social deterioration, making it vulnerable to external threats.

Thirdly, powerful marginal groups may have posed a threat. Palerm and Wolf (1972: 191–3) considered that increasing aridity in the northern frontier of Mesoamerica required the organisation of irrigation systems and the need for protection against the incursions of nomads. These factors could have reinforced military patterns in the local population, which could then be used against ancient civilisation centres such as Teotihuacan.

Lastly, supply networks may have been blocked. Chadwick (1966: 2) has mentioned that Mixtecs, Olmec-xicallanc and Chocho-popolocs (who were in contact with Teotihuacan during its last phases) would have taken advantage of the social unrest in the city finally to block the exchange and access routes. Furthermore, Millon (1988: 149) mentions that the causes of Teotihuacan's collapse included the deterioration of exchange networks.

Many of these factors, if not all, would have coincided in the last periods of Teotihuacan history. If the government was collective and in the hands of anonymous priests devoted to fertility rites, as the mural paintings suggest, we can imagine how the population of the city may have reacted towards drought, soil erosion, and lack of food. The result was population dispersion towards west, east and south.

SUBSISTENCE ECONOMY

Agriculture

In Teotihuacan it appears that all the apartment compounds had similar access to plant resources, including maize (*Nal-Tel Chapalote, Palomero Toluqueño,* and Conical), amaranth, beans, squash (*Cucurbita pepo, C. maxima, C. moschata,* and *C. ficifolia*), hot peppers, tomato, *Chenopodium* (*huauhzontle*), *Portulaca,* cactus, *Agave,* Mexican hawthorn (*Crataegus mexicana*), and Mexican cherries (*Prunus capuli*) (González 1993; Manzanilla 1985, 1993; McClung de Tapia 1979, 1980: 162–3; Storey 1992: 64). Other plants used for medicinal purposes, fuel, and construction included purslane, wild potatoes, wild reeds, umbelliferous plants, white sapodilla, pine, oak, juniper, ditch reeds, and bulrushes. A great abundance of tobacco (*Nicotiana*) at San Antonio Las Palmas (Monzón 1989), avocado at Teopancazco (McClung de Tapia 1979), cotton at Tlamimilolpa (Linné 1942) and Teopancazco (McClung de Tapia 1979) probably suggests differential access to exogenous botanical resources associated with manufacturing and ritual consumption. Also, cacao trees are represented in mural art.

Tetitla (Séjourné 1966) and Maquixco Bajo-Mound 3 (Sanders 1994: 63) were rich in *Agave* end-scrapers, probably for *pulque* production. Outstanding differences have been noted in the number of scrapers per compound: for example, the three small compounds in Maquixco Bajo had 243 scrapers, while there were only 6 at Oztoyahualco 15B:N6W3. Likewise 93 projectile points were recovered at Maquixco Bajo compared with only 10 at Oztoyahualco 15B:N6W3 (Manzanilla 1993). These differences may reflect specialised procurement activities.

Rainfall agriculture was dominant, especially in the alluvial plain, and some traces of irrigation techniques have been found in the western portion of the valley (Palerm and Wolf 1972; Sanders 1977). Furthermore, the concentration of spring water in the Puxtla *Barrio* at San Juan Teotihuacan suggests it may have housed a canalisation system through cultivated fields, a system perhaps copied by the artists who painted the '*Tlalocan*' at Tepantitla (Angulo Villaseñor 1964; González Quintero and Sánchez Sánchez 1991).

Hunting, fishing and breeding

In general, important faunal resources included rabbits and hares, deer, supplemented by duck and fish, and in lesser degrees, armadillo, squirrel, goose, quail, dove, turtle, and lizard (Sanders 1994: 31; Starbuck 1975; Valadez and Manzanilla 1988; Valadez Azúa 1993). At Oztoyahualco 15B:N6W3 we recorded a wide variety of rabbit and hare species (*Sylvilagus floridanus, Sylvilagus cunicularius, Sylvilagus audubonii, Romerolagus diazi,* and *Lepus callotis*); there was also evidence of rabbits being bred in captivity (Manzanilla 1993; Valadez Azúa 1993). At the site, the abundance of rabbit and hare bone also had an ideological counterpart in the form of a small rabbit sculpture that stood on a model temple in one of the ritual courtyards, probably as a patron deity. It is likely that rabbit feet were being ritually cut as part of a group ritual held in a small destroyed temple (Hernández 1993; Manzanilla 1988–89, 1993; Manzanilla and Ortiz 1991). Furthermore, Storey (1992) and Widmer (1987) found large numbers of rabbits, turkey eggs, small birds (such as quail and pigeon), small freshwater fish, and low counts of deer, dog, and turkey at Tlajinga 33. It is particularly interesting that Storey (1992) suggests that turkey eggs could have been obtained externally, without turkeys necessarily being bred at Tlajinga 33.

In ritual contexts at Tetitla and Yayahuala there were traces of eagle and hawk, and at Oztoyahualco 15B:N6W3 we found bear and a jaguar's fang, all of which are exogenous animals.

In Xolalpan times, there may have been shortages in meat distribution as a result of population pressure, to which one of the relevant responses may have been the breeding of rabbits, turkeys

and dogs at Oztoyahualco. Another response could have been the consumption of freshwater fish at Tlajinga 33.

Starbuck suggests that from Terminal Preclassic to Late Classic, a change from locally available animal resources to a reliance upon a much-expanded support area, probably encompassing most of the Valley of Mexico, took place (Starbuck 1975). He further proposes a decrease in the importance of deer during the Classic Horizon. However, our research at the Late and Terminal Preclassic village of Cuanalan, in the southern Teotihuacan Valley, shows that a wide variety of lake, land, and mountain resources were consumed (Manzanilla 1985), and continued to be consumed in Classic Teotihuacan. Furthermore, at Teotihuacan we found botanical and faunal resources from the southern fringe of the Basin of Mexico, particularly the Chichinautzin Sierra (e.g. *Romerolagus diazi*). We thus share McClung de Tapia's idea (1978) that rather than intensifying the subsistence base in the valley itself, the Teotihuacans decided to extend their catchment area to the rest of the eastern Basin of Mexico. It is also possible that through ritualising the offering of surplus the priests organised central storage in order to maintain the redistribution network (Manzanilla 1992a).

We have no way as yet of comparing the number of individuals of each faunal species per unit area in the apartment compounds, because the only thorough data yet published are those of Oztoyahualco 15B:N6W3 (Valadez Azúa 1993; Valadez and Manzanilla 1988). However, even though approximately the same faunal and floral species are represented in all the apartment compounds, Tetitla showed an unprecedented diversity of birds (as well as a particular richness in botanical species); Yayahuala, a wide variety of marine mollusc (as well as a high proportion of *Chenopodium* and amaranth); Tlajinga 33, the consumption of small birds and freshwater fish; and Oztoyahualco 15B:N6W3, a reliance on several species of rabbits and hares. At present, the degree to which these data reflect differential access to faunal and floral resources cannot be determined, because many alternatives related to group choice and ideology have to be considered. However, one difference between compounds that can be pointed out is the presence of different hunting techniques represented by the range of technological implements. For example, Tetitla produced projectile points of various sizes to cope with small, medium, and large animals (Séjourné 1966: fig. 117). Even though Linné only published offerings from burials, the projectile points at Xolalpan (Linné 1934: figs 258, 259, 263, 264, 293–7, 298–311) and Tlamimilolpa (Linné 1942: figs 247, 252, 263–71) show similar size ranges. In contrast, Oztoyahualco 15B:N6W3 contained projectile points of medium and large sizes, together with many examples of blow-gun projectiles, perhaps for hunting small animals (Hernández 1993). Linné (1942: 187) also found blow-gun projectiles at Tlamimilolpa.

Gathering

Wild plants were gathered in the forests and on the lake shores, including pine, oak, juniper, hawthorn, purslane, ditch reed, bulrush, wild potato, umbelliferous plants and white sapodilla. Freshwater molluscs as well as marine species (from the Pacific and Atlantic Oceans) were found at Teotihuacan. Many were used for rituals or ornamentation (particularly *Oliva* sp.). In a mural painting at Tetitla there is a diver collecting molluscs in nets, while at Tepantitla there are depictions of flower-, fruit-, and branch-gathering.

