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GREENSTONE ARTEFACTS FROM THE MAYA SITE OF NAKUM, PETEN, GUATEMALA

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Abstract

During the seasons of 2011 and 2012 jade artefacts were analysed originating from excavations in the archaeological site Nakum located in the northeastern part of the department of Peten (Guatemala). The artefacts are the result of excavations conducted between 2006 and 2012 by the Nakum Archaeological Project from the Jagiellonian University in Krakow. This article presents the results of this study in a broader context, comparing findings from Nakum with other Maya sites. In total, the sample is composed of 196 greenstone artefacts which include beads (tubular, spherical, semi-spherical), earrings and a pectoral. Almost all the artefacts come from ritual contexts: burials or offerings discovered in several buildings at Nakum, especially in temples.

Resumen

Durante las temporadas de los años 2011 y 2012, fueron analizados los artefactos de jade que provienen de las excavaciones efectuadas en el sitio arqueológico Nakum ubicado en la parte noreste del departamento de el Petén. Los artefactos son resultado de las excavaciones realizadas entre los años 2006 y 2012 por el Proyecto Arqueológico Nakum de la Universidad Jaguelónica de Cracovia. El presente artículo muestra los resultados de este estudio en un contexto más amplio, comparando hallazgos de Nakum con los artefactos de piedra verde de otros sitios mayas. En total, la muestra de Nakum la componen 196 artefactos de piedra verde, entre los que se encuentran cuentas tubulares, esféricas, semi-esféricas, pendientes, orejeras y pectorales. Casi todos los artefactos provienen de contextos rituales: entierros u ofrendas descubiertos en varios edificios de Nakum, sobre todo en los templos.

Keywords: Mesoamerica, jade, Maya jewellery, figurines, burials

INTRODUCTION

Jade was a highly valued and important commodity among pre-Columbian cultures from as early as the Preclassic period (1800 BC – AD 250) when simple proto-state systems were slowly emerging, through to the heyday of Maya culture in the Classic period (AD 250-950), with an increasing number of jade artefacts in the archaeological record along with a higher level of workmanship. The first accounts mentioning greenstone come from the early 16th century, when European colonisers first came to Mesoamerica. Undoubtedly, jade played an important role in the sphere of cults and ritualistic behaviour, and was also highly appreciated as a marker of social status for those who wore it.

The major aim of this study is to present an analysis of greenstone artefacts recovered during the research of the Nakum Archaeological Project directed by Jarosław Żrałka and Wiesław Koszkuł

from the Jagiellonian University, Kraków, Poland and co-directed by Juan Luis Velásquez. These artefacts were discovered between 2006 and 2012 in different parts of the epicentre of Nakum, both in residential as well as ritual contexts. Moreover, a comparison will be presented between Nakum jade artefacts and materials known from other Maya sites for which we have published data.

HISTORY OF RESEARCH AND DISTRIBUTION OF JADE IN MESOAMERICA

The earliest finds of jade axes from Europe are dated to the Neolithic (Schumann 2003, 2004). Up until the Middle Ages, this stone had been completely forgotten and driven out of the market by other stones. After this long period of oblivion, the first mention of greenstone comes from the thirteenth century and is associated with an expedition organised by Marco Polo to China. At this time, a new name was adopted for this type of stone. Until the eighteenth century, all greenstones in Europe were described as jasper. Knowledge of greenstones also came from the territory of the New World. With the Spanish expeditions to the Americas, this precious stone became popular again. The collision of these two traditions led to the final formation of the currently used term - *jade*. There is no doubt that the name comes from the Spanish term *piedra de hijada* (lumbar stone). On the other hand, we can apply the theory represented in most publications on jade studies, saying that jade owes its name to the colonists residing in present-day Mexico (Schumann 2004; Sobczak 1987). Both cases share the conviction of jade as a medicine, used to treat kidney ailments. However, it should be noted that we do not have any ethnological sources which could confirm the use of jade in treatment. The modern version of the name - jade - occurs for the first time in 1727. It was the result of a printing error. The term *pierre le jade* rather than the deliberate, literal translation from Spanish - *pierre de l' ejade* appeared in Chambers Encyclopedia, printed in France.

Originally, it was assumed that both types of stones - the ones used in China as well as those from the area of Central America - were of the same sort, known as jade. Studies conducted by Damour in 1863 rejected this. He proved that the two stones are different from each other, but that their distinction is extremely difficult for people who do not have sufficient knowledge in the field of mineralogy. Thanks to him, it was decided that the greenstones used in China would be referred to as nephrite (from the Greek- Νεφρό - kidney), and the Mesoamerican ones as jadeite.

In terms of chemical and mineralogical content, jadeite is a sodium- and aluminium-rich pyroxene ($\text{NaAlSi}_2\text{O}_6$), which very rarely occurs in nature separately; usually, it can be found in association with serpentinite. Moreover, jadeite almost never occurs in a pure form. Jade in a pure, uncontaminated form can be placed in the periodic table as Jd_{100} . But this form has only ever been found in a few places on the Earth in trace amounts. It is more typically found in connection with other pyroxenes, of which approximately 90 % of the chemical composition is a rock in which the mineral has been discovered (Howard 2010). In natural conditions, greenstones are found in the form of lenses, veins and nodules. The typical places where jade occurs are zones of ongoing metamorphism. Therefore the subduction zone occurring on the American continent creates ideal conditions for the formation of such minerals.

Jade is a mineral with a high level of hardness, estimated between 6.5 and 7 in the Mohs' scale (Sobczak 1987). This stone comes in many varieties of colour, but the most common are lush greenstones. Other, natural colours include grey-blue, white, pink, purple, black or brown. The mineral in isolation is white and opaque, but takes on different hues due to the action of other elements in the process of its formation. For example, the green colour is caused by the presence of iron and orange; meanwhile, brown is produced by the action of hydrated iron oxides, and grey and black - graphite. The most popular shade of jade today - a vibrant lush green - can be attributed to the inclusion of chromium.

Greenstones, revered so much by the inhabitants of pre-Columbian Mesoamerica, have always fascinated researchers. Elaborate figurines and ornaments, as well as the places where they were discovered, suggest that jade was one of the most precious and important materials available during that period. Descriptions of artefacts made of greenstone, including jade, serpentine, or albite, were provided by the Spaniards who penetrated the territory of present-day Mexico and Guatemala during their various waves of conquest. Among the authors of these so-called 'conquest chronicles' were Diego de Landa, Hernán Cortés, Bernal Díaz del Castillo, Toribio de Motolinia, Tezozomoc, and Torquemada. In his 1632 account of an early 16th century expedition to the coasts of Yucatan, Bernal Díaz de Castillo mentions that when the conquistadors showed a string of worthless greenstones and glass beads of the same colour to the local Maya tribe, the latter were convinced that it was a necklace composed of the stones they called *chalchihuites* (jade). For the native inhabitants of Central America, the lumps of this material were precious enough to be offered as a gift to the King of Spain. According to these accounts, jade had a value amounting to as much as two bars of gold (Keverne 2000), a fact which is also confirmed by written sources describing the tribute paid by Moctezuma to Cortez when jade was counted as the equivalent of two bars of gold (Forshag 1957). Conquistadors, driven by visions of the wealth of gold to be transported to Spain, did not appreciate the value of jade. Soon the skills and lore of jade mining and carving faded, as did the customs and rituals it was used for. The first jade artefacts were found during the period of great archaeological discoveries in the years 1792-1914, initially thanks to European travellers who came to Central America and later as a result of archaeological and ethnographical expeditions. One of the most important expeditions of the early 19th century was that of John L. Stephens and Frederic Catherwood in 1839 (Stephens and Catherwood 1912), which inspired other researchers and travellers to visit Central America. Among the expeditions from the turn of the 19th century were, for example, those led by Alfred Maudslay, Sylvanus Morley and Teobert Maler. In 1869, Ephraim Squier prepared the first drawn documentation of jade artefacts that most likely came from the Tonina site in the state of Chiapas, Mexico (Squier 1870). At the same time, Edward Thompson embarked on his exploration of Chichen Itza (in the Yucatan Peninsula). Among his greatest achievements was his investigation of the artefacts that the Maya deposited in a sacred cenote. They included jade artefacts, analysed by Tatiana Proskouriakoff whose results were published in 1974 (Proskouriakoff 1974).

However, the fascination of researchers was not confined to the territory of present-day Mexico alone. In the first decade of the 20th century, Carl Wilhelm Hartman (Hartman 2010) explored a richly equipped burial in Las Guacas in Costa Rica. Interestingly, Costa Rica yielded many jade artefacts of Olmec or Maya provenance. But the most important discoveries that shed light on the issue of the sources, manufacture and exploration of jade were made in Guatemala. In the 1970's, the debate among scholars interested in Mesoamerican civilisations was focused around the issues of long-distance trade between contemporary centres and cultures scattered throughout Middle America, from Mexico to Costa Rica. One of the discussed aspects was the trade in greenstone. This was spurred by Robert Leslie's research (Forshag and Leslie 1955) which led to the first *in situ* discovery of lumps of jade in the Motagua River valley. The existence of trade routes linking particular sites is proven by the finds of raw lumps, figurines, and jewellery made of greenstone and whose chemical analysis confirmed that they come from deposits located in the Motagua Valley. Artefacts of this type, discovered near Manzanal, were first documented by Robert Leslie in 1952 (Taube *et al.* 2003). Normand Hammond performed mineralogical analyses of the jade uncovered in various archaeological sites and, after comparing his results with the samples collected near Sierra de las Minas (the Motagua Valley), confirmed the role of the latter region in the pre-Columbian jade industry. So far, this is the only known source of jade in Mesoamerica, documented by numerous archaeological and geological studies. It was suggested that jade outcrops were also located in Costa Rica (which was supposedly proven by numerous jade figurines and ornaments discovered in this region), but further research has not confirmed this hypothesis (Hammond 1977).

