



ИСТОРИЯ ДОКОЛУМБОВОЙ АМЕРИКИ THE HISTORY OF PRE-COLUMBIAN AMERICA

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Early State Formation in the Maya Lowlands in the Preclassic (1000 BCE — 150 CE)

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Abstract. The emergence of the state was one of the crucial moments in human history. Ancient Mesoamerica was one of two main areas of the state formation in the New World in pre-Columbian epoch. Archaeological projects in the Maya Lowlands during last decades shed new light on the early stages of the Maya politogenesis in the Preclassic period. Recent trend in the study of Mesoamerican complex polities consists in defining them just as ‘kingdoms’ without specifying whether they were chiefdoms or states. At the same time some scholars suggest that urbanism and statehood could be identified already in the Middle Preclassic (1000–350 BCE). In the present paper basic traits of the evolution of the Preclassic Maya society will be outlined based on different types of data (settlement patterns, economy, social stratification, ritual and ideology). Archaeological data demonstrate that in beginning of the Late Preclassic (350/300 BCE — 200 CE) Maya societies transformed from chiefdoms with three-tiered settlement system, monumental architecture, and incipient urbanization to more complex polities characterized by four-tiered settlement hierarchies, early urban settlements with massive monumental architecture, and complex intensive agriculture. Analysis of the retrospective Maya hieroglyphic inscriptions of the Classic period (200–900 CE) shows that in the Maya historical memory this time was remembered as the period of the foundation of the most ancient dynasties and polities, and the epoch of the establishing of the political order. The beginning of the process of the formation of the Maya early states could be dated between 350 and 200 BCE.

Keywords: Ancient Maya, Southern Lowlands, Preclassic period, complex chiefdoms, early states, archaeology, epigraphy

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Формирование раннего государства у древних майя в доклассический период (I тыс. до н.э.)

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Аннотация. Возникновение ранних государств было одним из важнейших моментов в человеческой истории. В Новом Свете в доколумбову эпоху одним из двух регионов сложения государственности была Мезоамерика. Археологические проекты последних десятилетий в области майя позволили по-новому взглянуть на процесс политогенеза у древних майя в доклассический период (I тыс. до н.э. — начало I тыс. н.э.). В последнее время некоторые исследователи предлагают отказаться от типологизации сложных политий Мезоамерики как вожеств или государств и обозначают их просто как «царства». С другой стороны, появились работы, в которых предлагается искать урбанизм и государственность уже в среднюю доклассическую фазу (X — сер. IV в. до н.э.). В данной работе будут выделены основные черты эволюции доклассического общества майя на основе комплексного изучения различных параметров (поселенческая организация, экономическая организация, социальная стратификация, ритуал и идеология). Археологические данные свидетельствуют, что в начале поздней доклассической фазы (вторая половина IV в. до н.э. — первая половина III в. н.э.) общества майя трансформировались из вожеств, характеризующихся трехуровневой поселенческой иерархией, ритуальной архитектурой и зачаточной урбанизацией, в более сложные политии с четырехуровневой поселенческой иерархией, ранними городскими поселениями с масштабной монументальной архитектурой и развитым интенсивным земледелием. Анализ ретроспективных сообщений в иероглифических текстах классического периода (I тыс. н.э.) указывает, что в исторической памяти майя эти времена считались эпохой основания древнейших царских династий и возникновения существующего политического порядка. Начало процесса формирования ранних государств у древних майя следует датировать серединой IV — концом III вв. до н.э.

Ключевые слова: древние майя, Южные низменности, доклассический период, политогенез, сложные вожества, раннее государство, археология, эпиграфика

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Introduction

The emergence of the state was one of the crucial moments in human history. Several millennia prior to the formation of the first states human societies that already switched from the specialized foraging to the domestication of plants and animals and sedentary life experienced demographic growth, and considerable increase of social and political complexity. This long process that is defined as *politogenesis* in Russian historical and anthropological tradition was far from being unilinear and developed through multiple pathways. Recently the analysis and modelling of multiple pathways to social and political complexity became the main object of research interest [1; 2; 3, etc.].

Mesoamerica, a vast historic and cultural region encompassing western, central, and southern parts of present-day Mexico and Central American countries (Guatemala, Belize, parts of Honduras, Salvador, and Nicaragua), was one of two main areas of the state formation in the New World in pre-Columbian epoch. Contemporary perspective on the emergence of the urbanism, state and civilization in Mesoamerica was formulated in the mid-20th century in the works of American anthropologist Julian Steward and Spanish-Mexican ethnologists Pedro Armillas and Angel Palerm that were inspired by the ideas of Gordon Childe and Karl A. Wittfogel. According to this model, transition to agriculture causes the growth of the surplus, which was the basis for the urbanism, but only in the agricultural societies based on the irrigation. Construction and maintenance of the irrigation systems made it necessary to organize a collective work under the control of the rulers. That increased the level of the social cohesion and the power of the elites. Urban centers with the neighboring territory formed the city-states. The struggle for the water sources and better lands influenced the spread of the militarism, wars contributed to the growing power of the city-states that could invest more resources into the large-scale irrigation works. Altogether, these factors resulted in the further increase of social cohesion and the power of the supreme ruler and led to the rise of ancient empires [4].

However, Ancient Maya civilization did not fit this pan-Mesoamerican pattern. It was generally believed that agriculture in Yucatan peninsula was based on slash-and-burn farming and not on irrigation, therefore there were no prerequisites for the formation of urbanism and state. With the rise of cultural ecology as part of the neoevolutionist theory in the early 1960s, the idea that the development of the Maya area was different from Highland Mesoamerica received additional support in the works of William Sanders. According to Sanders, tropical lowlands covered by the rainforest could not sustain real urbanism. Maya “cities” were defined as ceremonial centers with a small resident priest-craftsman population, while the largest of them were “macroceremonial centers” [5; 6].

Soviet scholars turned their attention to the theoretical problems of the development of the Maya civilization at the same time. Yuri V. Knorozov (1922–1999), based on the analysis of the late Pre-Conquest and Early Colonial

Maya sources as well as on the Spanish descriptions, first postulated that the Maya society in the Postclassic period (900–1530 CE) should be characterized as “early class” (*ranneklassovoe*), similar to the societies of the Ancient Orient with the developed slavery along with the preserved community [7]. Knorozov’s assumptions were later developed by Valery I. Guliaev (1938–2022) who widely used archaeological data [8; 9; 10]. He dated the emergence of the civilization in the Maya area to the 1st century BCE [8. P. 97–98].