Manufacture

Teotihuacan crafts had prestige all over Mesoamerica during the Classic Horizon; they are found in élite contexts, and many were reproduced in local raw materials outside the Basin of Mexico. The majority of Teotihuacan's population may have been devoted to craft production, particularly

of green obsidian prismatic blades and high-quality pottery, which were distributed amongst élites. Other products, such as those derived from cactus and *Agave*, as well as ritual paraphernalia, may have been exchanged with foreign groups (Millon 1993: 28). In the city, distinct manufacturing wards have been identified, specifically those for blade production around the Pyramid of the Moon, and sectors of ceramic production in the southeastern part of the city.

Lithics

The manufacture of grey obsidian from Otumba and green obsidian from Pachuca (Spence 1987) was specialised to the level of the type of artifact produced: some workshops made prismatic blades in green obsidian, while others were devoted to producing knives and projectile points in grey obsidian. There was also a flint industry related to the production of projectile points, end-scrapers and side-scrapers.

Basalt, andesite, sandstone, and slate were used for polished stone instruments, with the manufacturing sector probably being Tecópac, to the northeast of the city. Basalt was used for grinding stones, hammer-stones, and pounders; volcanic scoria was used for smoothing plaster; andesite was used for construction slabs; and slate was used for ritual purposes. Furthermore, figurines, sculptures, and masks were made from exogenous raw materials (such as greenstone and jadeite).

Pottery

Even though a profusion of ceramic fragments appears at Teotihuacan, only a few examples of areas of pottery production have been identified within the city. At Tlajinga (San Sebastián) Krotser and Rattray (1980) identified a workshop for making San Martin Orange amphorae, craters and jars (in the proposed workshop there are traces of an open-air firing area, together with various instruments, raw material, and moulds). At Teopancaxco, workshops for 'Copa' ware have been proposed, while around the Ciudadela were censers' plaque workshops, evidence for which included wasters, unbaked clay, moulds, polishers, blades, knives, scrapers, pounders, and an open-air firing area (Múnera 1985).

Several figurine moulds were found at Xolalpan (Linné 1934: figs 199–208), and stone celts for cutting wood were particularly abundant in Grave 1 (Linné 1934: figs 246–56). These objects are not common in Teotihuacan in general: for example, the Oztoyahualco 15B:N6W3 compound produced only 132 figurines and figurine fragments from Teotihuacan times (Manzanilla 1993: 358–69), in comparison to Maquixco Bajo, where Kolb (1995) mentions 2,150 figurines from Teotihuacan times in all the compounds and neighbouring areas.

Within the Oztoyahualco 15B:N6W3 compound there seems to have been a differential consumption of pottery wares of diverse colours in each household or family unit. Matte and Red Hematite wares are associated with Household 1, whereas Household 2 used black, brown, Copa, Granular, and San Martin wares. Household 3 – the poorest in pottery diversity and the richest in burials and foreign fauna – had a concentration of Orange and Thin Orange wares. Such differences may reflect differential access to pottery production in the urban setting for each nuclear household (Manzanilla 1993).

Other wares may have been channelled through the Teotihuacan distribution network, such as the Thin Orange wares, which were manufactured near Atlixco, Puebla. There are also foreign wares, particularly those from the Gulf Coast, the Mayan area, Oaxaca, and Michoacán.

Other crafts

Lapidary (Storey 1991; Widmer 1991), shell, textile, and feather-working workshops have all been located within Teotihuacan. Different kinds of pigments for painting walls, pottery, and probably

codices, as well spindle-whorls and needles, were recorded at Xolalpan. Tlamimilolpa (Linné 1942) also had evidence of textile manufacture, as well as basket making and fibre-work. Tetitla (Séjourné 1966) produced evidence of bone instruments for working hides and polishing pottery.

In the author's reconstruction of the economic organisation of the city (Manzanilla 1992a) it was proposed that some crafts were directly maintained by the redistributive network in the hands of the priesthood in order to promote their products for long-distance exchange. Following Spence's (1987) classification, precinct workshops near the main public structures (around the Pyramid of the Moon, the Great Compound, and to the northeast of the Ciudadela), and probably also regional workshops (also located in main streets and structures), could have been under the direct control of the priests (Spence 1987: 434). Thus Spence's impression that the obsidian industry was 'administered' and 'highly centralised' may be explained by the fact that obsidian products were the main by-product of the redistributive circuit. Comparing the Classic and Postclassic obsidian industries, the latter was in the hands of part-time specialists, and was less centralised (Spence 1987), and probably was not so necessary for exchange. It may be that some of the potters were in a similar position: the censers' plaque workshop found to the north of the Ciudadela (Múnera 1985), for example, and the Copa ware and Matte ware production areas (for portable stoves, miniatures, *candeleros*, decorated vessels, etc.).

Construction

Domestic constructions

We know practically nothing about urban life during the Patlachique, Tzacualli, and Miccaotli Phases (first two centuries AD), except for some partial data on earthen floors and a single-room house in TC-49 (Charlton 1969) that resembles the local Formative houses of the village of Cuanalan (Charlton 1969; Manzanilla 1985). Furthermore, there are no data on houses for the farming population in the city. Millon (1973) has stated that there is an outer fringe of adobe houses that may have been occupied by farmers. At Tlajinga 33, outside the city, we have an example of a craftsman's house, consisting of compounds around courtyards for living quarters and workshop areas for potters and lapidary workers (Storey and Widmer 1989).

Residential compounds

One of the hallmarks of Teotihuacan civilisation, from the third century AD onwards, is the presence of multi-family compounds, where the diversity of elements that constituted urban life can be studied. For the Tlamimilolpa Phase (AD 200–350) elements of urban planning at the site are clearly defined, as is domestic life in apartment compounds (Millon 1973). Several examples of these have been studied since Linné (1934) extensively excavated Xolalpan: Tlamimilolpa (Linné 1942), Atetelco, Tepantitla, La Ventilla (Piña Chan 1963; Cabrera Castro *pers. comm.*), Tetitla (Moore 1966; Séjourné 1966), Yayahuala (Séjourné 1966), Zacuala (Séjourné 1966), Bidasoa (Sánchez Alaniz 1989), San Antonio Las Palmas (Monzón 1989), El Cuartel, and structure 15B:N6W3 at Oztoyahualco (Manzanilla 1993, 1996; Manzanilla and Barba 1990). We also have information from Tlajinga 33 (Storey 1983, 1987, 1991, 1992; Storey and Widmer 1989; Widmer 1991) and Maquixco Bajo (TC8) on the southern outskirts of the city (Sanders 1966, 1994, 1995), as well as domestic structures in the foreign wards of the city (Rattray 1987, 1988, 1993; Spence 1989, 1992, 1994).

Apartment compounds generally consist of several rooms at slightly different levels arranged around open spaces (courtyards, refuse areas, and light wells) that served as places for rituals, rainwater collection, partial refuse disposal, and the provision of light (Fig. 6.5). The compounds

consist of different apartments joined by passages for circulation; they have domestic sanctuaries, and the entire compound is enclosed within an exterior wall.

It is believed that these compounds were occupied by corporate groups with common kinship, residence, and occupation, and it has been archaeologically observed that craftsmen dedicated to the manufacture of different products lived in separate compounds (Millon 1968; Spence 1966). Whilst mapping the activities, shared by all households in the Oztoyahualco 15B:N6W3 compound, we found additional data supporting this idea. Unfortunately, fossil DNA tests on the burials (Millones 1994) did not provide sufficient collagen to evaluate kinship ties between individuals of each household.