These studies have confirmed that the source of deep green jade, used during the Classic Maya period, was in the territory of Guatemala. However, sources of one of the most valuable types of jade, namely the blue-green mineral highly prized by the Olmecs remained unknown until the end of the 20th century. In recent years, the issue of Guatemalan jade has resurfaced in archaeological and geological discussion, as is testified, for example, by the works of Ronald Bishop (1985, 1993) from the 1980's and 1990's or those of Georg Harlow (1993). Scholars have split into two main camps. The representatives of the first group believe that the Motagua Valley region was the only source from which the indigenous cultures could have obtained jade. This hypothesis was first proposed by George Harlow (1993; Harlow and Donelly 1989; Ridinger 1997), who used arguments from plate tectonic theory and the results of numerous chemical analyses to support it. The opposite hypothesis, which posits numerous sources of jade in Mesoamerica, is based on structural differences, confirmed by radiological analyses, between various mineral samples (Keverne 2000). According to the supporters of this hypothesis, the outcrops of the "Olmec blue" jade should be sought, among other places, near Zimapan (Kelemen 1939), in the mountains of Belize (Mora-Marin 2002), and near the town of Santa Elena in Costa Rica (Keverne 2000). The studies performed by Ronald Bishop (1985, 1993), who focused on the chemical and structural analysis of particular jade samples, seemed to support this view. Unfortunately, recent research seems to completely contradict the theory of multiple sources. The Motagua Valley region was most likely the only source of jade in the discussed cultural zone, even though the area was relatively distant from some of the communities it supplied with jade. According to Keverne (2000), the trade route linking the Motagua Valley with Costa Rica led along the Caribbean coast and continued along the San Juan and San Carlos rivers to its destination. Thus, even if it may not seem particularly likely that a trade route more than 1600 km long functioned in the pre-Columbian period, the theory proposed by Harlow is so far the most realistic and difficult to question. This has also been confirmed by later research conducted in 1993 by Bishop, with the participation of Sayal and Mishar, who analysed 155 jade sample collected in the Motagua Valley using Instrumental Neutron Activation Analysis (INAA) and compared them with the results obtained for the artefacts uncovered in northern Belize, Chichen Itza, Copan, Costa Rica, and El Cajon site in Honduras. The research demonstrated that regardless of significant variation in chemical composition of particular stones, their counterparts can still be found in the Motagua region (Harlow 1993).

In 1964, Digby (1964) claimed that there were no more jade outcrops in Mesoamerica, as they had all been depleted in the pre-Columbian period and shortly after the arrival of the Spaniards. The colour variety of jade artefacts discovered throughout Mesoamerica suggested that there was more than one source of this mineral. Cook de Leonard (1971) suggested two potential locations for the jade mines of the Maya period. One he believed to be located in Guatemala, near Manzanal, where small specimens of jade had already been found at that time. The second mine was to be placed in the borderland between the Mexican states of Puebla and Oaxaca. However, this hypothesis has not been confirmed. The only deposits of jade in Central America known so far are located in Guatemala, in the Motagua River valley. Credit for their discovery goes to the husband and wife team of archaeologists, Louise and Jay Ridinger. Small outcrops of jade, as well as of albite, can be traced along the entire Motagua River, while blocs of serpentine are found at its tributaries. In 1977, Smith and Gendron (1997) performed chemical analysis of jade specimens collected in the entire Motagua Valley. The research showed variation in chemical composition and in colour even for the stones discovered close to one another. This may support the hypothesis that in pre-Columbian times (as well as today) the Motagua region was the only supplier of greenstone for the whole of Central America (from the Gulf of Mexico to Costa Rica). Scholars have also tried to find jade sources in the Caribbean and along the northern coasts of South America, where isolated finds of artefacts made of this mineral were discovered. In his publications, Easby (1968, 1991) claimed that the presence of serpentine deposits in Cuba and Jamaica, as well as a favourable geological structure, speak for the presence of jade deposits

in that region. Excavations conducted in some archaeological sites and iconographic representations on pottery led to the conclusion that the Maya culture was characterised by specialised craftsmanship. In the case of greenstone, such specialised workshops were identified in only one centre. This centre was Cancuen, situated in the immediate vicinity of the Motagua valley, which was no doubt a great asset in trade with other centres. Brigitte Kovacevich describes in her paper two structures (K7-24 and M10-7) that most likely housed jade workshops, as is suggested by numerous finds of semi-products, but also of the tools used for jade processing (Houston *et al.*; 2009; Kovacevich *et al.* 2002). In total, Cancuen yielded 1065 lumps of greenstone with traces of processing, which gives approximately 15 kilograms of raw material that was not distributed to other centres.

The turning point in the search for sources of a blue variant of jade (known in literature as *Olmec Blue*) came in 1998. After hurricane Mitch had swept through, specimens of this most precious jade variant were found in the El Tambor River. Even though three years earlier single specimens of this mineral had already been found in this area by Francois Gendron, it was not before 1998 that the locations of the lodes, in the canyons near the towns of La Ceiba, San Jose and Corrozal Grande, were identified. The attention of scholars again shifted to the Motagua Valley region. In 2000, Carlos Gonzales, together with Russell Seitz (Seitz *et al.* 2001; Broad 2002), organised an expedition to the Rio Blanco region. Four years later, the *Programa de Arqueologia de Motagua Medio, Proyecto Arqueologico del Jade* was underway, initiated by Luis Romero, Karl Taube and Zachary Hruby. Research conducted by the project focused on investigations in the El Tambor River region and in the territory between Corrozal Grande and La Ceiba, and led to the identification of the blue jade outcrops in this area.

JADE USAGE IN MAYA CULTURE

The oldest jade objects discovered in the Maya area come from the Preclassic site of Cuello, and are dated to the period between 1200 and 900 BC (Blake *et al.* 1992; Rice 1976; Rathje 1970, 1971). Even though simple egalitarian communities of pottery-makers were still developing in this period, the first signs of the development of a civilisation were noted along with some disproportions in the economic standing of particular individuals. Dwellings still had a simple, nearly oval plan, and were built mainly of organic materials: the walls were constructed of wooden elements, while the floors were made of crushed limestone. After some time, a new architectural tradition emerged, with dwellings built on pre-prepared, low, earthen platforms. The process of increasing social stratification should most likely be linked with trade in pottery, and with the progressing environmental changes that considerably influenced the development of agriculture and manufacture and, as a consequence, population growth. The latter gave an impulse to the crystallisation of the first hierarchical societies. From the perspective of the archaeological record, this process is best demonstrated by grave goods. Burials began to be furnished not only with objects of high material value, accessible for only some individuals, but also with objects which today are interpreted as prototypes of later symbols of power. Interestingly, richly equipped child burials already occurred in these early phases of the Maya society stratification. This suggests a relatively advanced system of hereditary rule, with social status extended to close relatives instead of being (as before) the result of individual achievements. From Cuello, the first examples of jade inlays in teeth are also known, a custom which later became one of the markers of social elite. For ideological reasons, the emerging elite undertook tasks which were meant to strengthen their high social status in comparison with others and to highlight their concern for people's well-being. They took control over the exploitation of jade and obsidian deposits, which in the later period would lead to the monopolisation of these crafts, and the artefacts made of these materials become visible symbols of prestige and respect for the ruling class (Cowgill 2004).

The exploitation and application of jade by the Maya only reached its apogee in the Classic period, when the social hierarchy had already fully developed. In the preceding period, the most common form of greenstone discovered in archaeological sites were raw lumps of the mineral. Only in the Classic Maya culture did the mineral attain the value and respect it had enjoyed among the Olmecs. The only noticeable difference between these two cultures was in the kind of raw material – if the Olmecs relished bluish jade, then the Maya (most likely due to changing aesthetic preferences and fashion) preferred jade of an emerald green colour (Sharer and Traxler 2006; Coe 2005). The tradition of making ornaments and other objects from this material gradually started to disappear in the Post-Classic period, to sink into oblivion shortly after the conquest.

For all these years when jade played the role of one of the most prominent symbols and markers of social status, its rarity also added to its value. Even small lumps were providently polished and exploited in a manner to make the best use of every possible fragment. This was also influenced by the conviction deeply rooted in the Maya systems of symbolic thinking which posited that jade should be identified with all the blessings sent by the gods. Jade, as has already been emphasised, was first and foremost a symbol of power, as only certain people could afford to wear jewellery made of this material. The weight of jade jewellery worn by some of the most powerful Maya rulers is estimated at up to 9 kilograms (Coe 2005). Jade was often used during ceremonies held to commemorate deified ancestors and in the ritual conjuring of supernatural forces and gods. Because of its colour, the Maya identified jade with vitality, fortune, fertility and abundance, and with such natural forces as wind or water (Taube 2001). One should not forget that the rulers wearing jade ornaments and jewellery were to symbolise the Maize God, while single jade beads were seen as corn grains (Miller and Martin 2004: 57-58, 70; Żralka *et al.* 2011). Artefacts made of greenstone are usually discovered in places linked with cults or ritual activity, such as burials, caches or chultuns. One of the largest and most important deposits of this type was found in a sacred cenote in Chichen Itza. Mesoamerican cultures ascribed a number of symbolic meanings to greenstones. They were most often used by the rulers and aristocracy to emphasise their power and position. An interesting observation which suggests that jade played a special role in Maya social life, was made by William M. Milliken (2002). Proceeding from the analysis of accessible written documents, he demonstrated that, in some cases, the glyph deciphered as *jade* was also used as a synonym of the noun *jewellery* and the adjective *precious*. Because of their colour, jade and other greenstones often became the symbols of vital forces, life-giving maize and water, and wind, while the fact that even in the pre-Columbian period they were exclusive materials, accessible mainly to the higher social classes, meant that they became reserved as attributes and markers of power. An important cult role was also ascribed to greenstones, which is why they were often used in rituals held to conjure the spirits of ancestors or gods.

Many symbolic aspects of greenstones are rooted in the Middle Formative Period of the Olmec culture and artefacts made of this material have been found in numerous sites. Ornaments, axes or figurines of Olmec manufacture are distinguished by their high artistic and aesthetic value. Most likely, these objects were the basic goods in trade contact that the Olmecs maintained with other Mesoamerican centres. One of the most frequent groups of deposits were offerings of jade axes, arranged in such a way that sometimes they resembled flowers with open petals (which might emphasise the life-giving power of greenstones; Drucker 1952; Ortiz and Rodriguez 2000). Cross-like arrangements were also frequent. This custom was later followed by the Maya, and the deposits of axes in similar arrangements were discovered in such sites as Cerros, Seibal or Cival. In the same period, the first signs of the cult of the Maize God appear together with the belief that jade beads, by virtue of their colour and shape, symbolise corn kernels which bring fruit when put into the soil (Taube 2000). Incised decoration appears on axes, with the representations of the Maize God and of the first prototypes of Mesoamerican concept of the world as a square field of corn (Freidel *et al.* 2001).