Maya Lowlands is a vast area which includes the southern part of Mexico (the states of Chiapas, Tabasco, Campeche, Yucatan, and Quintana Roo), the northern departments of Guatemala, Belize, and a part of Honduras. It lies below 800 m in elevation and is characterized by tropical humid climate. Variations in elevation, rainfall, drainage soils, and other factors create considerable diversity in the lowland environment. The Lowlands are usually divided into two major subzones: the Southern Lowlands (or Central area according to Guliaev), and the Northern Lowlands (or Northern area according to Guliaev). The main rivers flow in the west (Usumacinta), south (Pasion), and east (Hondo, Belize, and Motagua), while the center (Peten region) was covered with swamps and marshes (perennial or *civales* and semiannual or *bajos*) and lakes. The core region of the Maya world during the Preclassic (1200 BCE — 200 CE) and Classic (200–900 CE) periods was Peten that roughly corresponds to contemporary Guatemalan Department of Peten, and southern parts of Mexican states Campeche and Quintana Roo. According to the pollen data from the Peten lakes, first Maya farmers that cultivated maize came to this area ca. 2500 BCE. Pottery-making sedentary communities appeared later, only ca. 1200–900 BC.

Numerous large-scale archaeological projects in the Maya area conducted by North American, Mexican, Guatemalan, and European archaeologists during last decades as well as recent LIDAR (air-borne laser scanning) survey of the central portion of the Southern Maya Lowlands shed new light on the development of the Maya society in the Preclassic or Formative period [e.g. 11; 12; 13; 14]. Several well-studied regions of the Southern Lowlands provide important data for the reconstruction of social, political and economic processes in the Preclassic period: 1) the Mirador Basin (with sites like El Mirador, Nakbe and Tintal); 2) Central Peten (Tikal, Uaxactun); 3) Holmul River Valley (Holmul and Cival); 4) Peten Lakes region (Nixtun Ch’ich’ and Yaxha); 5) Belize (Cahal Pech, Pacbitun, Xunantunich); 6) Pasion River Valley (Ceibal).

Middle Preclassic (1000–350 BCE)

Soil chemistry and pollen studies indicate an important transition in human subsistence from mixed hunting/foraging/horticulture to agriculture at about 1000 BCE that was followed by an increase in agricultural productivity and the adoption of a staple diet based on maize between 1000 and 800 BCE. This important shift

also marked a change in human diet: isotopic studies of human bones suggests that prior to 1000 BCE maize played a relatively minor role. New domesticated plant was cotton [15]. No evidence of agricultural intensification is known for the early part of the Middle Preclassic.

Few examples of early construction projects are known, such as Ceibal (Pasion region) where ceremonial complex dates to ca. 1000 BCE in the absence of a recognizable residential settlement [16]. Other examples include leveling of the public spaces attested at Cival in the Holmul Valley (ca. 850 BCE). There is some evidence (exotic goods items, such as pottery, marine shell, and greenstone) of incipient social ranking among the village dwellers [15. P. 416–438]. Burials are rare for this time, but data from Cuello (Northern Belize) shows that prestige goods were distributed among different age and gender groups marking the social status of the families [17. P. 50].

Maya communities were included into the exchange networks of rare and prestige materials like greenstone, obsidian, and shell. Obsidian was a key resource and was imported from highland sources (El Chayal in the Central Guatemala, San Martin Jilotepeque in the Western Highlands of Guatemala, and Ixtepeque on the Guatemala-Salvador border). There were different systems of obsidian exchange that differed by the percentage of the obsidian from different sources. Before 700–650 BCE El Chayal was common at Ceibal and in the Belize River Valley, but since 700 BCE Ceibal controlled the import of San Martin Jilotepeque obsidian into the Maya Lowlands [18].

Overall, Lowland Maya society between 1000 and 800 BCE was on the village level without supracommunal organization. These communities consisted of nuclear families living in small households and were probably united by ritual ties. These communities consisted of nuclear families probably united by ritual ties. The uniqueness of Ceibal can be explained by its position as a gateway community that controlled trade routes from the Highland Guatemala.

New form of monumental architecture (so-called E-groups) that served astronomical and ceremonial functions spread from ca. 800 BCE. Its origins probably could be traced to the Olmec culture. Their spatial distribution indicates the landscape of emerging polities (Cival, El Palmar, Nakbe, Naranjo, Nixtun Ch'ich', San Bartolo, Tikal and Uaxactun) [12]. Their construction was frequently accompanied by ritual offerings. At Ceibal these offerings or caches consisted of polished greenstone axes placed in formal arrangements (including one cruciform) similar to the practice known from the Olmec culture [19]. In other regions the evidence on Maya ritual and ideology are mainly connected to the use of ceramics decorated with complex incised geometric designs and motives that found parallels in the Olmec iconography and are interpreted as related to maize [20. P. 255–258].

Between 700 and 600 BCE we observe fast growth of population and social complexity. The distribution of Mamom ceramic sphere throughout the Maya Lowlands shows the intensification of inter-regional contacts. It was accompanied

by considerable investment in monumental construction, establishment of settlement hierarchies, increasing long-distance trade and craft production. In the sites of the Mirador basin (Nakbe, El Mirador, etc.) large pyramids were constructed between 500–400 BCE [21. P. 178–181]. Uaxactun, Tikal, Cival, Naranjo, Yaxha and Nixtun Ch'ich' were among other important centers of the Peten region. First monumental sculptures were plain stelae and altars, sometimes placed in the centerline of the E-groups.

The structure of Peten settlement hierarchies is obscured by later constructions. Recent publication of the LIDAR data from the Mirador Basin provided more evidence. Judging from the analysis of the configuration of the causeway networks centered at large sites [22. P. 590, Fig. 2] we suggest that by the end of the Middle Preclassic Mirador Basin was divided into at least four polities (El Mirador, Nakbe, Tintal and Xulnal), probably with three-tiered hierarchy.

In the Central Peten Lakes region three-tiered settlement hierarchy can be identified based on the site size and number of E-groups: 1) Nixtun Ch'ich' core occupied 110 ha and had three E-groups; 2) secondary centers with cores about 10 ha and one E-group; 3) rural settlements [23. P. 579]. Eastern part of the region was dominated by Yaxha that by the end of the Middle Preclassic had three E-Groups. At least four secondary sites situated at the distance of 5 to 14 km from Yaxha had one E-Group each, and the rural settlements had none [24. P. 273–275]. In the Holmul valley similar three-tiered hierarchy was headed by Cival with its five E-groups and included eight secondary centers that each have one. Three-tiered settlement hierarchy was also established in the Belize River Valley in 600–300 BCE with primary sites like Cahal Pech, Blackman Eddy and Xunantunich [25]. The settlement systems consisting of hamlets, towns with modest public architecture, and large central sites (Xtobo, Komchen, etc.) were also identified in the Northwestern Yucatan [26].