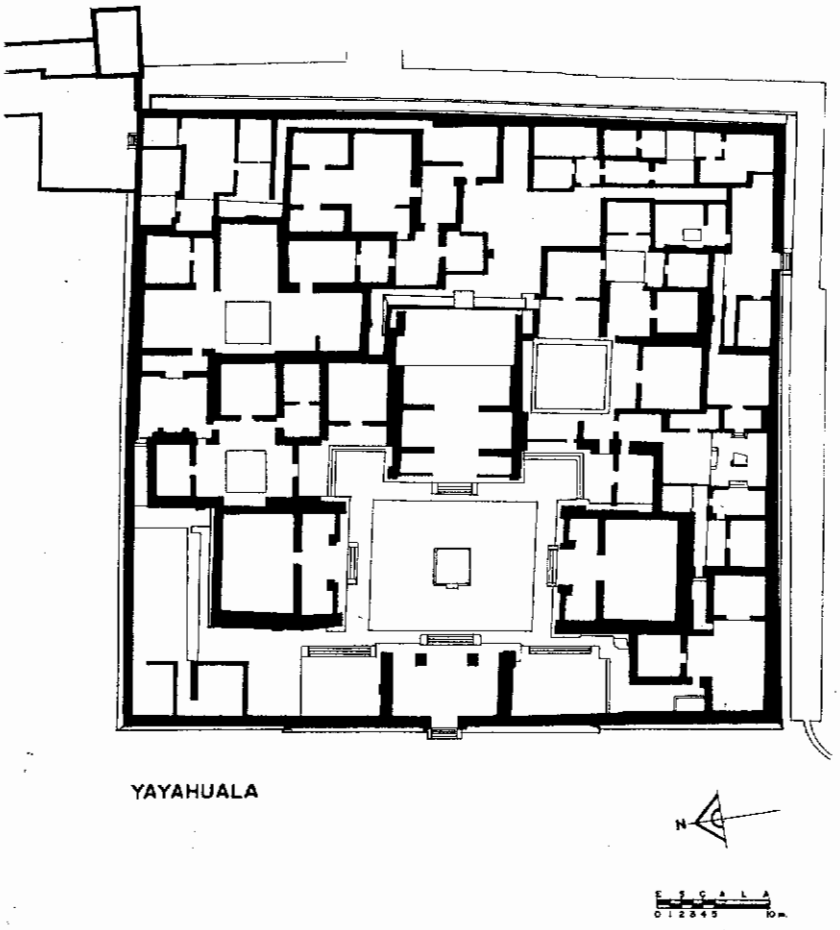

Figure 6.5 The Yayahuala compound, following Séjourné 1966.

The compounds vary considerably in surface area. Some are very large, such as Tlamimilolpa (Linné 1942), Yayahuala, Zacuala Palace, and Tetitla (*c.* 3,600 m^2; Séjourné 1966); others are medium sized, such as Tlajinga 33 (2,280 m^2; Storey 1992), Bidasoa (1,750 m^2 at S2E4; Sánchez Alaniz 1989), Xolalpan (more than 1,344 m^2; Linné 1934) and Mound 1–2 in TC8 at Cerro Calaveras (1,500 m^2; Sanders 1966, 1994). Other compounds are much smaller, such as that excavated at Oztoyahualco 15B:N6W3 (slightly more than 550 m^2; Manzanilla 1993), Mounds 3 and 4 at TC8 (340 and 529 m^2 respectively; Sanders 1966), and the compound excavated by Monzón at San Antonio Las Palmas (280 m^2 at N7W3; Monzón 1989).

Individual household sectors within the compound can be isolated either taking into consideration the circulation alleys or access points (Sanders 1994: 19), or by mapping the different food consumption loci for each nuclear household. For example, the Oztoyahualco 15B:N6W3 compound had three sections (Fig. 6.6), and we propose that they were related to three households (Ortiz Butrón 1990; Ortiz Butrón and Barba 1993). Each apartment included a zone for food preparation and consumption, sleeping quarters, storage areas, sectors for refuse, patios for cult activities, and funerary areas. In addition, there were zones in which the entire family group or compound group (all the households in an apartment compound; see Sempowski 1994: 9–10) gathered to share activities, particularly those related to ritual activities and perhaps to the raising of domestic animals. Furthermore, we suspect that members of different household units participated in specialised activities related to the larger urban setting. In Oztoyahualco 15B:N6W3 the whole family group probably specialised in the stucco plastering of neighbouring three-temple plazas, and perhaps of other structures at Oztoyahualco. Other compound groups in the city seem to have been similarly devoted to ceramic production of certain wares, textile manufacture, obsidian or lapidary working, or even painting activities.

Figure 6.6 An aerial view of the Oztoyahualco 15B:N6W3 compound (Manzanilla 1993).

From 1985 to 1988 the apartment compound at Oztoyahualco 15B:N6W3, at the northwestern boundary of the city in Millon's N6W3 square, was carefully excavated (Manzanilla 1993, 1996) as part of an intensive interdisciplinary project. It was known that the stucco floors were scrupulously swept in the ancient domestic setting, so we would not have abundant macroscopical remains for our analysis. We thus planned a strategy that also took into consideration chemical traces of activities on the plastered floors, as well as microscopic evidence related to specific activities. We gathered architectural and funerary data as Linné (1934, 1942) did for Tlamimilolpa and Xolalpan, Séjourné (1966) for Tetitla, Yayahuala, and Zacuala, and Piña Chán (1963) and Vidarte for La Ventilla. We plotted the distribution of artifacts on floors as Monzón (1989) did for San Antonio Las Palmas, Sánchez Alaniz (1989) for Bidasoa and Sanders (1966, 1994, 1995) for Maquixco Bajo. We also screened and analysed flotation samples as Widmer (Storey and Widmer 1989; Widmer 1987) did for Tlajinga 33. These studies were supplemented by the fine-grained analyses of phytoliths and pollen, botanical and faunal macro-fossils, and chemical compounds on floors, as well as micro-artifactual distributions (Barba *et al.* 1987; Manzanilla 1988–89, 1993, 1996; Manzanilla and Barba 1990). As such, we obtained the anatomy of an apartment compound during Xolalpan times. This case study serves as a reference for the reconsideration of socio-economic variations in domestic compounds at Teotihuacan.

The Oztoyahualco 15B:N6W3 compound had been abandoned, with the residents taking most of their goods with them, so only traces of some *de facto* refuse were found in certain rooms, and some exceptional cases of *locus agendi* areas (Manzanilla 1986a, 1986b, 1988–89). During the excavation process discrete distributions that may have represented activity areas were located. Such distributions were usually structurally delimited, either representing offerings or burial cavities excavated in the floors, associations of storage vessels, or concentrations of artifacts or

faunal remains in the corners of the rooms. They were described as potential activity areas exhibiting a specific set of characteristics. These artifactual patterns were then contrasted with the distribution of the biological elements and chemical compounds in order to gain an idea of the set of activities for each room.

One of the methodological approaches that was most useful in assessing past activities was the chemical analysis of the stucco floors of the compound (Manzanilla 1996). Barba (1986; Barba and Manzanilla 1987; Ortiz Butrón and Barba 1993) has proved, in ethnographical as well as archaeological examples, that stucco floors trap chemical compounds derived from repeated specific activities. At Oztoyahualco 15B:N6W3 samples were collected to a depth of 5 cm in each square metre of the stucco floor. The following tests were carried out on each sample:

1 Phosphate analysis. This semi-quantitative test was based on the intensity of blues generated in the surface of filter paper which reflects the quantity of phosphate in each sample. Areas where organic refuse was abundant tend to have high phosphate values.
2 Carbonates. The quantity of carbonates present in the sample was estimated based on their reaction to hydrochloric acid. A scale from one to five was employed to measure the level of intensity of these reactions. Leaving natural calcium carbonate deposition aside, carbonate concentrations could be derived either from *tortilla* preparation, or from stucco and limestone processing.
3 pH levels were determined by routine procedures used for soils in a water solution, and measured with a combined electrode: the presence of fire in the vicinity of a stucco floor increases pH values.
4 Colour. Soil samples were compared using a Munsell Soil Colour Chart. Colour can be an indicator of organic material; a change in colour may also show where a fire has been lit (Manzanilla 1996).