A common practice among the Maya was the covering of the faces of the most powerful deceased lords with masks made of various type of greenstone - for example the burial mask of K'inich Janaab' Pakal from Palenque or those discovered in Structures 3 and 7 at Calakmul. Alternatively, the Maya might have placed a jade or serpentine bead on the lips of the dead. Interviewed by Natan Horowitz, Karl Taube illustrates this custom with the example of the Pokom Maya who believed that this ritual will help them to keep contact with death relatives, because their soul could be detained in jade objects.

In another paper, Taube (2000) quotes the words of Tibón who emphasises that jade is not only filled with life but also gives life, because it is identified with sun, water, blood, sacrifice and food - in other words, everything that brings vital forces. Among the most splendid examples of royal tombs that yielded greenstone artefacts is the previously mentioned tomb of K'inich Janaab' Pakal, ruler of Palenque, who died in 683 (Martin and Grube 2008). The tomb, discovered in 1952 by Alberto Ruz Lhuillier (1992), was hidden beneath the Temple of Inscriptions, built by this ruler. The grave goods in the chamber were arranged with reference to the four directions, which mythically surrounded the world represented as a field of corn, and a richly decorated sarcophagus was set in the middle. The central image symbolised not only the axis of the universe (axis mundi), which the Maya depicted as a branchy ceiba, but also the Maize God reincarnated in K'inich Janaab' Pakal, who was to be reborn after death as envisaged in mythology (Christenson 2007). This second symbolic aspect of the burial was accented not only by the rich jewellery with which the body was adorned, but also by an unusually suggestive and detailed scene of resurrection carved on the sarcophagus lid. The deceased ruler is shown resting on the world tree during the moment of rebirth. Similar representations, referring directly to the Maize God, are known from ceramic vessels. The exceptional hardness of jade makes it a long-lasting and durable material, which is one more reference to the idea of the immortality of a human soul (Ridinger 1997).

Jades were to symbolise the breath (or, as we understand it today, the soul), and also the wind and the sounds it produces. As noticed by Karl Taube (2000), the breath of the soul was personified by the Maya Wind God, and expressed by music and flowers. Taube concludes that it was perhaps not a coincidence that earrings were made in the shape of flowers with additional beads, most often cylindrical ones, coming out from within and whose form recalls the volutes that symbolise breath. In some cases, this symbolic volute could take the form of a head of snake, which recalls the representations of a vision serpent depicted on door Lintel 15 from the site of Yaxchilan. They were the iconographic illustration of the moment of contact between the world of the living and the supernatural world - the realm of gods and deceased ancestors (Schele and Freidel 1990). In the side-view, the shape of earrings resembled the *ik'* glyph interpreted as wind. It is worth noting that, interestingly, the Wind God is always represented with earrings in the shape of this *ik'* glyph.

Greenstones were mainly used to create objects manifesting the wealth of their owners. In the context of some objects made of greenstone in this period, Roger Keverne (2000) introduced the concept of *social jade*. He used it during describing the objects made of lesser valuable material as quartz, serpentine and even slate. It is almost certain that the Maya possessed the knowledge necessary to distinguish jade and different types of greenstones, because the real jade was used for the production of the finest and most valuable items deposited mainly in the tombs of the most powerful rulers. The previously mentioned burial masks were made from jade, as sometimes were urns, but the primary elements were those of jewellery: spherical and cylindrical beads or simple earrings, hair ornaments, pectorals, and pendants which sometimes deserve to be called small masterpieces of sculpture. One should bear in mind that craftsmen of the time did not use metal. At their disposal were only simple tools made of animal bone, wood, reed or cactus spines, which were used to drill holes in artefacts, and sand which served as an abrasive and polishing agent (Desautels 1986). Elizabeth Wagner (2006) described one of the techniques used in processing greenstones. The process started with the selection

of an appropriate piece of material, which was next partially sawed from both sides using a thin slice of wood or cord. The sawing tool was covered with one of the abrasive agents (sand, crushed obsidian, jade dust). As a result, the specimen could be easily broken into smaller pieces whose shape would make them suitable for further processing. The stone was carved with thin pieces of obsidian, and this incised decoration was next deepened or expanded using a sharply pointed piece of wood. The first step in obtaining an ornament of curved lines was to make a row of small grooves that formed the desired shape, which were next rubbed with a stick until all the visible rough places between the grooves had disappeared. The Maya used two types of drill to bore tunnels inside beads, pendants or earrings. The first was a wooden stick, which was sprinkled with sand or obsidian dust during the work. It was used when a relatively small aperture was needed, for example in beads. For larger holes, the second type of drill was used, made of bird bones or reeds and also sprinkled with an abrasive agent. The apertures were usually drilled from both sides at the same time, so that finally the two drills met in the centre of the object.

Due to the fact that jade is one of the most precious of materials, the craftsmen involved in its processing did their best to make use of even the smallest fragments. Beads could be made from even jade gravel, so that the whole processing was limited to drilling a channel and slight polishing. A pair of earrings could be made from two halves of the same lump of greenstone, and even small splinters of production waste were used again in decorative mosaics. To reduce the amount of wasted fragments, a single lump of jade was used to manufacture not only a pair of earrings, but also two beads from the drilled cores and two crescent pendants.

The high standards of craftsmanship and artistic skills of the Maya can also be seen in incised ornaments and glyphic texts inscribed on greenstone objects (see Coe and Kerr 1997). Texts most often comprised the names of the object and its owner. Amongst the most problematic issues is how the Maya referred to greenstones. In the case of the Aztecs, written sources from the time of the conquest confirm the use of the word *chalchihuites*, but for the Maya this question remains a mystery. We know that the glyph read as *u-tupaj* can be translated as 'his/her earring', and that the Maya used three different words for burial mask: *k'ob'a* (mask), *k'oj* (image), and *nak* (mask, diadem) (Mathews and Biró 2006; Montgomery 2006). Jade axes commonly found in Olmec and Maya sites are read as **HUT** (Stone and Zender 2011: 70-71), but my search for at least the most modest information that would apply directly to the word jade has been unsuccessful.

The iconographic motif of so-called 'sacred bundles' which often feature in the Maya art is also puzzling. These bundles became the topic of a book edited by Julia Guernsey and F. Kent Reilly III and published in 2006. One of the chapters, written by David Stuart (2006), was devoted to jades. According to his research, the mentioned bundles played a ceremonial and economic role. Taking into account that both jade and cocoa seeds (mentioned by Stuart) were materials with the highest material and prestigious value in Maya society, they could be used as a tribute or gift to the ruler, or as an object of exchange. One of the examples of the discussed motif is Lintel 1 from Yaxchilan, featuring the dancing ruler Bird Jaguar IV and the Lady Great Skull standing by his side with a package signed with the **i-ka-tzi** (*ikatz*) glyph in her hands. Ethnolinguistic studies have proved that an identical word exists in contemporary Tzotzil Maya society and means 'debt, payment, obligation'. Analysis of the entire text from Lintel 1 shows that the scene depicts the ruler receiving a tribute, although it provides no clue as to what is kept in the bundle. Analysing the context in which the glyph appears on Lintel 1 and on other artefacts, David Stuart has come to the conclusion that the bundles must contain jade, unlike the bundles signed with the *pih* glyph, which contained cocoa seeds. The inscription 'y-ikatz', meaning 'his/her debt' was also found on several jade artefacts; it is enough to mention here a zoomorphic plaque from Burial 5 at Piedras Negras, a jade pendant found in the Temple of Skull at Palenque or a pair of earrings discovered in Burial 4 at Calakmul (Stuart 2006).

NAKUM: HISTORY OF RESEARCH AND DESCRIPTION OF THE SITE

Having introduced the meaning and importance of jade among the Maya, we should now move to the major concern of this article which is the collection of jade artefacts from the Maya site of Nakum. Nakum is an important Maya city located in the Southern Lowlands. It was discovered in 1905 by Count Maurice de Périgny (1910, 1911), but only attracted the attention of scholars in the 1990's. Works before that date were merely confined to mapping the site, originally by Alfred Tozzer (1913) and Raymond Merwin from the Peabody Museum of Archaeology and Ethnology (Harvard University) and later improved by Nicholas Hellmuth (1992). The next stage of the research at Nakum involved the works conducted within the framework of the Guatemalan 'Triangle Project' in the years 1994-2008. This investigation focused on archaeological works and consolidation of many buildings located in the epicentre of Nakum, particularly in the southern part of the site. In 2006, the Nakum Archaeological Project (NAP) auspicated by the Institute of Archaeology of the Jagiellonian University in Kraków was launched. Since that moment, the NAP has made several important discoveries in the Southern as well as Northern sectors of the site.

Nakum is divided into two main sectors - Northern and Southern (Figure 1). The Northern Sector forms a vast square (North Plaza) delimited from the west and east by several low platforms and a large pyramid denominated Structure X. On the north side of the North Plaza there is a broad platform with a palace on top, as well as one large and two smaller platforms next to it (the so-called Northern Group). The south-eastern part of the North Plaza is bordered by a complex of fourteen buildings located on top of a vast platform (called the Eastern Group or the Merwin Group; Figure 2). The Northern Sector is connected with the Southern Sector by a raised road called the Périgny's Causeway (*Calzada Perigny*). It is approximately 250 m in length, and at its south-western end a ritual ballcourt is located.

The Southern Sector is composed of two wide plazas (called the Central Plaza and East Plaza), and a smaller courtyard (Southeast Plaza) as well as the great complex of the Acropolis. The Central Plaza is bordered to the south by Structure D - a more than 100 m long palace with 38 chambers. On the western side are located Temple C (high structure), circular Structure 12 and another ballcourt. At the north, the Central Plaza ends with the temple denominated Structure B, and at the east with Structure A, also known as *La Iglesia*. In the area of the East Plaza, there is only one major construction: Structure V, which is quite a low structure topped by a temple holding an immense chamber.