Rich, “royal/chiefly” burials are unknown and only appear in the Late Preclassic. Richard Hansen suggests that “emerging administrative elite” was characterized by differential access to wealth, exploitation of natural resources, organization of intensive agriculture and labor intensification [21. P. 152–155]. But we see no material evidence for this type of elite. Agricultural intensification included transportation of vast quantities of the organic muck from nearby swamp areas that were deposited in terraces and fields to renovate the soils. These terraced fields were situated next to the high-status compounds and small household groups [21. P. 187–189]. Other infrastructure works in the Mirador Basin included water reservoirs constructed around 600–580 BCE [27. P. 508].

The transformation of the settlement patterns on the site level reflects the transformation of the social structure. By 400 BCE nuclear family households were replaced by so-called *plazuela* (or *patio*) groups that consisted of two to six buildings located on top of the common platform and housed extended family

households. The emergence of this type of social grouping probably was caused by the intensification of the resource extraction by the arising elites.

Around 600 BCE San Martin Jilotepeque replaced El Chayal as the main source of the obsidian in the Maya Lowlands. Geoffrey Braswell suggested that wide circulation of San Martin Jilotepeque obsidian in the Maya Lowlands was related to the open network system with dyadic exchange that existed in the Middle Preclassic in the western Guatemalan Highlands. In contrast, El Chayal obsidian was element of the bounded exchange network controlled by the rising political center of Kaminaljuyu in Central Guatemala and was exchanged through the lines of the political alliances [28. P. 133–134].

Timothy Pugh speculates that three-tiered hierarchy could be evidence for Middle Preclassic states [23. P. 578–581], but in political anthropology it is firmly connected to complex chiefdoms. Although we lack direct evidence for the rise of the ruling elite like rich burials or iconography of power, the most plausible explication is that in late Middle Preclassic Maya society underwent the process of fast formation of the complex chiefdoms.

Late Preclassic (350/300 BCE — 150 CE)

From ca. 350 BCE Mamom ceramic tradition develops into even wider ceramic tradition, Chicanel. During this period Maya civilization reached its first peak. Comparison of the previous excavations and the results of the recent LIDAR survey in the Northern Guatemala demonstrates that the considerable investment in architectural construction (pyramids, causeways, fortifications) and landscape modification (agricultural and defensive features) could date to the Late Preclassic [29].

The major architectural development of this phase was triadic group, a complex of buildings that consisted of a larger central pyramidal building with two smaller buildings facing each other and positioned in a triangular arrangement. In some centers they were added to existing E-Groups while in other they covered previous construction [12. P. 81–87]. According to William Saturno, “the change in the Late Preclassic from an E-Group to a triadic complex monumentally illustrates the social distancing that is part and parcel to establishing political legitimacy and institutionalized hierarchy” [30. P. 332]. Other important innovation was the decoration of the friezes in the form of sculptural masks representing the most important supernatural beings, such as Principal Bird Deity, animated mountains etc. They marked the pyramids as primordial mountains, from which came food, water and therefore life.

El Mirador became the largest Maya site between 300 BCE and 150 CE. After short disruption in the 4th century BCE massive structures between 40 and 72 m in height and measuring up to 600 x 300 m at the base were constructed at the site, and comparable buildings also appeared elsewhere throughout the Mirador Basin

(Nakbe, Wakna, Tintal, Xulnal etc.). The most intensive construction program started ca. 150–130 BCE with the construction of El Tigre pyramidal complex and later, enormous Danta complex [31. P. 389–390].

New core of the social and political development grew in the San Bartolo-Xultun area in the Northeastern Peten. Although it was inhabited since the beginning of the Middle Preclassic and there is evidence of Middle Preclassic public buildings in the form of E-Group at San Bartolo, the population explosion occurred in the Late Preclassic. San Bartolo grew to the medium-sized center of about 1 km². Among 240 known structures at San Bartolo there are four major pyramid complexes and a large palace structure. The site plan underwent an axis shift to a north-south orientation that was different from east-west orientation common to the Mirador Basin. Around 200 BCE E-Group was supplanted by the temple pyramid that became the foundation for the triadic group [30. P. 316–320; 32].

At Cival (Holmul Valley) the construction of triadic groups started ca. 350 BCE. Before 100 CE some of them were remodeled five times (probably every 80 years), while for previous 400 years central square and E-Group were remodeled only once [11. P. 76–77]. This fact demonstrates rapid social and cultural changes as well as high concentration of resources and labor force.

In the Central Peten Uaxactun and Tikal were probably rivals. Monumental construction at Uaxactun started around 300 BCE when first substantial E-Group was built in Group E and early version of the elite residence was constructed nearby. Group E continued to be the focus of the construction and ritual activities until 150–100 BCE when new monumental buildings, including triadic complex and vaulted masonry palace, were raised in Group H [33]. Later, in the beginning of the 1st century CE another massive triadic complex was constructed in Group F. By the end of the Late Preclassic (ca. 100 CE) four large groups (E, H South, H North, and F North) were the loci of architectural, ceremonial, and political activities [34: 108–110]. Between 350 and 100 BCE Tikal was considered to be a medium-sized settlement with a minimal population of 620 people [35. P. 41, Table 8], but the construction activities in “Mundo Perdido” complex and in the North Acropolis demonstrate that the population could be larger. After 100 BCE Tikal population grew to at least 3700 people [35. P. 41, Table 8], and the large-scale rebuilding of the North Acropolis around 100 and 50 BCE [33. P. 30–36; 36. P. 1410–1415] support the model of population growth. However, the volume of construction at Tikal was less impressive than at Uaxactun.

In the west of the Central Lakes region Nixtun Ch’ich’ continued its development as a densely occupied urban center. Street-grid system was extended, principal buildings in the site core, particularly the Triadic Group and at least one E-Group, were massively enhanced during that time [23. P. 559]. Analysis of the sediments of the Lake Peten Itza shows maximum lake disturbance conditions and probable anthropogenic pollution between 150 BCE and 200 CE [37. P. 7]. In the eastern part of the region at Yaxha Late Preclassic constructions included new

version of E-Group and monumental triadic complex decorated with large stucco masks in North Acropolis, there were also evidence of building in other groups and construction of the earliest versions of inter-site causeways [24; 38].

Belize River Valley did not have very large regional centers like El Mirador, and Late Preclassic urban centers like Cahal Pech, Blackman Eddy, Xunantunich, and Barton Ramie can be classified as middle-sized. Large-scale monumental construction occurred at Cahal Pech around 350–300 BCE. It included at least four plazas bounded by monumental architecture, including pyramidal buildings, and the ballcourt. Several peripheral settlements witnessed the construction of larger-scale residential buildings after 350 BCE [25. P. 93–94].

