

**SACRED LANDSCAPES AND SOCIAL MEMORY:
The Ñuiñe Inscriptions in the Ndaxagua Natural tunnel,
Tepelmeme, Oaxaca**

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INTRODUCTION

During July and August of 2004, members of the Ndaxagua project carried out an archaeological investigation at “El Puente Colosal” near Tepelmeme de Morelos, in the Coixtlahuaca basin of northwestern Oaxaca (Figure 1).¹ The goals of the project, as stated in the proposal were to:

- 1- Produce a topographic map of the natural tunnel to accurately determine its dimensions and to properly locate all the inscriptions painted on the walls.
- 2- Cleaning of the walls of the tunnel to enhance the documentation process and treating the paintings for their long-term preservation.
- 3- Photographic documentation of the inscriptions.
- 4- Conducting a surface survey of the ancient settlements at El Rosario and Cerro de la Escalera, in order to determine their size, configuration, and date of occupation.

Important changes to these goals were necessary as the personnel were being put together. Although three professional conservators were approached consecutively to carry out the second goal, none could commit to the project due to scheduling conflicts. It was then decided to implement the use of multi-spectral photography to document the paintings, bringing the expertise of Dr. Gene Ware, of Brigham Young University. The application of this technique made unnecessary the cleaning of the paintings to enhance their documentation. Eventually, one of the conservators who were initially approached made a brief visit to the tunnel and provided a general conservation assessment. This assessment, to be commented bellow, made it evident that the long term preservation of the paintings is a challenge of a greater magnitude than initially thought. While it was unfeasible to record all the paintings using multispectral photography because of time and logistical constraints, the thorough documentation of the inscribed legacy in the tunnel, both ancient and modern, was possible by complementing such a specialized approach with regular digital and analog photography.

Although the original plan called for the survey of the two archaeological sites reported in the 1984 edition of the INEGI maps for the region (1:50,000 topographic sheet E14D16), a targeted survey that relied on the knowledge of local inhabitants permitted a broader coverage and enabled the documentation of seven sites. Such

¹ The list of the personnel that became involved in the project appears in Appendix 1.

coverage also made it possible to better understand the geological processes that played a role in the formation of the tunnel.

A final important addition to the original proposal was the participation of a socio-cultural anthropologist who conducted several interviews with local people, mainly elders, about their perception of the tunnel and recollections about it that persist in the social memory of nearby communities.

THE SETTING

The reconnaissance of the valley of El Rosario allowed to assess certain aspects of the tunnel's geology. While its formation cannot be currently dated, and may extend back in time well before human populations appeared in Mesoamerica, the tunnel must have been inextricably related to at least two springs that surface on the Ndaxagua and the Coscomate hills, prominences located some 4 km west of the tunnel (Figure 2). In antiquity, the water from these springs gently meandered in an easterly direction through the alluvial bottom of the valley, carving in its path a shallow channel. This channel, however, becomes increasingly deeper as it leaves the valley, cutting through Cretaceous limestone and eventually leading to the natural tunnel. It is doubtful that the formation of the channel and the tunnel was singly due to the action of the water from the springs. Since the valley lies enclosed by two ranges of hills, the channel drains the rainfall water coming down from higher elevations. The type of erosion evident along the entire bed of the channel, characterized by pebbly gravel and large boulders with rounded and smooth surfaces, strongly suggests that in former times the stream passing through the channel carried from time to time large volumes of water. This must have been the case during heavy downpours in rainy seasons. The formation of the tunnel and the carried debris still evident in it strongly suggest that in the past, the valley and the region may have experienced a different, more intense, pluvial regime. Rincón (1999: 239-240) has summarized other evidence from soil's formation that suggest more humid and wetter conditions during the Late Formative and Early Classic times in the region. According to people leaving in El Rosario today, no water has flown in the channel of the Ndaxagua in the last five years.

Early in the 20th century, a hydraulic project sponsored by the Mexican Federal government tapped both springs to divert their water supply to the modern settlements of El Rosario, Puerto Mixteco, and Tepelmeme. Thus, the spring water now runs west through a system of pipes rather than through the easterly channel that leads to the tunnel. This engineering enterprise also modified the formation processes of the tunnel, which in turn must have lead to changes to other micro environmental variables within the tunnel. Some of these changes will be considered when addressing the assessment of the conditions of the paintings.

MAPPING OF THE TUNNEL

The elaboration of a topographic map of the tunnel was accomplished by means of a total station and an infrared beam to mark points on the ceiling and take coordinate readings. A total of 2,032 points enabled us to determine its key metric features, including its overall form, course, length, width, inclination, and height (Figures 3 and 4). The dried streambed and the tunnel formed by the once flowing water generally run from West to East, with an almost 90 degree bent along two thirds of the tunnel's path. The curved path of the tunnel is 250 (750 feet) meters in length with variably widths ranging between 93 and 18 meters (305 and 59 feet). The incline of the streambed has a dramatic drop between the western and eastern ends of nearly 60 meters (196 feet). The ceiling of the tunnel also evinces an inclination through its entire length, with elevations at the western opening of some 40 meters (120 feet) and on the eastern end of 70 meters (210 feet).