Specific chemical tests for sodium and iron were used in locations where it was expected that particular activities had been carried out. For example, iron concentrations are derived from *Agave* processing or from the butchering of animals. Organic and inorganic chemical analyses were also undertaken on the bottoms of specific types of ceramic vessels, and provided further information on food preparation and consumption.

At Oztoyahualco 15B:N6W3 there was, in general, a clear differentiation among the various sectors of the structure. The southern sector was associated with refuse; areas for food preparation and consumption, as well as the sleeping quarters, were set around the central portion of the compound; the eastern sector was rich in funerary and ritual components; the western sector was devoted to storage; and, finally, the northwestern sector had the largest courtyard, and was probably the compound's meeting place.

As mentioned above, there seems to have been a differential distribution of activities for each household within Oztoyahualco 15B:N6W3. Distribution maps of all types of archaeological material – ceramics, obsidian, polished stone, bone, antler, shell, chemical compounds, pollen, phytoliths, seeds and faunal macro-fossils – help differentiate some activities and choices particular to each nuclear household. For example, Matte and Red Hematite wares are associated with Household 1 situated to the south, together with the largest concentration of prismatic blades, ritual butchering of rabbits, and the presence of the Butterfly God. Household 2, on the other hand, to the west, used black, brown, Copa, Granular, and San Martin wares, and was characterised by the confinement of rabbits and hares, the butchering of animals for consumption – activities where side- and end-scrapers were used – the largest presence of foreign wares and minerals, and symbols of fire. However, Household 3, to the northeast, had a concentration of Orange and Thin Orange wares, together with Tlaloc symbols. Such finds may reflect differential

access to pottery production in the urban setting for each nuclear household, as well as activity and ritual differentiation.

One of the greatest problems in comparing this apartment compound with the others excavated at Teotihuacan is the fact that, in the latter case, a high percentage of the data comes from small-scale intensive excavations, with no context control. The data from Oztoyahualco 15B:N6W3 can be compared only with those from extensive large-scale excavations, and then only in terms of presence/absence. For example, when we take into consideration the presence/absence of botanical and faunal resources, as well as exogenous raw materials, we conclude that the differences in access are very slight between compounds. There may be a whole range of socio-economic possibilities, with no clear-cut distinctions between groups in the urban setting. Differences in quantities are noticeable, but the problem is the comparability of the samples.

There are also differences in specialised activities between household groups of different compounds, as well as in dominant activities of households, which suggest group and family specialisations. Differences in the number of high-status products, particularly decorated ceramic tripods and mural paintings, and variability in the quality of the construction itself, have been noted. One household in each compound seems to have been the most active in bonding the household group to the urban hierarchy. At Oztoyahualco 15B:N6W3 this is seen in Household 3, related to the Tlaloc cult (Tlaloc vases, Tlaloc figurines, Tlaloc representations in 'handled covers'), the richest burials, and foreign fauna.

Many of the three-temple complexes found throughout the northern part of the ancient city may be centres of *barrio*-groups, where cult and exchange activities took place between a number of specialised corporate groups living in apartment compounds around the complexes. Other wards not involving three-temple complexes can be distinguished in the southern part of the city.

If Millon (1981: 209) is correct in proposing that the apartment compounds are a by-product of state decisions to exercise efficient control over the population of the city, then a further area of research would be the articulation between these social units and the urban organisation as a whole. It is also possible that the inefficiency of the state bureaucracy and the inflexibility to change that may have caused its fall (Millon 1988), were in part provoked by the difficulty in harmonising the interests of such a vast array of ethnic, occupational, and social groups.

Public constructions

One of the main characteristics of Teotihuacan is the magnitude of its public constructions: the pyramids of the Sun (see Fig. 6.2) and Moon are monumental; the Temple of the Feathered Serpent stands out for its decoration and symbolism (see Fig. 6.3); and, in general, the remainder are characterised by the use of the *tablero-talud* (a sloping wall that supports a projecting vertical panel where mural paintings are set). Originally, a pattern of three-temple complexes was dominant, before the Street of the Dead was built. Architectural characteristics of the site include the use of painted pillars and columns, porticoes, stairways in the centre of façades, slab coating, and irregular stone and clay structure cores; a subterranean drainage system; and lime plastering of walls, floors, and maybe also roofs (the plaster was set on a bed of crushed volcanic scoria).

Crespo Oviedo and Mastache de Escobar (1981) proposed that in the Tula region there are two sites that could be considered Zapotec settlements from which lime was obtained for the plastering of Teotihuacan (El Tesoro and Acoculco). Spence (1992) supported this idea by proposing that the Zapotec ethnic group controlled the mining, processing, and importation of lime to the city. However, research at Oztoyahualco 15B:N6W3 does not support this interpretation, although this compound is nearly 3 km to the north of Tlailotlacan. Consequently, it was concluded that parts of the northwestern district of the ancient city had direct links with settlements in the Tula region, and that the compound was perhaps more related to Chingú (Díaz O. 1980),

a Teotihuacan enclave in the Tula area, also located in the limestone region. The number of plaster 'polishers' made of volcanic scoria (*tezontle*) per square metre can be used to differentiate the relevance of this activity in apartment compounds, assuming that Linné and Séjourné retained all the specimens found. Tetitla had 0.19 polishers per square metre; the Oztoyahualco compound, 0.10; Xolalpan, 0.04; and Tlamimilolpa, 0.01.

SOCIO-POLITICAL ORGANISATION AND EXTERNAL RELATIONS

Very little has been concluded archaeologically with respect to the social organisation of complex urban centres such as Teotihuacan (see Cowgill 1983, 1992). The existence of multi-family apartment compounds may suggest the co-residence of corporate groups sharing kinship and domestic territory, as was the case with the *calpulli*-units in the Mexica state.

When analysing access to resources, it is clear there are no clear-cut differences between compounds that may suggest separate social strata. There seems to be a continuum of social groups, all with the same goods, but in different quantities. Only the surface of the compounds, the presence of mural art, and the preference for certain activities, plants, and animals distinguish the sets in this continuum. Recently, Cabrera (*pers. comm.*) excavated a large surface of the La Ventilla *Barrio*, with its ceremonial centre, and the different apartment compounds, some rich (with a large display of mural paintings), some poor (more domestic in character, and with evidence of lapidary work), around it.

Barbour (1993) has proposed that host figurines (large hollow pottery figurines, with small painted figurines inside) may be a symbolic representation of Teotihuacan's social structure. However, Paulinyi (1981) suggests that the existence of district groups may have had a part in co-rulership: the first district group is located to the west of the Great Compound; the second, in the northwestern part of the valley; the third, to the east of the Street of the Dead; the fourth, in the eastern fringe of the city; and the fifth, to the south of the San Lorenzo river.

With respect to coercive structures within Teotihuacan society, Millon (1993: 31) states, from the evidence of mural paintings, that there were two military wards at Teotihuacan: one centred in Atetelco, in the southwestern part of the city, and the other, Techinantitla, in the northeastern section. However, the evidence of large coercive displays within the city is scarce; for example, evidence of temple consecrations through human sacrifices are limited to particular events and times (e.g. the Temple of the Feathered Serpent). C. Millon (1973) and Pasztory (1978) have interpreted certain human representations with tassel headdresses as military representatives of the state in foreign lands, although the military status of the representations is not very clear. López Austin (1989: 32) proposed that Teotihuacan was the first site where the transformation from lineage society to state was achieved. The ancient lineage heads would have separated, forming an autonomous group of bureaucrats and distributors of goods that would have exercised power over a particular territory.

There is no doubt that processions of anonymous human figures in ritual paraphernalia are the most common human depictions in mural art at Teotihuacan. The lack of dynastical iconography and the depictions of priestly tasks leads to the conclusion that the administrative, political, and ritual undifferentiated leadership of the city was collective. Millon (1967: 149–50), for example, states that priests played a major role in the city, and that integration could have been achieved through constant pilgrimage to temples and exchange sites. He proposes (Millon 1988: 109) that politics was sacralised. We add that Teotihuacan was the main pilgrimage centre of the Mexican highlands mainly because it was conceived of as the model of the Mesoamerican cosmos.