Late Preclassic urban area of Ceibal is estimated as 5.4 km². It included the zones of high settlement density around civic-ceremonial precinct [39. P. 70]. However, Ceibal did not have large pyramidal complexes like El Mirador or Uaxactun. The main innovation was the beginning of the construction of minor temple groups in outlying areas. They consisted of a ceremonial complex containing at least one pyramid rising from 5 to 10 m in height, a central plaza, and a surrounding residential zone located near water sources [40. P. 376–383]. Later research showed that the residential units were built and occupied contemporaneously with their temple complex. The analysis of the construction mode shows that they were not constructed according to standardized conventions or by a central building program [39. P. 75–78]. It seems that minor temple groups were result of the natural growing of the urban center. At the same time their regular distribution (between 600 and 740 m from the central precinct) [40. P. 382, Fig. 216] proves that they were part of the integrated settlement system. This gives us the view of the internal structure of Ceibal between 350 and 75 BCE. Central precinct was formed by large ceremonial buildings around the main plaza (Group A) and neighboring high-status residences. The residential area consisted of several wards with minor temple groups as their centers. Around 75 BCE focus of the construction and ceremonial activities at Ceibal shifted from Group A to Group D located on a steep hill in a naturally defended position [41. P. 1294].

Late Preclassic settlement patterns

Recently data of the LIDAR survey of the Mirador Basin were published, so Late Preclassic settlement patterns in this region became better known [22]. However, as it frequently happens, the authors presented settlement typology (variation of the settlements according to their size and the volume of the construction) and not settlement hierarchy (i.e., the relative distribution of the settlements as the central places of different tiers according to their position in social and economic system). In their 6-tiered scheme the number of the settlements of the third and the fourth tiers is the same that cannot take place in the centralized system.

Although, it should be noted that their criteria of the identification of the “site” or settlement seems to be weak. For example, they assign to El Mirador the area of 132 km² that includes “its subordinate suburbs, populated affiliated bajos, residential architecture, and monumental architecture” [22. P. 593]. But among so-called “subordinate suburbs” there are archaeological complexes that using the criteria applied in the settlement pattern surveys elsewhere in Mesoamerica [42], could be classified as separate sites. It is evident that the large part of these 132 km² in fact was agricultural hinterland of the urban center, similar to the Ancient Greek *khora* (note that according to Hansen et al this area included “populated bajos” that were the main foci of the agricultural production). Such a mixing of the area of the urban center and its hinterland is quite common to American archaeologists and was criticized by Valeri Guliaev already in the 1970s [10. P. 108–111].

The same seems to be true for the second-tier sites like Tintal (19 km²), Nakbe (15 km²) and Balamnal (13 km²) and probably to third and fourth-tier sites. For example, El Porvenir which had one E-Group, one triadic complex, one ballcourt and one intra-site causeway is ascribed an area of 5.5 km² (550 ha) and defined to be in the fourth tier while El Manax with only one E-Group and the supposed area of 3.5 km² or 350 ha is in the third tier [22. P. 595, Table 3]. The settlement data from the Mirador Basin need to be re-analyzed. We foresee that after this procedure there we will be more low-tier sites and less middle-tier ones.

For now, we can only outline basic settlement hierarchy structure surrounding El Mirador that was primary center with an area more than 400 ha. It had four or five E-Groups, more than 20 triadic complexes, seven ballcourts and several large water reservoirs. Secondary sites (Tintal, Nakbe and Balamnal) had two or three E-Groups, up to 10 triadic complexes, several ballcourts and water reservoirs. They also served as hubs of the intra-site and inter-site causeways. The middle-tier sites cannot be properly defined. So, for the mapped 8000 km² we have at least three (or, maybe four) tiers of the sites above the agricultural communities. So far, this is the most complex political system in the Maya Lowlands before the advent of the Classic period.

According to the inter-site survey between San Bartolo and Xultun, the rural zone had 19 structures/km² and a population of at least 1500 people. San Bartolo was primary center and Xultun probably was a secondary, but its buildings are covered by the construction of the Classic period when it became the capital of the important city-state. They were surrounded by the minor centers that exhibited one or more public plazas, one or more courtyard groups, a ballcourt, one or more plain stelae, and one or more monumental structure. The lower level of the settlement hierarchy included household groups of different sizes and configuration (from single-court to multiple-court). Special type of settlements that consisted of the rectangles of rock cobbles with very scarce material remains were associated with agricultural features and served as field

houses [31. P. 530–533]. Again, this structure is very similar to the settlement structure reconstructed for the Classic period.

In the Holmul River Valley the primary center of Cival had a population from 2000 to 5000 peoples, and about 10.000 are calculated for the hinterland area in a 3-km radius [11. P. 77]. Up to twenty ritual and administrative centers organized in two tiers, were located within a 12 km radius. Secondary centers had ceremonial building (E-Groups, triadic groups, ballcourts), palaces, and could be connected by the causeways to outer monumental groups and to Cival itself. Tertiary centers were interspersed among the secondary ones and had a small E-Group and modest residential elite complex [43. P. 95–96]. Lowest level of the settlement hierarchy was formed by the rural communities and minor groups of various sizes. Altogether, this four-tiered system was the same as in the Classic period.

For Yaxha area in the Peten Lakes region Vilma Fialko defines a possible polity with the core area of 100 km² controlled by Yaxha. First group of secondary centers, like Poza Maya, La Pochitoca, El Bajón, Ixtinto y Sacnab, was situated in a 5 km radius. Second group of secondary centers like Holtun, Corozal Quemada and San Clemente were differed by the presence or absence of E-Groups, several of them also had one triadic group sometimes decorated with masks [24. P. 276].

In Tikal area monumental architecture like E-Groups or triadic complexes was found at several sites located about 10 km from Tikal (Chalpate, Zocotzal, Naranjito). Fialko believes that in the first part of the Late Preclassic they were autonomous centers, and earthen ramparts north and east of Tikal marked the frontiers between Tikal and its neighbors. In the later part of the Late Preclassic they became incorporated into larger Tikal polity [44. P. 243]. Third-tier settlements were rural communities without signs of public architecture. Such a settlement was studied by Russian-Guatemalan “Atlas Epigráfico de Petén” project during the excavations at El Encanto within Tikal National Park in 2018. In the Early and Late Classic El Encanto evolved into small peripheral urban center that consisted of several architectural groups. Stratigraphic excavations in the Southern Group demonstrated that first inhabitants arrived at the location in the Middle Preclassic, although Mamom pottery was very scarce. The construction in the Southern Group started in the Late Preclassic with the leveling of the hilltop using dark grey clay probably brought from neighboring swamps. This clay fill was covered with the thick limestone layer that represented the first construction stage, probably of the first plaza floor. Considerable quantity of the Late Preclassic ceramics (about 27 % of the total assemblage) shows that during this time the settlement was densely occupied. However, the mapping of the site demonstrated that it lacked public architecture like E-Group or triadic complex that were peculiar to larger Late Preclassic communities. All these data indicate that El Encanto should be interpreted as local rural community probably dependent from Tikal.