The Southeast Plaza is surrounded by monumental architectural structures: the west side by the base of the Acropolis, the east by Structure U (the highest Structure in Nakum), the north by Structures 34 and 35, and the southern section by Structure 33. Acropolis creates a system of palace complexes built on a huge, square platform with 12 smaller patios around (Figure 3). The architectural buildings of the Acropolis are highly concentrated and closed. Their purpose was to create a separated private living space for members of the elite in Nakum. In the middle of the Acropolis platform there is another enormous complex called the Central or Inner Acropolis, which in its last architectural phase surmounted five buildings including a possible residence of royal family.

CATEGORIES OF GREENSTONE ARTEFACTS

The subject of my research presented in this article are greenstone artefacts discovered during the excavations carried out by the Nakum Archaeological Project in the years 2006-2012. The analysed material comprised 196 objects, including numerous cylindrical, hemispherical and spherical beads, as well as pendants and fragments of earrings. During laboratory research conducted in the 2011 season, all the above artefacts were documented in drawings and photographs, and an attempt was made to reconstruct the jewellery that was part of grave inventory of the deceased buried in Burial 1 (Structure 15,

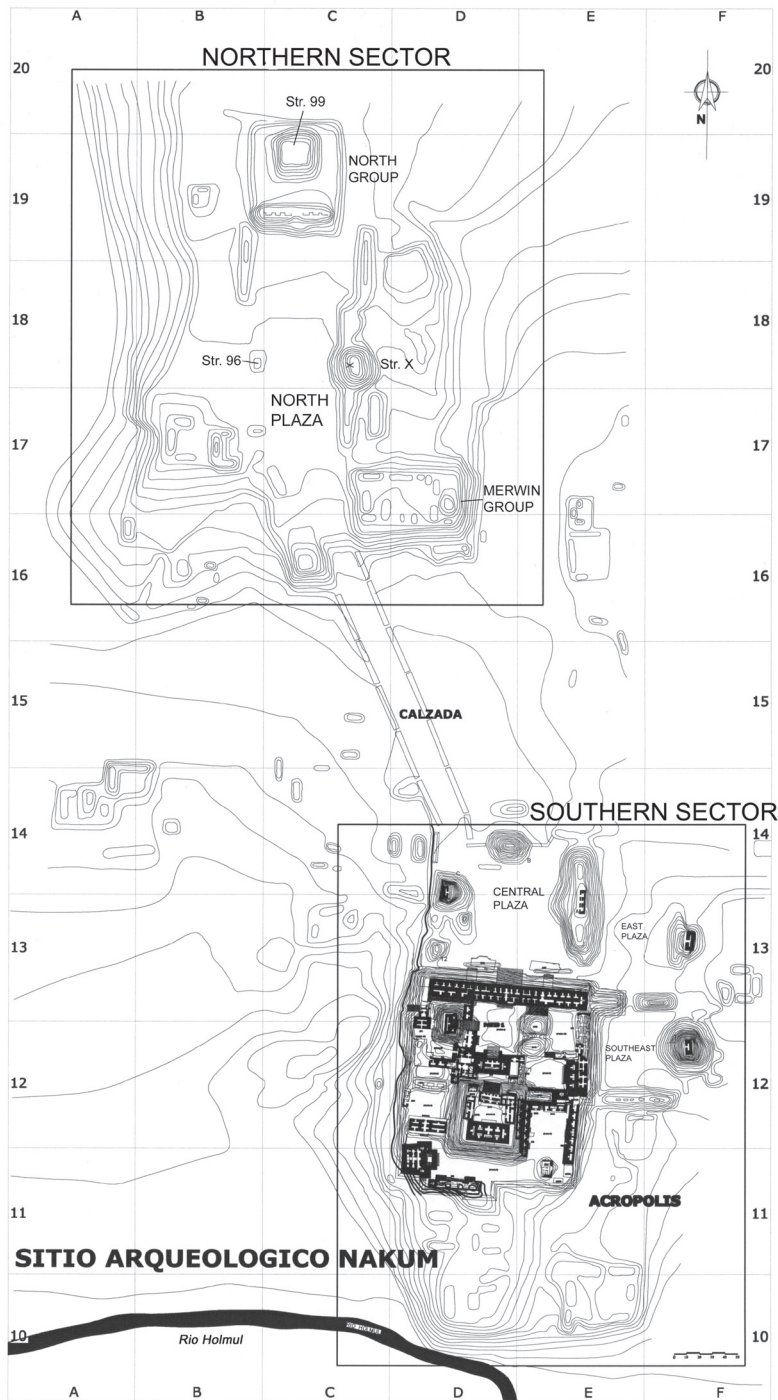


Figure 1. Map of Nakum showing two major sectors of the site (map by Triángulo/DECORSIAP Project).

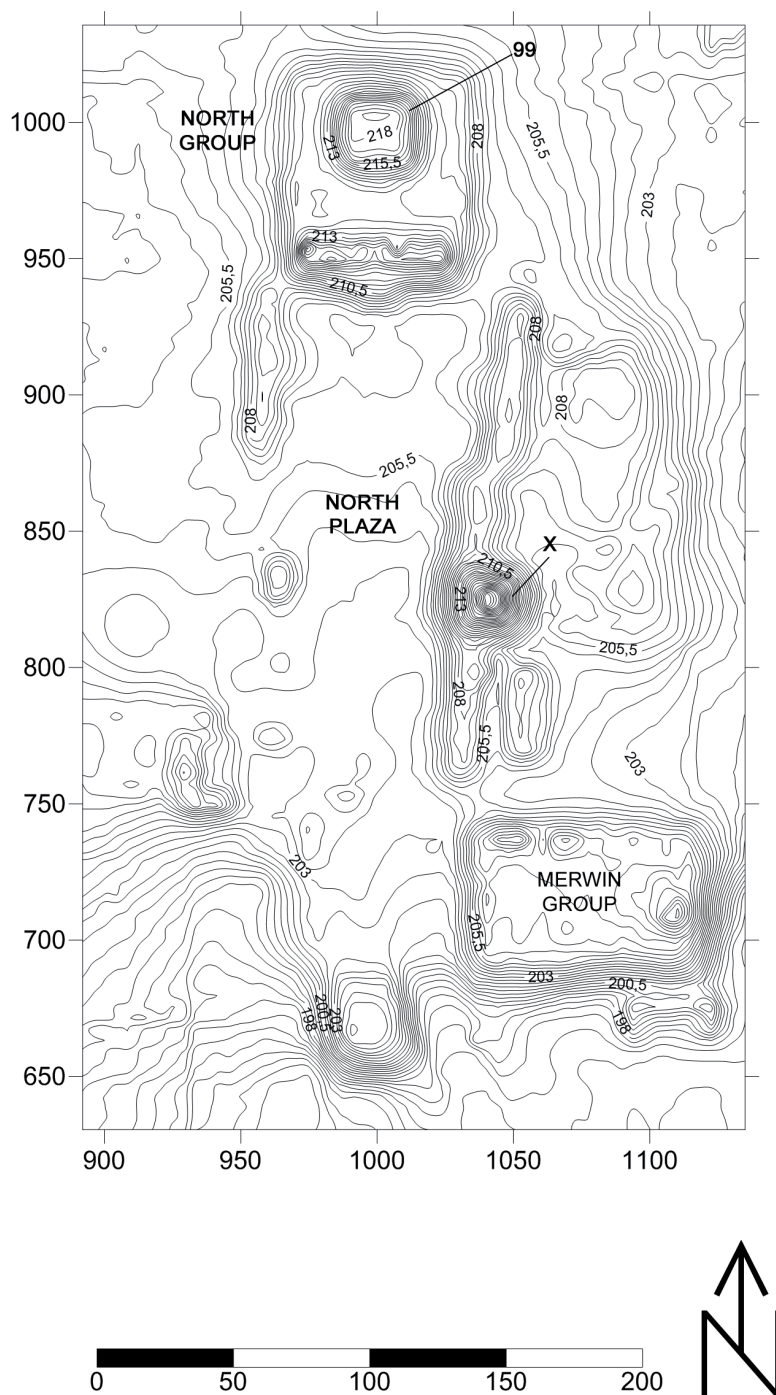


Figure 2. Map of the Northern Sector of Nakum (by Michał Sip and Piotr Szczepanik, Nakum Archaeological Project).