With respect to land control, Sanders (1966: 134) states that priestly institutions could have controlled piedmont and alluvial land, and that religion was the main integrating factor in the

city. In our reconstruction of the economic organisation of the Teotihuacan priesthood (Manzanilla 1992a), we proposed that the ruler-priests who administered Teotihuacan created different redistributive circuits to assure the maintenance of the bureaucracy and the full-time state craftsmen. These redistributive networks ran parallel to other types of exchange systems: barter between producers, long-distance élite exchange, direct provisioning of sumptuary goods in colonies, and foreign merchants using the city's distributive system. The first stage of the redistributive network – the offering of surplus – is invoked in the central mural painting of the Temple of Agriculture, in the Plaza of the Moon, in a similar way to that in which proto-Sumerians represented redistribution on vases. Such an interpretation is contrary to Millon's (1967: 152) interpretation of the mural as a market, as there is no two-way traffic, but rather people delivering various things to two ritual structures.

As far as centralised storage is concerned, Cowgill (1987) has established the existence of large concentrations of San Martin amphorae in a 300-m band west and north of the Street of the Dead. The redistribution of foodstuff would have been a regular phenomenon to maintain state bureaucrats, craftsmen, and emissaries, and occasionally ritual collective meals.

Redistributive activities would have been symbolically reinforced by mural paintings depicting priest-administrators donating fertility symbols (see Miller 1973; C. Millon 1973). It is not by chance that the Ciudadela is situated just in front of the Great Compound, both being places where ritual donation of offerings and ritual meals may have taken place. In our model, the Great Compound, rather than a market, would have been a storage place for the different sectors of the city, and also the main locus of redistribution. The regional interests that Sload (1987) invokes for the Great Compound's domestic structures may be related precisely to the storage of specialised products from the different productive sectors.

Teotihuacan was also the central place for a wide distribution of goods which followed definite routes. Perhaps the best-defined route has been located in the Puebla-Tlaxcala region, where eighty Teotihuacan settlements are arranged in a corridor that links the capital to Cholula, and then to the Oriental Basin and the Gulf Coast (García Cook 1981). The Merchants' *Barrio* and the Oaxaca *Barrio* were foreign wards, and maybe not the only ones. Recently, West Mexico pottery and figurines have been found in the western part of the city (Cabrera Castro *pers. comm.*). The Merchants' *Barrio* was probably inhabited by merchants from the Gulf Coast who lived in round houses and brought Maya pottery and Gulf Coast products. The Oaxaca *Barrio* may have been involved in the distribution of shell ornaments (Rattray 1987).

There were also sites that may have established political alliances with Teotihuacan (such as Tikal and Monte Albán); other sites had Teotihuacan enclaves (Kaminaljuyú, in Guatemala; Chingú, in the Tula Valley; Matacapan, in the Tuxtlas Region in Veracruz; and possibly also Tingambato or Tres Cerritos in Michoacán); other sites may have been secondary dependent centres (Cholula, in Puebla); and others may have belonged to common exchange routes (sites in Veracruz, Puebla, and Guerrero, for example). It is also known that the Teotihuacans exploited cinnabar in the Sierra Gorda of Querétaro, and maybe also in San Luis Potosí. Furthermore, in the Valley of Morelos, particularly around the Amatzinac river, there are strong similarities between the local ceramic wares and those that Teotihuacan distributed: Thin Orange and Granular ware, as well as miniatures, theatre-type censers, figurines, tripods, etc. Teotihuacan control over this region provoked important demographic changes, with a regional system dominated by only one administrative centre at San Ignacio (Hirth 1978: 325).

Cholula and its dependent centres – Manzanilla, Flor del Bosque, San Mateo, and Chachapa, in Puebla (García Cook 1981), as well as San Ignacio (Morelos) and Chingú (Hidalgo) – may have been provisioning centres for cotton, avocado, limestone, and so on.

Even though exchange was important, it seems unlikely that there were large amounts of goods flowing through long-distance exchange. For example, green obsidian from Teotihuacan reached Tikal in extremely small quantities, and may have been used as presents between high-status groups (Sidrys 1977; Spence n.d. in Millon 1988: 119).

THE SYMBOLIC SPHERE

The domestic level

It has been proposed (López Austin 1989) that a juxtaposition of deities on two levels occurred for the first time at Teotihuacan, that is, lineage gods, who were patrons of lines of descent, with the deity Tlaloc above them as god of place, protector of territory, and patron of the city and the caves.

Among the deities at Teotihuacan, the Fire God (Huehuetéotl), present from the Formative Horizon, always appears associated with the eastern portions of apartment compounds. Another deity found in domestic contexts is the Fat God, who is generally represented in figurines or appliquéd on tripod vessels. The Butterfly Deity is depicted on incense burners and is probably linked to death and fertility. In particular, the impressive theatre-type censer found accompanying the burial of an adult male had butterfly wings on the chest of the main figure, and displayed a wide array of food and economically important plants (Fig. 6.7; Manzanilla and Carreón 1991; Paulinyi 1995).

In domestic contexts, the state god Tlaloc was represented by figurines with goggles and elaborate headdresses, as well as in Tlaloc vases and on a 'handled cover'. However, at Oztoyahualco 15B:N6W3 there is also evidence of patron gods related to particular families, such as the stucco

Figure 6.7 Theatre-type censer found dismantled around a burial in Oztoyahualco 15B:N6W3 (Manzanilla 1993; Manzanilla and Carreón 1991).

rabbit sculpture found on a miniature Teotihuacan temple-shaped shrine (made of basalt) in one of the ritual patios. In the Oztoyahualco compound there were three ritual courtyards, each corresponding to a household. The largest probably served the compound group as a whole and was called the 'Red Courtyard', due to its mural paintings; it was the only one with a central altar in its lower construction level. The second provided evidence of theatre-type censers and many Aztec pits that probably disturbed earlier offerings or burials. The third courtyard contained the portable model basalt temple and the rabbit sculpture.

Some activity areas related to ritual preparation were detected around these courtyards. At Oztoyahualco 15B:N6W3, in the corner of C9 (near the main shrine), a concentration of fifty-eight obsidian prismatic blade fragments, a basalt percussor, and a limestone semi-sphere (with radial cutting marks probably caused by the continuous butchering of rabbit and hare) were found (Hernández 1993; Manzanilla 1993). There were also numerous funerary and offering pits, particularly in the eastern half of the compound. The northeastern household (number 3) had the most burials and also the greatest quantities of foreign fauna: bear, jaguar, mother-of-pearl and other marine shells (*Spondylys calcifer*).

Religion can be seen as a sphere of socio-political integration organised into a hierarchy onto which the patron gods of household groups and *barrios*, occupational deities, the gods of specific priestly groups, and state deities such as Tlaloc were superimposed (Manzanilla 1993, 1996). Teotihuacan society was consolidated mainly through religion: the concept of the four courses of sacred space permeated the domestic domain of Teotihuacan (Manzanilla 1993). Spatial patterning seems to have been established for the disposition of functional sectors, which extended beyond the framework of nuclear households. In general, storage zones were found to the west; those for refuse to the south; funerary areas were concentrated in the middle of the eastern sector (although exceptions exist); and neonatal burials were located primarily on a north–south band, in the eastern third of the compound. Thus the affinity for order so patently manifest in the grid system of the city is also reflected on the domestic level.

Burials are common in domestic contexts. However, with the exception of Tlajinga 33 and probably La Ventilla, the number of adults interred in each compound is too low, relative to the area of the compound, to account for all of its inhabitants. For example, seven burials are recorded for Xolalpan, thirteen for Tlamimilolpa, and eighteen for the compound at Oztoyahualco 15B:N6W3, which would indicate that other adults, particularly women, were perhaps buried elsewhere. Certain burials in each compound had very rich offerings. At Oztoyahualco, Burial 8 was exceptional, for it contained a male adult, twenty-two years of age, with an intentionally deformed skull in association with an impressive theatre-type incense burner (Manzanilla and Carreón 1991). In what seems to represent a funerary ritual, the incense burner appliqués were removed from the lid, and all were placed around the deceased. The chimney was deposited towards the west, with the lid and the figure to the east of the skull; representations of plants and sustenance (ears of corn, squash, squash flowers, cotton, *tamales*, *tortillas*, and perhaps amaranth bread) were placed to the south; the four-petalled flowers, roundels representing feathers, and mica disks to the east and west (see Fig. 6.7).