Hierarchy can be also deduced from the organization of the infrastructure. Although intra-site and inter-site causeways (*sacbe* or “white road”) appeared

in the Mirador Basin before 400 BC, the peak of their construction dates to 300–1 BCE. As LIDAR survey demonstrated inter-site causeways are primarily associated with the Preclassic centers (Tintal, Cival, San Bartolo) and were absent from the Late Classic period. Some of these roads measured 22 km in length and 10 to 20 m in width [29]. El Mirador was the central hub of the causeway system that covered practically all the Mirador Basin [30. P. 369–373]. In the Holmul Valley inter-site causeways led from Cival to the southeast connecting it to the lower-tiered settlements [43. P. 94–95].

Late Preclassic social stratification

The development of the social stratification in the Late Preclassic period can be observed through different lines of evidence. First, the growth of the difference among residential groups culminated with the appearance of formal palaces.

Preclassic palaces are known at Uaxactun and San Bartolo in the Peten and Nohmul in the Northern Belize. The masonry Tigrillo palace at San Bartolo is one of the earliest examples of this type of architecture in the Maya Lowlands. It was constructed in three phases between 400 BCE and 1st century BCE. The main building was placed on a platform at least 30 m long and 11 m high and served throne and administrative functions. The complex itself was larger and occupied 2.650 m². Although it was much smaller than the royal compounds of the Classic period, like Central Acropolis at Tikal (17.200 m²) or Great Acropolis at Calakmul (36.700 m²), it had all the main traits that define it as a palatial complex. Aside the main official palace building, there was a western courtyard on a raised platform that probably served as ruler's dwelling place and a conglomerate of about a dozen of dispersed smaller buildings to the north that probably housed servants and retainers [45].

Next tier of the residential hierarchy at San Bartolo was represented by the high-status residences of secondary elites like Las Plumas and Jabali. They were placed on the elevated platforms and had plastered floors. Common households lacked basal platforms and consisted of several buildings around one or different patios. Social stratification was also expressed in domestic life, especially in dietary patterns. Zooarchaeological analysis of the faunal remains in elite domestic contexts show a greater diversity of taxa among elites: they consumed different carnivorous animals (felines, foxes, racoons) in addition to common deer, peccary and agouti. Common people ate deer, small birds, rabbits, turtles, and peccaries [50].

A hierarchical pattern in human burials was established in the Late Preclassic. Formally constructed tombs appeared after 200/100 BCE at the sites like Tikal and Wakna and are thought to represent the early rulers, but grave goods are not so abundant and include ceramic objects, shells, and few jade items. First rich burials at Tikal are dated to 25–50 CE [35; 47]. High-status burials are also known in the secondary sites.

The burials of common people at large village of Cuello demonstrate that social differentiation became more complex. While 77 % of the burials had grave goods, it was mainly pottery, and only 23 % had shell objects. So, shell became more difficult to obtain. The dead of all ages and sexes had access to long-distance trade items like jade and imported ceramics, but they were much more frequently associated with public/ceremonial burials of males [17. P. 55–59]. At the small hamlet of K'axob jade was extremely rare, but shell was quite common [48. P. 135–137].

Late Preclassic economy

Late Preclassic was also the time of the peak of the agricultural intensification. In the Mirador Basin the zones of intensive farming grew to their maximal extent. They included terraced fields on the hillslopes, the use of the fertilizing organic muck and many hydraulic works (canals, dikes, reservoirs etc.) [30; 49].

Agricultural production was also one of the ways of improving the social status. The best case is Palma Group at Nakbe. It was situated in the southern part of the settlement, near an extensive terrace system. Around 400–350 BCE there were three more or less equal households (Str. 500, 501 and 502) on the platforms with a packed clay floors connected to these terraces. Around 350–300 BCE one of them (502) was expanded, its platform (2 m high, 20 m long, and 17 m wide) became paved with the lime plaster. High concentration of the chert waste flakes indicates that stone tools made from local material were manufactured there. The typology of the instruments shows that they were used for agricultural activities [21. P. 190–191]. So, households that were agricultural producers could gradually accumulate wealth and acquire higher status and due to that could receive administrative control over terraces and local workers.

About 4800 large terrace fields (15–30m wide and 10–100 m long) with an area of 264,4 ha were mapped and studied in the western periphery of Uaxactun. However, their productive capacity was not enough to sustain the calculated population of Late Preclassic Uaxactun (10.000 to 15.000 people). Until now there is no evidence of the muck fertilizer at Uaxactun. Wetland areas were used in other way: archaeologists detected the network of the drainage channels in the marsh area and raised fields to the north of the city [50. P. 655–656].

New features, probably dating to Late Preclassic were so-called “check terraces” (according to Hansen) or “ravine terraces” (according to Kovac). They consisted of the artificial stone terraces that crossed the ravines between the hills and detained the soil and fertilizing materials that were washed from the hillslopes [50; 51. P. 286–287]. This agricultural technology is strikingly similar to the *lamabordo* systems known in the Mixteca Alta (Oaxaca, Mexico) since the Preclassic period. It is considered that the building of *lamabordos* was the main cause of the fast population growth in the Late Preclassic [52; 53].

In Yaxha zone in the Peten Lakes region the expansion of agriculture into the area of semiannual swamps in the north. New settlements that were founded in this area did not have buildings like E-Groups or triadic complexes, and public ceremonial activities were probably concentrated at Yaxha itself. Fialko suggests that the technology of drained fields evident from the grid of the channels in the swamps was administered and controlled by Yaxha elites [24. P. 275–276].

The “great transformation” that took place in the Maya area was the change of the main obsidian source from San Martin Jilotepeque that dominated in late Middle Preclassic to El Chayal that continued into the Classic period. This shift occurred between 350 and 300 BCE, and was quite drastic: in average, the share of San Martin Jilotepeque fell from about 75 % to about 15 % while El Chayal rose from 16 % to about 72 %. It was probably connected to the expansion of the Kaminaljuyu polity in the Central Guatemalan Highlands that controlled El Chayal [27]. However, the analysis of the regional distribution of the obsidian sources shows that more dynamic picture. We can reconstruct the emergence of three competing but also partially overlapping exchange networks.