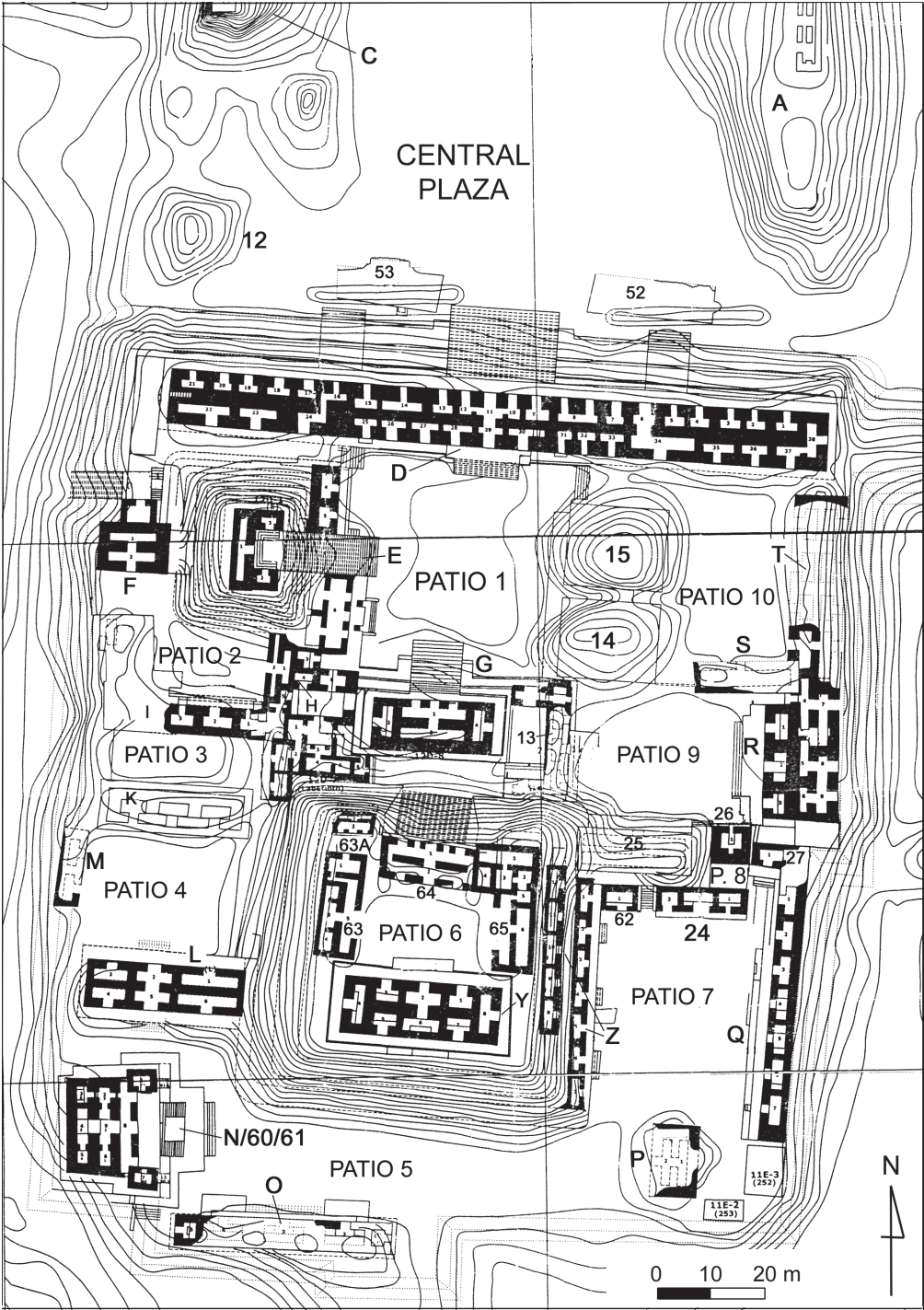


Figure 3. Map of Nakum Acropolis (map by Triángulo/DECORSIAP Project).

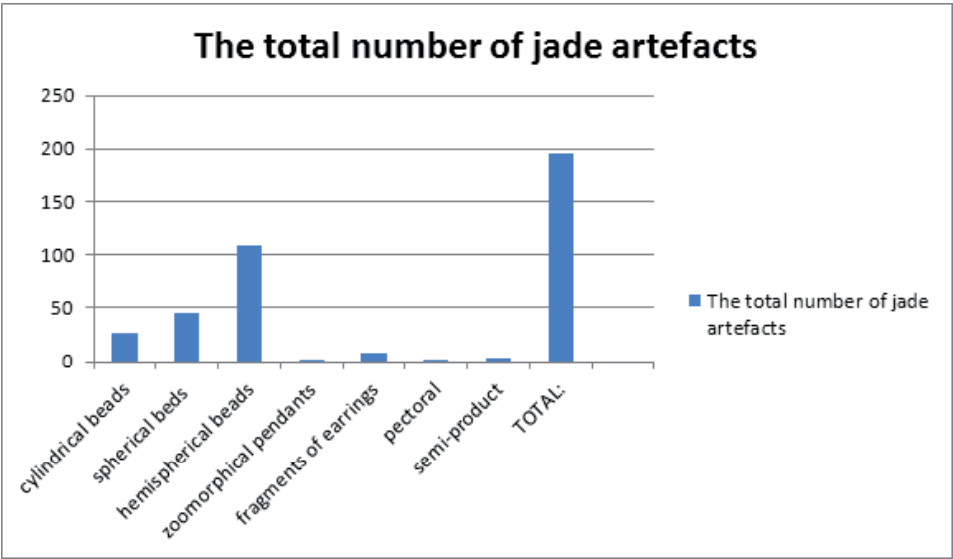
Southern Sector). The vast majority of the artefacts in question come from the excavations conducted in the Southern Sector. 179 objects found in Burial 1, as well as two other beads discovered in Offerings 3 and 12 indicate the high position of people living there and the important role of the building where they were found. The remaining finds, equally interesting, come from the Northern Sector (Table 1). It was there that the two jade pendants in the form of monkey heads were found, which belong (together with the pectoral from Burial 1) to the most precious and beautiful greenstone artefacts discovered by the Nakum Archaeological Project.

For the purposes of this paper, I have decided to divide the analysed material into seven groups: 1. zoomorphic pendants, 2. pectorals, 3. fragments of earrings, 4. semi-products, 5. spherical beads, 6. cylindrical beads, and 7. segment beads (Figures 4 and 5). Categories such as zoomorphic pendants, pectoral, fragments of earrings, or semi-products require no explanation. However, I would like to present in more detail my categorisation of jade beads. Spherical beads are defined as beads whose shape resembles a regular sphere, with greater or lesser distortions resulting from the applied technology or craftsman’s skill. The second group are cylindrical beads of an elongated form, resembling a tube; this is why I decided to include here the artefacts found in one of the deposits, described in the inventory as PANPV 005. I encountered difficulties in choosing a term for the beads produced by cutting the pre-prepared jade tube into smaller fragments, which produces beads that are circular in plan and resemble a rectangle in vertical cross-section. Such beads, which may also be referred to as segment beads, I decided to call hemispherical beads in my study.

JADE ARTEFACTS FROM THE NORTHERN SECTOR

At Nakum, artefacts made of greenstone occur mainly in ritual contexts. Only four partially processed pieces of raw material discovered in Structure X (one example) and Structure 99 (three examples) are stray finds which cannot be in any way related to religious practices; what is more,

Table 1. The total number of jade artefacts found during works of the Nakum Archaeological Project.



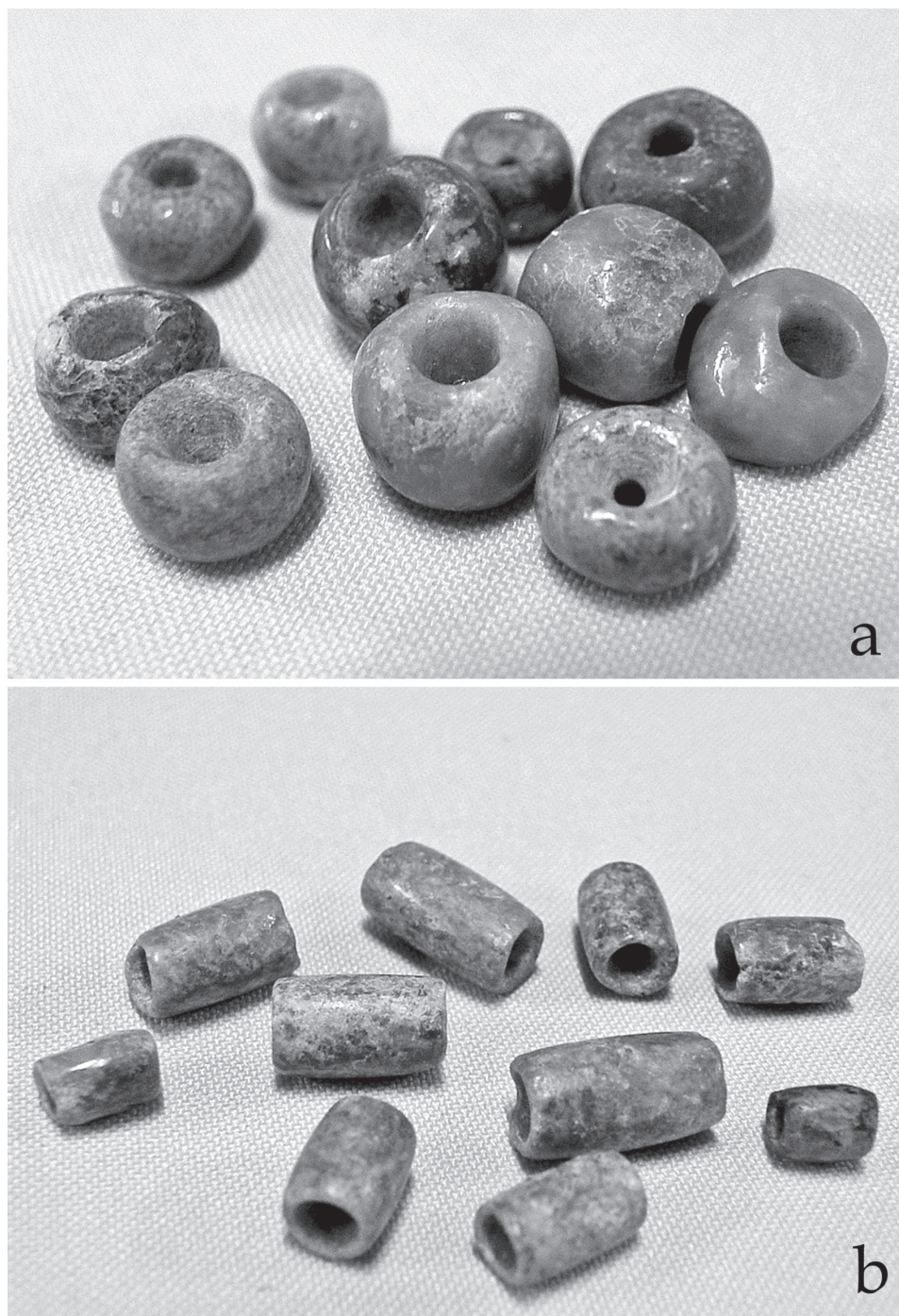


Figure 4. Different categories of jade artefacts from Nakum: a) spherical beads; b) cylindrical beads. All artefacts come from Nakum Burial 1. Photographs by Katarzyna Radnicka.



Figure 5. Segment beads from Nakum Burial 1. Photograph by Jarosław Żrałka.

locating their deposition in time still poses difficulties. Two of these fragments should perhaps be linked with the end of the Classic period (PANPV003 and PANPV004 uncovered in the trenches located at the top of Structure 99), while another (PANPV002 from Structure X) was dated to the Early Classic period based on stratigraphy (Figure 2). The exploration of Structure 99 brought the discovery of two offering deposits (Offerings 8 and 9) which included two beautiful zoomorphic pendants with representations of monkey heads (Figure 6). This motif is quite popular in the Maya iconography and is associated with the figures of scribes or clowns (Stone and Zender 2011), but it can also be interpreted as a symbol of power – *ajaw*. Both pendants were dated to the Late Preclassic period (Żrałka *et al.* 2008), although identical objects, this time dated to the Classic period, can be admired in the Popol Vuh Museum in Guatemala City. Unfortunately, nothing is known about the place of their discovery or provenance. A similar artefact that was supposedly part of a necklace adorning the body of one of the rulers of Copan has been recently found in the latter site (Zorich 2011).