Although Oztoyahualco 15B:N6W3 only contained eighteen burials, fewer than found at Tlajinga 33 (Storey 1983, 1987, 1992) or La Ventilla 'B' (Serrano and Lagunas 1974), important conclusions may be reached regarding the data obtained from them. The first household, in the southeastern section, contained three burials; the second, in the western portion of the compound, also had three burials (all adults); the third, in the northeastern section, had eleven burials, of which six were of newborn babies and children (see Storey 1986). The over-representation of burials belonging to particular sectors of the apartment compounds is also noted for Xolalpan, where nearly all the burials are concentrated in the southwestern section, at Tlamimilolpa, where

nearly all are grouped in the central-southern section, and at Tetitla, where they are concentrated in the northeastern section. It seems that there is one family that is well represented with respect to funerary practices, while all the rest seem to be under-represented.

At Oztoyahualco 15B:N6W3, each household had one or two burials that stood out in respect of their grave goods (Burial 8 for unit one, Burial 13 for unit two, and probably Burials 10 and 1 for unit three). Burial 8 was the most outstanding of the compound group as a whole.

Theatre-type censers were used profusely at Xolalpan (where they are found in the altar and in a western courtyard) and Tlamimilolpa (where they are grouped around Burial 4 and kept in caches, ready for ritual use). Decorated tripods are also common at Xolalpan and Tlamimilolpa, but very rare, though present, at Oztoyahualco. One difference lies in the presence of Maya fine wares in the western portion of Xolalpan and in the central part of Tlamimilolpa, perhaps because of their proximity to the Merchants' *Barrio*. Other imported wares, such as Thin Orange and Granular ware, are present in all compounds.

Exotic raw materials such as mica, slate, and marine shells were present in burials at Xolalpan, Tlamimilolpa, and Oztoyahualco; they differ in their quantity and in the proportion of Pacific versus Atlantic shell species.

The state level

We believe that Tlaloc, the god of thunder, rain, and fertility, was the state deity at Teotihuacan, and his idol probably stood on top of the Pyramid of the Sun, in his role as god of sustenance (Tonacatecuhtli). This pyramid may have represented the sacred mountain. Tlaloc's consort, a great goddess of running water, fertility, and sustenance, perhaps stood on top of the Pyramid of the Moon, and may have been related to the Cerro Gordo behind it, a sacred mountain. The Feathered Serpent was prominent in the second and third centuries AD, but around AD 250 its temple was destroyed and covered with another pyramid, while iconographical elements with the feathered serpent were replaced by feline representations. Power struggles (probably depicted in the Mythological Animals' Mural) may have provoked these changes.

From its beginnings, Teotihuacan was planned to be harmonious with the natural scenery. The main pyramids echo the profiles of the mountains to the north, south and west. Furthermore, the four sectors of the city in the horizontal dimension, the presence of an underworld, a terrestrial and a celestial domain in the vertical dimension, and the astronomical orientation following the heliacal setting of the Pleiades in the summer solstice, suggest that Teotihuacan was also planned as a reproduction of the cosmos.

A geophysical (Fig. 6.8), geological, palaeobiological, and archaeological programme was undertaken in 1987 to study a system of tunnels under the pre-Hispanic city of Teotihuacan. The system of tunnels was originally excavated by the Teotihuacans themselves to extract porous volcanic materials for the construction of the city. Subsequently, the system seems to have been used ritually, evoking perhaps the concept of an underworld, and particularly, the *Tlalocan*, Tlaloc's underworld (Arzate *et al.* 1990; Chávez *et al.* 1988, 1994; Manzanilla 1994a, 1994b; Manzanilla *et al.* 1989, 1994, 1996).

Caves had many functions and meanings for pre-Hispanic peoples. They could be shelters, living sites, ritual places associated with lineage and passage rites, solar observatories, quarries, dwelling places of the gods of water and death, mouth (or 'womb') of the earth, and underworld. Creation myths relate caves to the sun, the moon, food, and the emergence of human groups (Taube 1986). Caves are entrances to the underworld and, therefore, funerary chambers, but they also provide access to the womb of the earth, and are thus places where fertility rites take place. Furthermore, water petition ceremonies for good harvests take place in caves, where water spirits dwell (Weitlaner and Leonard 1959).

Figure 6.8 Use of Ekko IV ground penetrating radar kindly lent by the Faculty of Engineering of the National Autonomous University of Mexico by Dr René Chávez and Andrés Tejero.

The Nahuas associated three concepts with the underworld: *Mictlan, Tlillan,* and *Tlalocan.* According to Anderson (1988: 153–4), *Tlalocan* was depicted as a place of great wealth, where there was no suffering – where maize, squash, amaranth, chile, and flowers were abundant. In the Prayer to Tlaloc of the *Florentine Codex,* translated by Sullivan (1965: 45), it is said that sustenance had not disappeared, but rather that the gods had hidden it in *Tlalocan.* In several examples of *Náhuatl* poetry, *Tlalocan* is portrayed as a place of beauty, where birds with lovely feathers sang on top of pyramids of jade. It was also described as a construction consisting of four rooms around a patio, with four containers filled with water: one was good, but the other three were associated with frost, sterility and drought. It was further thought of as an underground space filled with water that connected the mountains with the sea; it was a place where rivers originated.

The existence of caves in Teotihuacan is well known. Heyden (1981) reproduces the glyph of Teotihuacan from the *Xólotl Codex* which represents the two large pyramids overlying a cave with a person inside. It is likely that this figure refers to the oracles that were frequently located within caves, as indicated in the *Relación de Teotihuacan* (Soruco Saenz 1985: 107, 1992). In addition, toponyms such as Oztoyahualco and Oztotícpac refer to caves.

The general objective of our 1987–96 project on the underworld at Teotihuacan (Arzate *et al.* 1990; Chávez *et al.* 1988, 1994; Manzanilla 1994a, 1994b; Manzanilla *et al.* 1989, 1994, 1996) consisted of locating and defining tunnels and caves which were of interest to archaeology due to their potential ritual or economic use. The particular goals were to detect continuity of the tunnels throughout the northern part of the city, where the holes were not visible, and to locate primary contexts that would assess the following functions: the original extractive activities related to porous pyroclastic materials; large-scale storage; burials; and offerings related to fertility rites. Four tunnels to the east of the Pyramid of the Sun were thoroughly investigated. The third tunnel (Cueva de las Varillas, Fig. 6.9) is 50 m in length, and has a vast entrance chamber, 18 m in diameter, with seven small niches and a tunnel that crosses three small chambers. To one side it is connected to another chamber that contained well-preserved funerary and storage contexts. There are hints of a cult that

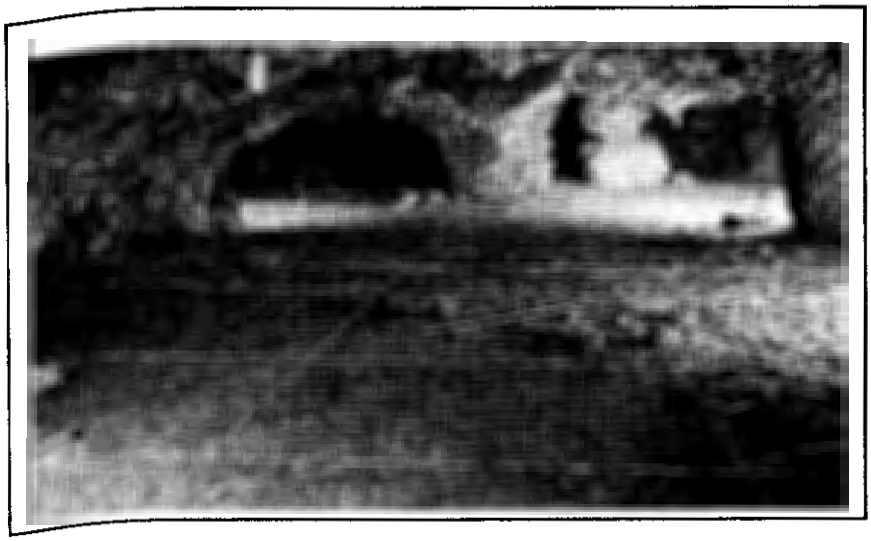

Figure 6.9 Cueva de las Varillas main chamber before exploration.

involved marine elements, such as different types of mother-of-pearl shells, a ray cauda, and fragments of marine turtle shells. Moreover, there were examples of foreign pottery from the Gulf Coast and the Mayan area.