The first was terrestrial and was based on San Martin Jilotepeque source and entered to the Maya Lowlands through the Pasion River where Ceibal continued to be the main consumer of this obsidian (91.2 % against 8.2 % from El Chayal) and was the major riverine port-of-trade [54]. After this the route split, one branch continued down the Usumacinta River to the western sites, and the other went north to the Peten region. Tikal were economically connected and probably allied to Ceibal and continued use more San Martin Jilotepeque obsidian until the early I century CE when suddenly El Chayal obsidian became predominant [55. P. 89]. The picture for Peten Lakes sites was similar. From Peten it turned to the east and ended in the Belize where inland sites had about 20 % of San Martin Jilotepeque obsidian [56. P. 66, Table 3.3].

The second network was also terrestrial and was based on El Chayal source and was controlled by Kaminaljuyu. We still don't know its exact layout and what was the primary center that channeled it in the Maya Lowlands. El Chayal obsidian was predominant at El Mirador and sites situated to the north like Becan and in the inland Belizean sites (60 % in average). It is interesting that although San Martin Jilotepeque was predominant at Ceibal, the secondary site of Caobal received considerable amount of El Chayal obsidian [54. P. 296]. In coastal Caribbean sites and sites that were connected to the rivers flowing into the Caribbean Sea San Martin Jilotepeque obsidian became non-existent very rare (up to 6 %) [56. P. 66, Table 3.5].

The third network was based on Ixtepeque obsidian source. The main exchange route went along the Motagua River and the Caribbean coast, so this obsidian was the second source in Belize [56. P. 66, Table 3.2]. Ixtepeque obsidian was also traded to Central Peten where it was present at Tikal and Peten Lakes sites and finally reached the Mirador Basin [56. P. 66, Table 3.4].

However, always there were some exceptions. For example, at Colha in Northern Belize Ixtepeque obsidian comprised 39 %, El Chayal 33 % and San Martin Jilotepeque only 28 % [57. P. 231]. Thus, here all three networks overlapped. The main cause was probably the role of Colha as a major producer and supplier of chert tools. The site is located close to the extensive chert-bearing zone. In the Middle Preclassic the local craftsmen worked on family-level for personal consumption, but since 400/300 BCE we observe standardized, intensive, and large-scale production of stone tools by about 40 specialized workshops. The set of tools included large oval bifaces, long bipointed bifaces, projectile and spear points etc., but especially important were tranchet-bit implements used for forest clearing and fieldwork. They were widely traded through the Northern Belize where they comprised at least 70 % of all stone assemblage. Other tools made at Colha were traded further, to Holmul, Tikal and El Mirador [58]. However, in other sites like San Bartolo, though the level of production exceeded the family needs of the producers, there is no evidence to suggest that the stone tools were exchanged beyond the local community [59].

Late Preclassic ideology, monumental art, and hieroglyphic writing

Late Preclassic period witnessed the rise of new type of monumental sculpture in the form of the carved stone stelae sometimes associated with the stone altars. It was probably borrowed from the west, from Epi-Olmec culture or from the southwest, where other Isthmian cultures developed this tradition. Early stelae are known from Nakbe, El Mirador and Tintal in the Mirador Basin, Cahal Pech in Belize, Cival, Holmul, Yaxha and other sites in Central Peten. The main motive is a standing human figure in a rich attire with the ritual objects and symbols of power or, in some cases, supernatural beings.

Nakbe Stela 1 was dated to late Middle Preclassic by Richard Hansen [30. P. 384–387] but judging from its style it should be placed unto the Late Preclassic, probably between 350 and 200 BCE. It shows two opposing richly attired figures with large royal headdresses. The left person has square eye and so-called ‘Roman nose’ that identify him as a deity or ancestor. He gives orders to the second personage with raised left hand and extended forefinger. The right protagonist expresses his obedience that is clear from the gesture of his right hand in front of the chest. Both wear full assemblage of the Ancient Maya royal costume including large earflares, belts with large belt masks, jade pendants hanging from the frontal part of the belts and knotted bracelets and wrinklets. Earlier Hansen interpreted it as the depiction of the Hero Twins, but now he recognized that it is the scene of the transfer of the power [30. P. 387].

Late Preclassic period also witnessed the appearance of the Maya hieroglyphic writing. In other parts of Mesoamerica, such as Oaxaca or Gulf Coast Olmec chiefdoms writing goes back to the Middle Preclassic or may be even Early Preclassic

times [60]. Recent study of the painted texts from San Bartolo in Northwestern Peten dates them to 3rd century BCE [61]. They show already well-developed inventory of signs that indicates earlier (500 to 400 BCE) origins. The main types of the Preclassic texts are painted inscriptions in the murals and various portable objects (pectorals, pendants, stone figurines, ritual bloodletters). Monumental inscriptions are no so common and many of them were destroyed in the antiquity.

Although Preclassic texts are far from been totally clear, they reflect the formation of the royal ideology that will continue its existence into the Classic period. Portable texts principally served as property statements, but also recorded the calendar ceremonies, royal accessions, and bloodletting ceremonies. Their principal function was ritual and ideological. They frequently mention the principal royal title *'ajaw* (derived from Common Mayan **a:xa:w* “he who speaks loudly”, “he who orders”), but are silent about other nobles or office holders. It seems that the Late Preclassic was the time when a standard form of royal title, so-called ‘Emblem Glyphs’ were developed. It consisted of a name of the principal urban center of the polity followed by *'ajaw* title — *Kanu'l 'ajaw*, “king of *Kanul* (Dzibanche)”, *Baaxwitz 'ajaw*, “king of *Baxwitz* (Xultun)”, *Sa'il 'ajaw*, “king of *Sa'il* (Naranjo)” etc.

In the inscriptions of San Bartolo we find at least two early Emblem Glyphs. The text of the painted block from Las Pinturas Sub-V building contains easily recognizable sequence **PA'-CHAN 'AJAW**, *Pa'chan ajaw* (“*Pachan* king”). In the Classic period this title was carried by the rulers of Yaxchilan (*Tahn Ha'Pa'chan*) and El Zotz' (*Pachan Nal*). There is no considerable Preclassic settlement at Yaxchilan, while El Zotz' area was the home of dynamic Middle and Late Preclassic community with the center at El Palmar. So, it is possible that at San Bartolo we have the reference to El Palmar. Another Emblem Glyph appears in the end of the vertical inscription in the right edge of the Western Wall mural of Las Pinturas group. It accompanied the scene of royal accession: **'u ... 'AJAW**, *U... ajaw* (“... king”). The third glyphic sequence with **AJAW** logograph in final position also appears in the same mural but was placed in the mythological scene and could name some supernatural being (**'AKAN-'AJAW**, *Akan ajaw* — “the lord of the grassland”). To our surprise, we don't find any reference to *Baxwitz* or “Crystal Hill”, Classic toponym used at Xultun that succeeded San Bartolo as a regional political center. It is possible that *Baaxwitz* was the name of Xultun and not of San Bartolo.