There is one more possible interpretation of these finds which should be considered. As mentioned, monkeys in the Maya culture could also be associated with art and science by virtue of their exceptional intelligence that distinguished them among other animals. Interestingly, according to Taube (2000) monkeys could also be symbols of music and dance. This motif also appears in Popol Vuh as a personification of musically talented twin brothers transformed into monkeys (Coe and Kerr 1997). The deposition of two pendants with the representations of monkey heads should perhaps be interpreted in this context. The deposit also contained three beads made of greenstone (one cylindrical and two spherical), 9 clay heads probably representing deities of the Underworld, and a broken stingray spine which suggests that ritual bloodletting, common among the Maya, could have been performed in this place (Żrałka *et al.* 2008: 85-86, Figs. 12-16).

The next jade artefact documented in the Northern Sector of Nakum was discovered in association with a carved monument (Monument 1) located in the centre of the North Plaza. Its style and form indicate a very early dating, possibly to the Late Preclassic period (Żrałka *et al.* 2012: 35, 38). Beneath



Figure 6. Jade pendants featuring monkey heads from Offering 9 (left) and Offering 8 (right). Photograph by Robert Słaboński.

Monument 1, one half of a jade bead was found (PANPV012). It was placed there in that form already – the bead most likely cracked during its manufacture, as is indicated by its unfinished tunnel. The excavations conducted in 2012 did not confirm the presence of any offering deposit near Monument 1, so it remains unclear whether the bead was deliberately deposited in this place or if it was just a coincidence.

In 2012, during the exploration of Structure X, five more jade beads were found. Four of them (PANPV013-PANPV016) were deposited at the foot of the structure as grave goods accompanying a skeleton (Burial 7) which, according to preliminary analyses, should be dated to the Middle Preclassic period (850-400 BC) (Figure 7a). Hemispherical beads were most likely part of a bracelet worn by the deceased, as three of them were discovered in the vicinity of the palm. The fourth bead was only recovered while sieving the soil. This is interesting, taking into account that the deceased individual was relatively young, as is suggested by the size and shape of the bones. If this hypothesis turns out to be true, the discovered burial will provide proof for the formation of the first hierarchical structures in this city. The beginnings of such processes can also be noticed in other Maya centres towards the end of the Preclassic period. It is worth noting here that the phenomenon of status being inherited rather than gained by virtue of individual achievements, as manifested by the relatively rich (given the circumstances) grave goods deposited in the burial sites of children and young individuals, is generally regarded as one of the indicators of a gradual transformation towards early proto-state societies. At some sites (e.g. at Cuello), the first examples of jade inlays in teeth occur in the Preclassic period (Miller 2011). One can assume, given the pain accompanying the process and taking into account the

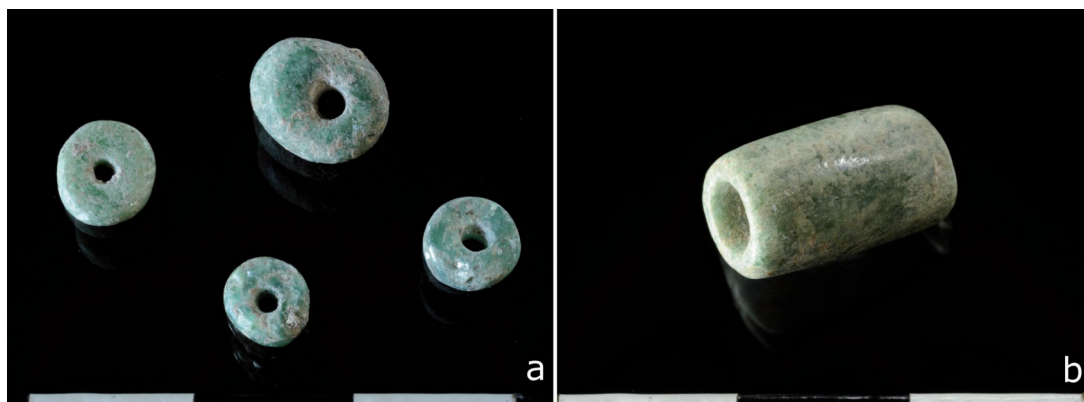


Figure 7. Greenstone artefacts found in Burial 7 (a) and Burial 5 (b) of Nakum. Photograph by Robert Slaboński.

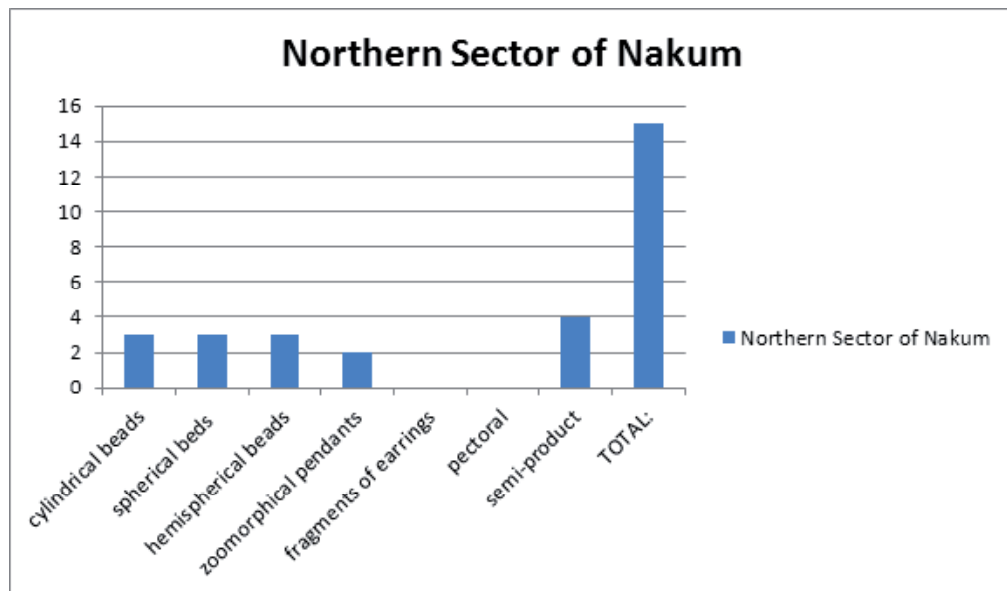
results of the age analysis of the individuals with jade inlays, that this operation was performed as part of a rite of passage (van Gennep 2006). One should also give some thought to the nature of Burial 7. It may be interpreted as a foundation offering prior to the construction of Structure X – the body was laid along the axis of the building at its western side, on the level of the bedrock, and the burial was next covered by the first architectural stage of Structure X.

The last cylindrical bead discovered in the Northern Sector of Nakum was unearthed below the floor of the central room of the temple superstructure located on top of Structure X. This was one of the grave gifts deposited together with Burial 5 (according to the classification used by the Nakum Archaeological Project). The discovery in the same place of the Lucha Incised type vessel allowed the grave to be dated to the Early Classic period (AD 250-600). The deceased was laid in a contracted position on one side. The exact position of the jade bead (PANPV017) cannot be established as it was found while sieving the soil from the burial (Figure 7b).

The total number of jade artefacts discovered in the Northern Sector amounts to 15 (Table 2). Most of them are simple spherical and hemispherical beads, although it should be emphasised that the majority of artefacts discovered in this part of the site date to the Preclassic period. The only objects that can be linked with the Classic period are three pieces of raw material from Structure 99 and a cylindrical bead from Burial 5. This small collection of artefacts gives no grounds for discussing the relationships and evolution of bead forms over the centuries. The fact remains that simple, small, hemispherical beads (less than 1 cm in diameter) discovered at the foot of Structure X and most probably dated to the Middle Preclassic period appear in the later periods as well. In the Northern Sector, cylindrical beads appear as early as in the Late Preclassic period together with monkey-head pendants which testify to the advanced technology used by those who worked the greenstone.

SOUTHERN SECTOR

Most jade artefacts uncovered by the Nakum Archaeological Project come from the southern part of the site, namely from Structure 15 adjoining Patio 1 (see Figure 3). In 2006, an intact royal tomb (Burial 1) was discovered there. It was built around the transition between the 7th and 8th centuries AD, and was 4.55m long, 1.5m wide and 2.20m high (Žračka *et al.* 2008, 2011). The research conducted in the interior of the structure revealed that the grave chamber was created by adapting a previously

Table 2. The total number of the jade artefacts found in the Northern Sector of Nakum.

existing temple chamber. By adding one wall, the Maya reduced the area of the compartment so that it suited their needs (Koszkul *et al.* 2007; Żrałka and Koszkul 2007). The deceased was equipped with 179 objects made of greenstone (Table 3). Most of them were beads, mainly hemispherical (106), but also spherical (42) and cylindrical (22), which in all probability were originally part of a rich, multi-string necklace and a bracelet, as may be deduced from where they were discovered, namely in the vicinity of the chest and wrists. Jades were most likely separated by beads made of shell and bone, which were also found in that place. The total number of shell, bone and jade beads discovered in Burial 1 amounts to nearly 500 artefacts.

The necklace from Burial 1 was adorned with a jade pectoral in the form of a shell (Figure 8). According to Tatiana Proskouriakoff (1974), this type of artefact was typical of the Olmec culture (see also Andrews 1986; Castro-Leal 1996; Coe 1995; Drucker 2010; Healy and Awe 2001; Żrałka *et al.* 2011). Most of the artefacts in question were produced by the Olmec in the Preclassic period, and then found their way to the Maya territory by means of trade or ritual exchange. The function of these objects, most often quoted in literature, is their implementation as elements of jewellery of an emblematic character, worn by people from the highest social classes (Andrews 1986; Drucker 2010; Żrałka *et al.* 2011). Other interpretations posit that pectorals were used for keeping substances such as cosmetic powders, dyes, liquids or hallucinogenic substances, and might also have been used during self-mutilation rituals as vessels for collecting the blood of the sacrifice. The pectoral discovered at Nakum was decorated with incisions on both sides; the inner part featured the representation of a human face, most likely that of a deified ancestor, while on the convex side a glyphic inscription deciphered by Simon Martin was incised (Martin 2006; Żrałka *et al.* 2011). In his opinion, the first glyph represents “*pectoral*” (unfortunately, we still do not know how this word should be read in the Mayan language). Simon Martin (2006) suggested that we may read it as **yu-UH** – his/her jewel. The next glyphs represent the emblem glyph of the nearby city of Yaxha and the name of the alleged ruler – *Ixiim Chan*. It is very likely that the inscription and the incised representation on the concave

Table 3. The total number of jade artefacts from the Southern Sector of Nakum.