The funerary chamber also had modern and Aztec domestic contexts. Underneath the Aztec floors (fourteenth and fifteenth centuries AD) there were funerary and storage contexts of Mazapa date (*c.* AD 930). Twelve Mazapa burials were found. A group of three seated adult burials facing south were excavated underneath a pillar left in the chamber (Fig. 6.10); two infant burials were placed near the adult burials at the level of their heads. All these burials had mainly complete and ritually broken pottery vessels as offerings, as well as some projectile points. The first group appears to have been placed in the northeastern fringe of the chamber. Further on, under the floor of an altar just beneath a hole in the ceiling of the chamber, there were seven newborn babies, some of them in a sitting position, and some in foetal position. They were placed in an east–west alignment in the central part of the chamber. The newborn babies had only triangles or rectangles of cut mica as offerings, and some hearths contained Teotihuacan *candeleros* and projectile points (Manzanilla 1994a).

In this chamber seven circular storage bin bottoms were also found, distributed in different sectors and depths in the level corresponding to the adult burials (Manzanilla 1994a, 1994b; Manzanilla *et al.* 1996). The chamber produced evidence of three of the functions predicted by the project: storage areas associated with fertility rituals in the womb of the earth; burials as part of the underworld concept; and baby burials as part of the *Tlalocan* concept (the underworld of the god Tlaloc, god of thunder, rain and fertility).

The fourth tunnel (Cueva del Pirul) provided similar data, but belonging to the Coyotlatelco Phase (*c.* AD 600–700). In different chambers in the tunnel, near the entrance, fourteen burials were found: two seated adults (one with a bilobulated skull), two young adults in foetal positions, and sets of four and six child and perinatal burials. A group of six burials, mainly infants, was

Figure 6.10 Female seated burial (Burial 2) in the funerary chamber of the Cueva de las Varillas.

placed around a broken hemispherical monochrome bowl with plastic design, known as 'Jiménez Sealed Brown' (Cobean 1990: 194–8). This type of bowl has been related by Cobean to the Coyotlatelco Sphere and to the Corral Complex. He suggests that they were used for drinking chocolate. Numerous examples of this type, with different kinds of sealed motifs, were found in the excavations. Near two of the children and one newborn baby, three complete and articulated dog skeletons were found: two adults and a puppy, one of them with skeletal malformations. They may have been conceived of as guides to the underworld (Fig 6.11). Modest storage bin bottoms were also found in the first chamber of this tunnel. In another sector, a newborn baby was placed inside a bowl near one of the seated adults and an eight-month-old baby in foetal position covered with a bowl (Manzanilla *et al.* 1996).

Following our 1987 project it was possible to verify that the system of tunnels and caves in the Teotihuacan Valley was originally a group of quarries dating to the Patlachique or Tzacualli periods for the extraction of porous volcanic materials, and were thus made by humans. We rectify, therefore, our previous idea, derived from Heyden (1975) and Millon (1973), that they were natural, because there is no natural phenomenon in volcanic contexts that can produce large or long holes, except solid lava tubes, and this is not the case. Furthermore, there are examples of 14C dates from the caves (Beta 69912), from the lower tunnel of the Pyramid of the Sun (M-1283; Millon *et al.* 1965: 33) and the Temple of the Feathered Serpent (Rattray 1991: 12) that give a date of *c.* AD 80. This could be evidence of a great construction enterprise involving the tunnels and the main pyramids at that time. Moreover, Barba (1995) and Manzanilla (1994a) have speculated that when the city was built the sense of sacredness seems to have been derived, firstly, from the fact that the construction material came from the subterranean world – in particular, the pyroclastic material chosen was the small red type, as if a sacred body were being built – and, secondly, from the fact that the use of fire and water for making stucco formed part of the consecration act.

Figure 6.11 Two complete dog skeletons near two infant burials, as guides in the underworld, in the Cueva del Pirul.

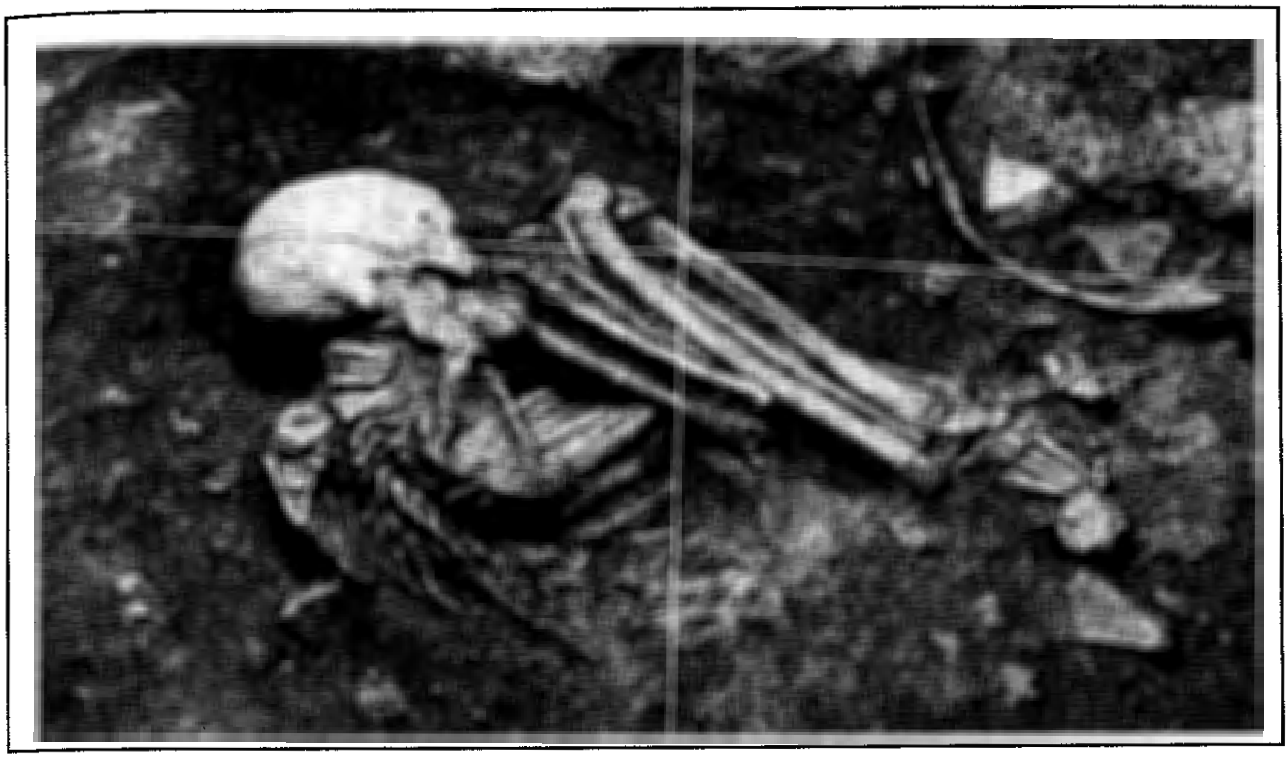

Figure 6.12 Burial 26 near a newborn baby burial inside a jar bottom in the Cueva del Pirul.