However, several Maya royal houses used other type of titles (*sak-chuwen* or “pure artisan” at Naranjo, *chak-tok-wayab* or “cloudy-read dreamer” at Holmul etc.) or combined both types. For example, aside from usual Emblem Glyph Tikal rulers also called themselves *unahb'nal-k'ihnich* (“the owner of the lake of the Sun God”). It is interesting that among these dynasties are several very ancient (see below), so this pattern could reflect more ancient principles of titling.

The central theme of the Late Preclassic royal ideology was the myth about Maize God as a first king. It is represented in detail on the murals at San Bartolo [60].

The peak event was the defeat of the Principal Bird Deity who descended from the heavenly realm and the taking of his regalia. After this the Maize God descended to the watery underworld, resurrected, and was crowned as the first ruler. Historical king of San Bartolo presented himself ascending to be crowned ruler, a parallel to the Maize God's enthronement.

Late Preclassic in the Maya historical memory

In the later Maya historical memory, the origins of the principal royal dynasties dated back to the Late Preclassic. At Naranjo (ancient *Sa'il* kingdom) the 35th king acceded at 546 CE. Using an average of 22.5–25 years per reign the start of the Naranjo dynasty would fall between 300 and 200 BCE. Long inscription on Altar 1 from Naranjo in the retrospective part mentions ritual of the conjuring of a deity or ancestral figure called *I chpuy Ajaw* in 258 BCE by a person wearing local *sak-chuwen* dynastic title.

Recently we identified two previously unknown examples of the dynastic count in the inscriptions of Uaxactun. According to the first, Kokaj Witznal who ruled in the early 6th-century CE was 32nd king [63]. According to the second, his earlier predecessor Nohol Winkil who probably ruled around 445 CE was 29th king [64]. Using the same calculation formula, the founding of Uaxactun dynasty could be placed between 275 and 200 BCE. Other ancient kingdoms included Xultun (*Baxwitz*) where 33rd king ruled in the 6th century [31. P. 540–541], so the dynastic origin counts back to 3rd century BCE. The founder's name is not clear, but it can be the reference to the period of the apogee of San Bartolo. At Altar de Sacrificios 36th king ruled in 633 CE that brings the beginning back to 250–150 BCE [65. P. 533].

Second wave of the foundation of the royal houses can be dated to 1st century CE. The most famous of those was Tikal dynasty founded by Yax Ehb Xook around 90 CE [65. P. 533] Another important Classic polity founded in 1st century CE was El Peru [66. P. 150]. According to the Classic-period inscriptions, Yaxha dynasty seems to be more or less contemporaneous with Tikal and El Peru since the 6th-century king was called 19th in the line.

One of the unresolved questions concerning the Late Preclassic is whether El Mirador, the largest Lowland Maya city between 300 BCE and 150 CE, was also the capital of large state that included all the Southern Lowlands or at least its major part, as was argued by Richard Hansen. This vision was supported by Kathryn Reese-Taylor and Debra Walker [67]. Recently David Freidel argued that the extent of the Mirador state could be even larger, reaching Yaxuna in the Northern Yucatan [68. P. 372–378].

An important element of the Maya historical memory recorded in the inscriptions of the Classic period was highly prestigious place called *Chika* or *Chihka*. Its rulers Huun Bahlam and Num Xim who were mentioned retrospectively in the texts of the

5th and 6th centuries used high title *kalomte* (“hegemon, overlord”) and not just “king”. Ruling houses from all the Southern Lowlands traced their origin to Chika royal court. For example, Tikal kings believed that their ancestor Yax Ehb Xook was “Chika power”. At the same time lords of the Western region (Yaxchilan and La Florida) insisted that their progenitors were “Chika warriors”. In the inscriptions of El Resbalon Chika was called “the city of the power (*u-ch’ee’n k’awilaal*) [69], so it was not an element of natural landscape like cave or mountain, but actual settlement.

All the events that took place at Chika were dated to some distant past that corresponds to the Late Preclassic (4th or 3rd centuries BCE) or Protoclassic (50 BCE — 160 CE). Until now its location is unknown because by the Classic period it disappeared from the political landscape. The wide distribution of the references to Chika throughout the Maya Lowlands led some scholars to the suggestion that it could be original name of El Mirador [70. P. 131; 71], although others proposed that it could be Late Preclassic site of I chkabal in the Southern Quintana Roo [72].

However, the actual evidence for pan-Maya state is ambiguous. As we saw earlier, the Mirador Basin (about 8.000 km²) was evidently under El Mirador’s control since 300 BCE. But if we look at the scheme of obsidian distribution, the picture is different, El Mirador was one of the main consumers of El Chayal obsidian, but Central Peten, especially Tikal, was outside this economic sphere and continued exporting San Martin Jilotepeque obsidian in considerable quantities. At the same time in the 1st century CE the networks of obsidian exchange were transformed, and El Chayal obsidian became even more widespread. For example, at Tikal we see the radical shift from San Martin Jilotepeque (fall from 86.7 % to 9.5 %) to El Chayal (rise from 6.7 % to 90.5 %) [55. P. 68, Table 6]. Tikal dynasty connected its foundation to Chika and S. Guenter suggested that according to Tikal historic memory its first king was crowned at Chika [71]. With all these data the hypothesis that in the 1st century CE Tikal fell under El Mirador hegemony seems very attractive. Another possible center that depended on El Mirador could be Cerros, an important seaport in Northern Belize. Its fast rise in the 1st century BCE could be connected to the expansion of El Mirador [67. P. 93–95], because all Cerros obsidian was from El Chayal [56. P. 50–51].

First Maya collapse (100–200 CE)

2nd century CE was the time of the first collapse in the Southern Lowlands. Many major urban centers were abandoned. Crisis was the strongest in the Mirador Basin where El Mirador, Nakbe and Tintal never recovered and reached the same importance. At Ceibal the population and construction activities declined significantly between 125 and 175 CE [41. P. 1295]. Other centers like Uaxactun and Tikal experienced decline but later restored their position. Principal groups of Uaxactun were abandoned between 150 and 250 CE, but in the early 4th century CE elite activities

resumed [33. P. 111–113]. Centers like Naranjo, Yaxha and Nakum also continued their development in the Early Classic, and it is unknown whether they experienced the crisis. In some cases, the decline is observed in secondary centers and even rural settlements like El Encanto where no materials dated to 100–250 CE were excavated.