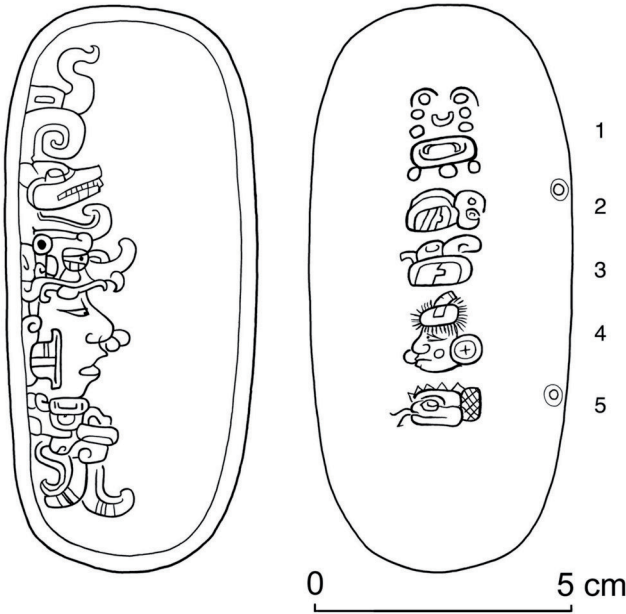
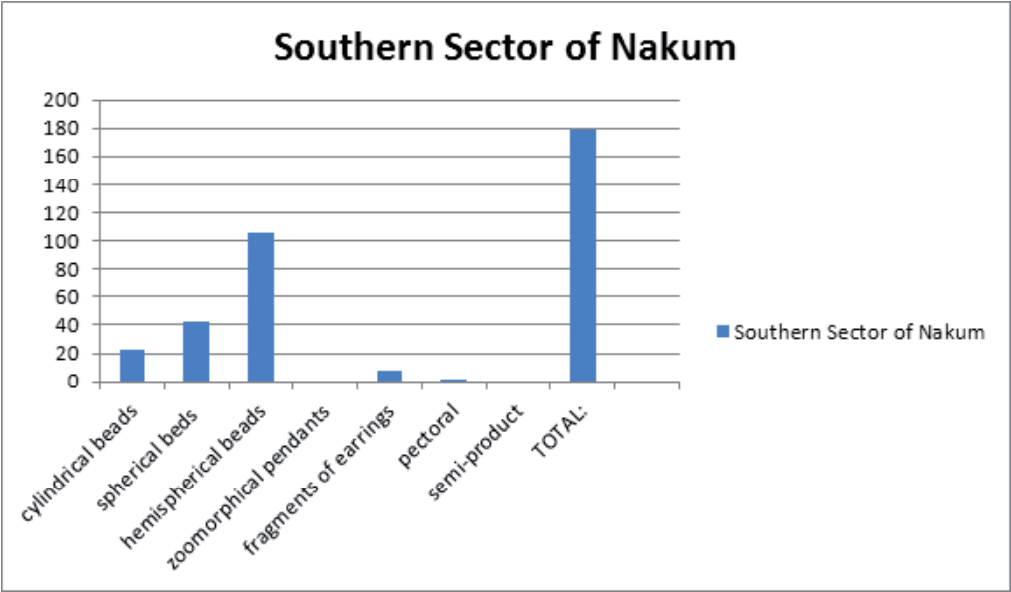


Figure 8. Jade pectoral from Nakum Burial 1. Photograph by Robert Słaboński, drawing by Simon Martin.

side were not carved by the same person (Martin 2006). This is suggested by the archaic form of the glyphs which attests to the hypothesis about the early dating of the inscription, which is thus far one of the oldest texts discovered at Nakum and in the entire Triangle Park area (Žračka and Koszkuł 2009). Following the discovery of the pectoral, several hypotheses have been proposed to explain how the object bearing the emblem glyph of the Yaxha centre found its way to Nakum. The first one assumes that the pectoral was acquired during war as a trophy or was a gift from the ruler of Yaxha. However, one should also consider the possibility that the ruler named Ixiim Chan had dynastical ties with the elite ruling Yaxha and was a governor in a satellite city which Nakum might have been at that time (Žračka *et al.* 2011). Interestingly, one can easily notice the difference in the colour of stone used for the pectoral and for the beads. Against the background of the beads, the pectoral obviously resembles the material used in the Olmec culture, whose blue-green colour is known as “Olmec-Blue”, while other artefacts discovered at Nakum are mostly of a dark-green colour. Based on stylistic analysis of the decoration and the type of stone used, it is believed that the pectoral comes from the period between the 3rd and 5th centuries AD, while Burial 1 should be dated later. Three episodes have been distinguished in the history of the pectoral (Žračka *et al.* 2011). It was most likely made by the Olmecs in the Middle Preclassic, but the inscription was only carved in the 3rd-5th century AD and the moment when the pectoral was deposited in the tomb is dated to the 7th/8th century AD. It is worth addressing here the representation of an ancestor carved on the pectoral. This representation is similar to the Early Classic stelae from Tikal (Stele 29 and 31). Both monuments portray a deified ancestor, facing downwards on the lord who is the major theme of the whole scene. As such the ancestors protect living kings and constitute a clear sign of the legitimisation of their power. The person wearing the pectoral from Burial 1 was symbolically accompanied by the ancestor depicted on the pectoral in a gesture of protection as well as of the patronage and legitimisation of the rule of the person who wore the artifact (Žračka *et al.* 2011: 897). It should be noted here that the pectoral discovered in Burial 1 was worn on the chest in a horizontal position, so that the ancestor's face was in fact pointing downwards. The grave equipment also comprised eight jade objects which turned out to be the elements of earrings (Figures 9, 10, 11 and 12) adorning the ears of the person interred in Burial 1. Their probable shape was successfully reconstructed in the Museo Nacional de Arqueología y Etnología in Guatemala City in April 2011.

As previously mentioned, the Maya regarded jades as holy stones, belonging to people of higher social classes and a symbol of their power and authority (Taube 2000). Greenstone beads were often symbolically linked with grains of corn, and someone who wore jade jewellery was identified with the Maize God. In the case of the individual interred in Burial 1, this symbolism was additionally strengthened by the deposition of a beautiful bowl decorated with the representation of the Dancing Maize God (Žračka *et al.* 2008: 106; Žračka *et al.* 2011). An analysis of the bones of the deceased performed by Varinia Matute (2007) indicates that the individual interred in Burial 1 may have been between 35 and 40 years old. Among the grave finds, very small hemispherical beads (85 specimens) predominated, ranging from 0.15 to 0.5 cm in diameter, which probably belonged to a bracelet adorning the wrist of the deceased individual. A considerable part of the finds, including larger beads up to 3 cm in diameter, were concentrated in the chest area, in the vicinity of the pectoral discussed above (Figure 13). The beads represent universal forms, popular in other Maya sites, for example at Tikal or in some sites in Belize. Drawings made during the discovery of the tomb in 2006 (Figure 14) made it possible to reconstruct the supposed appearance of the jewellery adorning the body of the deceased. Unfortunately, the reconstructed necklaces lacked the most important element – the jade pectoral, which at that time was on display in the USA.

Finding such a numerous collection of jade objects in Burial 1 was a remarkable discovery. Nevertheless, one should not forget the two beads discovered in Structure 15. The first one (PANPV005) was part of Offering 3, discovered above Burial 1. The deposit was placed within a stone cache and,



Figure 9. 3-D reconstruction of the fragments of the jade earrings (by Piotr Kołodziejczyk).



Figure 10. Jade earrings from Burial 1 (photographs by Jarosław Żrałka and Magdalena Rusek).



Figure 11. 3-D reconstruction of the jade earrings from Burial 1 (by Piotr Kołodziejczyk).



Figure 12. 3-D reconstruction of the jade earrings from Burial 1 (by Piotr Kołodziejczyk).

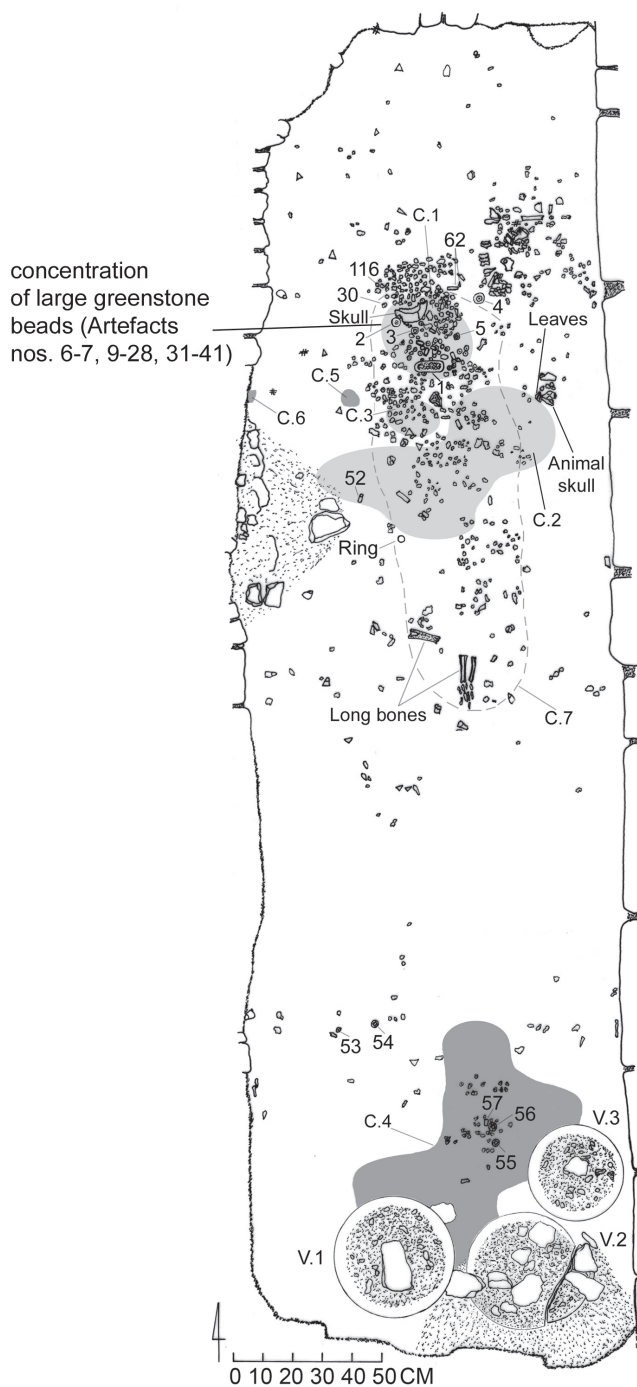


Figure 13. Plan of Burial 1 with location of the most important artefacts: 1) pectoral; 2-5) ear spools; C.7) skeleton area; V.1-V.3) ceramic vessels. Drawing by Wiesław Koszkuł and Jarosław Żrałka.