The original settlement in the valley consisted of three-temple plazas conspicuously surrounded by dwelling sites, and a not very dense urban site as Millon (1973) originally proposed. The quarry mouths were located near these pyramid complexes, since a great deal of construction material was needed for the elevation of the pyramids themselves. When the plazas of these complexes were built, they seem to have been deliberately placed on top of the tunnels. Whether physical communication is possible between these tunnels and the plazas we do not yet know. Furthermore, Teotihuacan did not have the double-'T' or 'I' shaped constructions actually used as ball courts, so there is a possibility that the three-temple plazas, as well as the Street of the Dead (Fig. 6.13) and the huge plain behind the Pyramid of the Sun, could have been used for ball games, as well as for diverse economic transactions. If this were the case, the parallel with the Maya concept of the ball court as a portal of the underworld would be evident: all the northern half of the city would have had many entrances to the underworld.

Various rites may have been practised inside the tunnels. Brady and Stone (1986: 19) proposed that the Naj Tunich cave in Guatemala could have been a burial place for members of Maya royalty. It is very probable that this is also true for many caves ritually used during the Classic Horizon in Central Mexico. As such, it is hypothesised that the main bureaucrats of the ancient city of Teotihuacan were buried in this underworld, the *Tlalocan,* or underworld of the state god. Many of the polished stone funerary masks that derive mainly from private collections, but also from pre-Hispanic looting, could have come from these burials. We have evidence that people with Coyotlatelco, Mazapan and Aztec ceramics dwelt in these caves and looted them. Fragments of human bones, fresco-painted ceramics, painted slate and other archaeological material have come from a mixed fill of more than 4 m that sealed many of the caves. As previously mentioned, this was material stacked inside the cave system either by the Coyotlatelco people (*c.* AD 680), or by the Teotihuacans themselves.

Figure 6.13 View of the Street of the Dead from the Plaza of the Moon.

Furthermore, Epiclassic and Early Postclassic people constructed a shrine for the *tlaloques*, or Tlaloc assistants within the tunnels, represented by the seven babies deposited in the central part of the funerary chamber of the Cueva de las Varillas. They were found exactly underneath a hole in the cavity's roof which may have allowed rainwater to be poured on top of the shrine. The adult burials were seated with their backs to a pillar, which had been left in the chamber to prevent the collapse of the cavity, and facing south, as if they were guardians of the underworld.

Other rites practised inside the tunnels may have been related to fertility ceremonies in the womb of the earth. Armillas (Navarrete *pers. comm.*) mentioned that tons of storage vessel fragments were found when the La Gruta Restaurant was enlarged. Furthermore, in the Cueva de las Varillas thirteen storage bin bottoms were found, of which seven surrounded the burial area, while six were in an inner chamber, 50 m from the entrance, and therefore too far to be practical for economic use. They may thus have formed part of fertility propitiation rites.

The Pyramid of the Sun at Teotihuacan is the only structure not built with the porous volcanic material known as *tezontle*, which was excavated from the tunnels. Rather, it was constructed mainly of earth and fragments of tuff, 5–10 cm in size (Rattray 1974), that generally overlie the pyroclastic material.

In 1989 we interviewed old men and women regarding the caves at Teotihuacan. Various people mentioned the myth that in the old days, in February, a man could be seen coming from under the Pyramid of the Sun, carrying maize, amaranth, green beans, and zucchini. Many added that under the Pyramid of the Sun there were *chinampa*-type fields (raised fields) where all this foodstuff was collected (registered interviews, *pers. comm.* to the author).

The concept of a mountain of sustenance – the *Tonacatépetl* of Nahua tradition – is widespread in Mesoamerica, as is the concept of a sacred mountain with a cave from which water emerges

(Freidel *et al.* 1993: 430). The excavations at Akapana (Manzanilla 1992c; Manzanilla and Woodard 1990), the main pyramid of Tiwanaku in the Bolivian highlands, have discovered the elements of a sacred mountain from where water poured through a complex system of hydraulics, as well as a synthesis of social and ritual duality. There are two staircases, two ritual buildings, and perhaps also two inhabitation constructions for the two main priesthoods of the site: one related to the puma, and the other to the condor. These summit constructions surround a sunken court, probably filled with water in the rainy season, from which different types of stone drainage canals enabled water to circulate inside and outside on the terraces, as pouring fountains (Manzanilla 1992c; Manzanilla and Woodard 1990). Following this evidence, it is proposed that the Pyramid of the Sun at Teotihuacan was conceived of as a *Tonacatépetl* or 'mountain of sustenance'. Such an interpretation is reinforced by the mention made by the *Relación de Teotihuacan* (Paso y Troncoso 1979: 222) of the idol on the summit of the pyramid as being Tonacateuctli. Furthermore, the Pyramid of the Sun is the only construction built from organic soil from the alluvial plain, perhaps from the Acolman area. It may therefore have been the synthesis of three intimately related concepts: the *Tonacatépetl*, the main temple for the state god Tlaloc, and the sacred mountain, the centre of the universe represented as the centre of the four-petal flower, as López Austin (1989) has suggested.

The terrestrial plane of Teotihuacan is divided into the four quarters of the universe. It has a celestial plane, including the sky itself and the summits of the temples, but also an underworld represented by the system of tunnels under the northern half of the city. The main avenue of the city connected the natural sacred mountain of Cerro Gordo, where Tobriner (1972) detected a cave of special significance, to the Pyramid of the Sun (the artificial 'mountain of sustenance'), and the spring area to the south; the East–West Avenue probably traces the path of the Pleiades (Townsend 1993: 41).

In a study of *Náhuat*-speaking groups in the Sierra de Puebla region of Mexico, Knab (1991) described a myth that mentions the geography of the underworld, or *Talokan* (*Tlalocan*), as understood by the inhabitants of San Miguel Tzinacapan. In the myth, caves are considered to be entrances to the underworld: the mythical northern entrance, *Mictalli* or *Miquitalan*, is represented by a 'cave of the winds' and is the means of access to the world of the dead. Tobriner (1972) made reference to a gorge on the northeastern slope of Cerro Gordo in the northern fringe of the Teotihuacan Valley and a cave that emitted a sound of water. A map dating to AD 1580 depicts this gorge on the southeastern portion of the hill. Tobriner also suggested that the Street of the Dead in Teotihuacan was built pointing towards Cerro Gordo because of the association of this mountain with the God of Water (Tobriner 1972: 113). The southern entrance in the myth is called *Atotonican* and is a place of warmth, a hot spring that produces vapour and clouds in the back of the cave. It is well known that the area of springs is situated in the southwestern sector of the valley, another parallel with respect to the myth. The mythical eastern access is called *Apan*, a large lake in the underworld that joins the sea. The lacustrine basin of Apan is located precisely to the east of the Teotihuacan Valley. The western entrance in the myth is a mountain called *Tonalan*, where the sun stops on its voyage. Mount Tonalan is actually a low mountain located in the northwestern boundary of the valley, between Cerro Gordo and Cerro Malinalco.

It is possible that the myth of *Náhuat*-speakers in the Sierra de Puebla is derived from a version based on the sacred geography of the Teotihuacan Valley, but it is equally probable that both have their source in an archetypal Mesoamerican concept of the underworld. Thus the construction of sacred space is a tradition derived from Formative times, and culminated with the building of cities as models of the cosmos.

Teotihuacan may also have been the place where sacred time was created, as was recently proposed for the Temple of Quetzalcoatl (López Austin *et al.* 1991). Furthermore, Millon (1993:

23) suggests that the tunnel under the Pyramid of the Sun 'came to be seen as the focus of a creation myth in which it was portrayed as the place where the present era began, where humankind came into being, and where the present cycle of time was born.'

As such, Teotihuacan society was united mainly through religion. The concept of the four courses of sacred space also permeated the domestic domain of Teotihuacan (Manzanilla 1993). Religion was represented in three levels: state religion, district or *barrio* gods, and lineage deities. Teotihuacan was thus the archetype of the Mesoamerican civilised city, the most sacred realm, and the mythical *Tollan* where crafts flourished. It inaugurated the settlement pattern of the region into a new era, an era that has not yet ended.

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