The fall of the Late Preclassic polities led not only to the demographic decline but also to the migrations. Naachtun in the northwest of the Mirador Basin was small settlement before 150 CE but later received considerable population and probably became the place of refuge who constructed their houses, fields, and public buildings on top of the hill [73].

There is evidence that these events were connected to the rise of militarism. In the Late Postclassic we have limited evidence of the war between the polities. Some fortified settlements like Muralla de Leon in the Peten Lakes region were built between 400 and 200 BCE. Western Group of El Mirador was defended by 4 to 6 m high stone wall with five gates encircled by deep and white moat. Overall volume of this defensive system was about 100.000 m³ [74. P. 21]. But in the first centuries CE the scale of fortifications grew larger. At Tintal the canals that channeled water from the shallow lake were modified into the moat system that encircled around 34 ha [75]. Soon after 100 CE the central part of Cival was encircled by a stone wall that defended temples and principal residences but left out many elite platforms. After 150 CE Cival was replaced by new center, Holmul, that became the main regional capital in the Classic period [11. P. 131–132]. At Tikal there are signs of massive burning and contemporary destruction of the stucco masks and facades in the Northern Acropolis around 150–170 CE [35. P. 1416].

In the later Maya historical tradition, the important event in 159 CE related to Chika was remembered [76. P. 216–221; 77. P. 120–121]. Some polities just arose during these turbulent times. A powerful *Kanul* dynasty that originally ruled at Dzibanche (Southern Quintana Roo, Mexico) and later moved to Calakmul (Campeche, Mexico) according to its king list inscribed on the ceramic vessels should be founded in the late 2nd century CE. According to the dynastic tradition of Itzimte, this middle-range kingdom in the western part of Central Peten was founded between 200–220 CE [78].

The exact causes of this crisis are unknown. Probably, complex set of factors including geomorphological transformation (fall of the water level), climatic changes and increased military competition finally led to the crisis [30; 79]. After several decades of the decline, Maya societies recovered, and the Classic period started around 200/250 CE.

Conclusions

In the 1980s and 1990s a widespread consensus was established among the Mayanists that the first states in the Maya Lowlands appeared between 50 BCE and 100 CE or even later. Joyce Marcus characterized Late Preclassic Maya

polities as having the following traits: “hereditary differences in rank, settlement hierarchies of two or three tiers, and sufficient interpolity raiding” [80. P. 61] that placed them within the range of middle-range chiefdom societies. She dated the appearance of first-generation states to the Early Classic (250–500 CE). At the same time Richard Hansen based on the extensive work of the Brigham Young University expeditions in the Mirador Basin argued that the first Maya state centered at El Mirador dated to the Late Preclassic [21; 31 etc.]. However, his arguments were not so convincing [12. P. 78–79].

A recent trend in the study of Mesoamerican complex polities consists in defining them just as ‘kingdoms’ without specifying whether they were chiefdoms or states [81; 82]. Rosenswig defined ‘kingdom’ as “hierarchical polity ruled by a king, which consisted of a capital and affiliated lower-tier centres” in order to avoid “typological exercise of whether Izapa was a complex chiefdom or a state” [82. P. 1307]. From this point of view Mesoamerican political organization did not evolve for more than 2000 years. Although in many cases the distinctions between complex chiefdoms and incipient states are indeed difficult to trace because of the gradual processual character of the politogenesis [83], we believe that the rejection of generalization models common to contemporary American anthropological archaeology creates more problems than solves.

The archaeological and epigraphic data summarized above demonstrate complex dynamic picture. Late Middle Preclassic polities (600–350 BCE) with three-tiered settlement system, early forms of intensive agriculture, public architecture, and incipient urbanization could be identified as complex chiefdoms. Very important threshold in Maya history took place around 350–300 BCE. Previous chiefly political centers were transformed into early urban settlements, the monumental construction reached its peak. Four-tiered settlement hierarchies appeared in the Mirador Basin, Holmul River Valley, and other regions. First early states were formed starting from 300 BCE in the Mirador Basin (Nakbe, El Mirador), Holmul River Valley (Cival), possibly in Peten Lakes region (Nixtun Ch’ich’), and slightly later in Central Peten (Uaxactun and Tikal). During the following 300 years Maya polities became larger in area and population, hierarchically more complex, used the hieroglyphic writing and developed a peculiar model of royal ideology. The complexity of the system of urban and suburban centers and sophisticated infrastructure presupposes the existence of administrators and court officials. However, they only appear in the hieroglyphic inscriptions in the Classic period.

William Sanders and later Kent Flannery emphasized that although chiefs could organize large amount of labor force to build temples and other public buildings, they usually could not have their residences built for them. Therefore, it is sometimes difficult to identify chiefly residences among other high-status dwellings, and the construction of palaces is an important marker of the primary states [84. P. 21–36]. Although Late Preclassic Maya palaces were smaller than Classic acropolis, they had all the functional traits of the palatial complexes.

The complexity of the Late Preclassic economy also indicates that it was a period of important change. The scale of agricultural intensification and hydraulic engineering implies centralized organization, although we still lack direct evidence of elite intervention or control. Probably the largest works were organized under the ruler's patronage while others were realized on the community level. Long-distance trade of high-valued commodities seems to be controlled by the elites, while the configuration of the middle-range and local exchange networks depended on the conditions. Craft production was varied from household-level production of the serving pottery to specialized lithic workshops.

Although El Mirador was the largest Late Preclassic Maya urban center and since 300 BCE became a capital of the early state that controlled at least 8.000 km², there is no evidence of any pan-Mayan regional state. The analysis of the obsidian exchange networks demonstrates that during the 3rd and 2nd centuries BCE El Mirador did not control the distribution of obsidian in Peten region, and thus the territory under its power probably was not very extensive. Possible expansion of El Mirador hegemony can be reconstructed through the change of obsidian exchange networks between 50 BCE and 100 CE. During that time El Mirador hegemony expanded to the south where it embraced Tikal and, probably, Central Peten Lake region, while in the northeast it reached Caribbean sea. It is possible that this hegemony was preserved in the Maya historical memory in the image of Chika, a primary center that was the source of authority and legitimacy. The collapse of the Late Preclassic society around 150–170 CE probably was complex phenomenon caused by the set of factors that included climatic change, anthropogenic ecological crisis and political and military struggle among first Maya city-states.

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