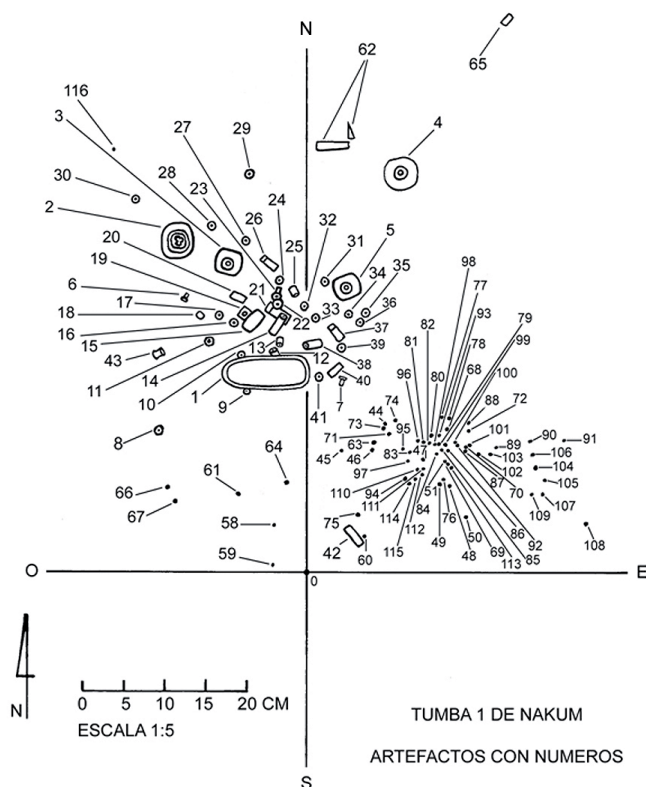


Figure 14. Drawing showing position of the jade beads inside the Burial 1 (upper part of the skeleton); 1) pectoral; 2-5) ear spools. Drawing by Wiesław Koszkuł.

apart from the already mentioned broken bead in the form of a 12 cm tube with a fragment of a bone drill found inside (Figure 15), contained two ceramic vessels. One of these vessels was ritually broken, analogically to the greenstone bead. The assemblage was dated to the Late Classic period based on the ceramic finds. The close proximity of Offering 3 to Burial 1 suggests that its deposition was directly connected with ancestor veneration and related rituals (Żrałka *et al.* 2008: 103, Fig. 30). In the north-western part of the eastern chamber, which adjoined Burial 1, another offering was discovered (Offering 12). It contained a cylindrical jade bead placed between two flat plates. Around these objects, the Maya arranged nine flint points and knives painted with a blue pigment (Żrałka *et al.* 2011: 900). Both the number and the colour have a symbolic meaning, as has been already mentioned in this paper. The Maya identified the number 9 with the levels of the Underworld, and the blue colour symbolised sacrifice (Schele and Freidel 1990; Houston *et al.* 2009).

The Southern Sector of Nakum yielded beads that represent the entire spectrum of forms used by the Maya in the Classic period. These are all simple forms which do not differ from those dated to Middle or Late Preclassic period or those known from other sites. The pectoral, whose history dates back to the Olmec period, clearly stands out among all the artefacts. It may contribute in the future to the reconstruction of political relationships between Maya centres from the territory of the Triangle Park and other sites in the Peten department.

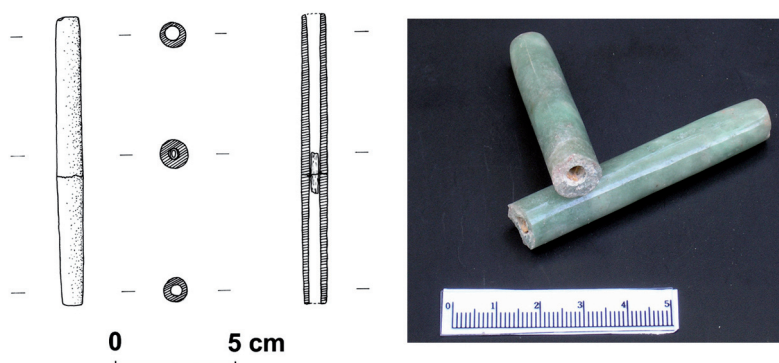


Figure 15. Greenstone tube found in Offering 3. Drawing by Katarzyna Radnicka, photograph by Jarosław Żrałka.

CONCLUSION

The greenstones of the Maya played a significant symbolic role due to their association with vital powers, which is why they were so often used in various rituals and ceremonies. Delving deeply into this question, one can notice a tendency to regard jade objects as heirlooms passed from generation to generation until at a given moment they were ritually destroyed or buried with a corpse as the ultimate proof of their affiliation to this person. The discovered artefacts made of the most precious varieties of greenstone might also have been elements of a dowry, as is shown by the jade head from Copan which bears an inscription linking it with another Maya centre, namely with Palenque. The artefact is believed to have belonged to the mother of Yax Pasaj, the sixteenth ruler of Copan, who came from Palenque (Wagner 2006).

An interesting group of finds are the jade masks discovered in a sepulchral context. It is argued that they were key elements in the funeral rites of the most powerful rulers, as they allowed for the visual transformation of the deceased into the Maize God and, consequently, their immortalisation (Martinez de Campo Lanz 2011). What is more, greenstones were regarded by the Maya as one of the most splendid and valuable materials, by virtue of their direct association with gods and deities. In rituals, jade artefacts were often accompanied by other cult objects which facilitated the processes of transformation or contact with supernatural forces. All these mentioned rituals were included within the same cycle of life initiated by birth, where death was only a gateway enabling humans to reach a state of regeneration and to begin the next life.

Analysis of jade artefacts, found during excavations in Nakum, confirms that local elites might have had access to its sources and participated in the trade and redistribution of this material. In total, the sample is composed of 196 Nakum greenstone artefacts, including tubular, spherical, semi-spherical beads, earrings and pectorals. In addition, we could suspect the existence of small workshops where jade jewellery was made. This may be corroborated by the finding of four pieces of semi-products of jade in the Northern Sector. Furthermore a stone with circular depressions was discovered in season 2012 (Figure 16). This may have served to polish jade beads. Similar artefacts have been discovered in Cancuen and Kaminaljuyu (Kovacevich 2012, 2013; Rusek *et al.* 2014).

Almost all of the artefacts made of greenstone found in Nakum come from places of ritual context and are related to the main buildings in the central part of the site. This allows us to link these findings to higher social classes of Maya. However, so far detailed studies of the periphery of Nakum have not been carried out and we do not know too much about the access of its inhabitants to jade and other

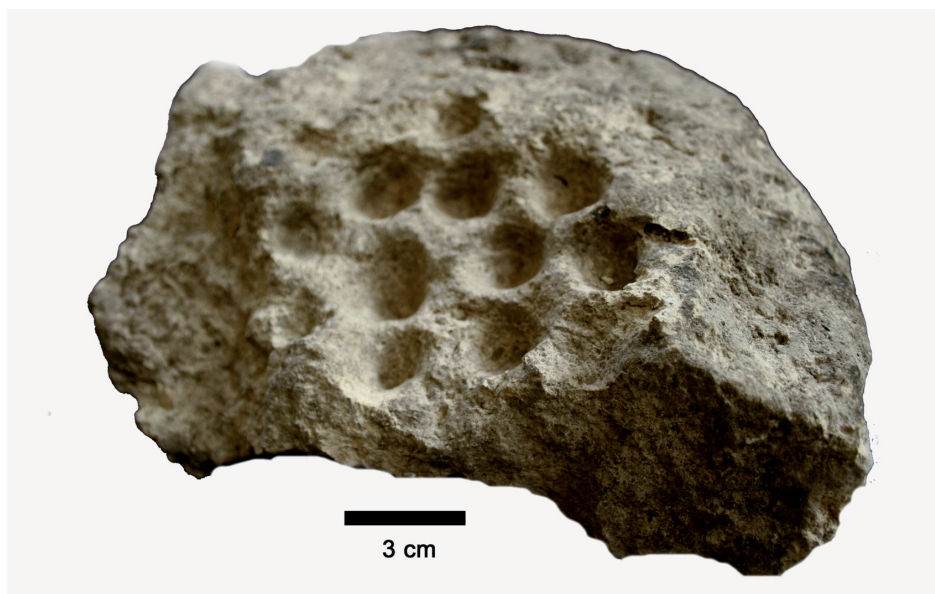


Figure 16. A possible limestone polisher used for greenstone artefacts. Nakum, Structure X. Photograph by Bogumił Pilarski.

precious materials. The results of excavations in other places (such as Dos Pilas or Copan), indicates that objects made of greenstones are also found in the context of the lower classes of Maya society (Kovacevich 2012, 2013).

Due to their symbolic but also material value, greenstones have been discovered in Maya cities in contexts connected with cult services or structures where people from the highest levels of the social ladder lived or performed their duties. An analysis of greenstone artefacts discovered during the investigation at Nakum seems to confirm the high position of the local elite who could afford such jewellery as sophisticated multi-string jade necklace. This is confirmed by rich grave gifts discovered in Burial 1, and two zoomorphic pendants in the form of monkey-heads from offering deposits found in Structure 99. Unfortunately, the collected material does not provide a sufficient basis to investigate the typological changes in the Maya preferences for the forms of beads and other jade objects that took place over the centuries. Future excavations may perhaps bring new discoveries of jade artefacts which will help to conduct such research.

Translated by Piotr Godlewski

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