The meandering course of the stream within the tunnel generated distinctive erosional and depositional features. At the point where the stream enters the tunnel, the metamorphic core of the southwestern end forced the current to bounce to the opposite wall, gauging that area and depositing materials on the northern side. The substantial buildup on the northwestern end is also the result of major collapses of wall portions and, to a minor extent, from water dripping. Here, the depositions caused by the drippings created a shelved mass on top of which jointed stalactites and stalagmites form a series of small pools. The filtration of water on the northwestern sector of the tunnel also extended to the apex of the ceiling, with the concomitant formation of conglomerated

stalactites. Although the slow but relentless drippings from these formations have not led to major buildups below, the boulders on the surface of the tunnel exhibit a distinctive thin layering of calcareous depositions. While unaffected boulders in the vicinity have smooth rounded surfaces, those with the calcareous depositions have a roughed texture resembling very coarse sandpaper capable of causing skin lacerations. Occasionally, we felt drops of water falling from these stalactites while working in the western end of the tunnel.

Towards the middle of the tunnel, the streambed runs along the northern wall. On the opposite side, there is a major buildup of material. Most of this buildup is the result of a massive collapse from the south wall. The streambed eventually turns again and runs closer to the southeastern end of the tunnel, leaving depositional terraces of fine sand on the opposite side. On the eastern opening of the tunnel there is evidence of water dripping along the south wall, with the concomitant formation of abutting branch-like accumulations of mineral deposits. The filtration of water encompasses the ceiling as well, and has led to the formation of short conglomerate stalactites. We also felt occasional drops falling from these formations.

EXPLORATION OF THE TUNNEL

The tunnel was reconnoitered to search for features, collect surface cultural materials, and assess the process that led to their accumulation. To maintain spatial control, the tunnel was divided into 8 sectors by defining a midline along its course and then—accordingly—dividing it perpendicularly (Figure 5). Human made terraces were detected in sector 1 of the tunnel, where artificial walls composed with small rocks stand to level small areas amidst large boulders (Figure 6). Some 800 ceramic fragments were collected from all sectors of the tunnel, including pieces of rims, bases, decorated bodies, and special forms. Although the aim was not to do an exhaustive pickup and the emphasis on vessel shape and treatment diagnostics implies selectivity, the general impression was that more material occurred in the four sectors encompassing both openings of the tunnel (sectors 1-2 and 7-8). Contrary to the initial expectation that the shards in the tunnel resulted from water transport and erosional process from nearby archaeological sites, most of the ceramic fragments were in a remarkable state of

preservation. Those that were in poor condition were not eroded but covered by calcareous depositions that originally resulted from the water dripping in both ends of the tunnel.

The ceramic wares represented in the surface collections include fine, medium, and coarse pastes. Fine pastes have creamy, light brown, and gray colors. Coarse pastes were predominantly brown in color. Most of the material appears to date to the Classic period, although certain ceramic types date to Postclassic times. The range of Classic period vessel shapes appears to be reduced, consisting of serving flat-bottomed shallow bowls, necked jars with several types of vertical handles, ladles, and comales (Figure 7). One type of serving bowl is characteristic because of its surface treatment, which includes a buff colored slip burnished with a stick on both surface, and then enhanced on the interior with diverse motifs painted in red. Another conspicuous form is a long and straight gray jar with everted rim similar to the so-called “floreros”. Postclassic ceramic materials from the tunnel include bottom stamped bowls painted with negative resist black paint on the exterior surfaces. Crossties of the ceramic materials recovered from the tunnel with those collected from several sites nearby, as well as their implications regarding relative dating and interregional interaction, will be commented in the concluding remarks.

Sector 1 in the tunnel also yielded three thick fragments of unfired mud with traces of plants and their imprints on one side (Figure 8). The lines of evidence provided by the artificial terraces, the ceramic fragments, and the pieces of mud with plant imprints suggest that areas near the openings to the tunnel were used in the past to conduct certain activities, including preparation and consumption of food, and the construction of one or several abodes built with wattle and daub over artificial terraces. Corncobs were also collected, mostly in sectors 1 and 2. Some of them are complete but have smaller sizes than those cultivated today in the valley of El Rosario. It is unlikely that these small cobs are early versions of domesticated maize; for one thing they are not carbonized, which would have enhanced their long-term preservation. Although the cobs have not been identified yet in terms of their variety, Rincón (1999: 241-243) reports the cultivation in the region today of a variety of maize locally known as “cajete” (bowl maize), a brand that is adapted to thrive in gorges and that can be eaten before the plant is fully mature,

when the corn is young and tender. Perhaps the smaller sizes of the cobs found in the tunnel may reflect the consumption of immature corn. Yet, it has also been reported how environmental constraints in areas of the southern portion of the State of Puebla, some 35 km north of El Rosario, have yielded in modern times crops of “dwarf corncobs” (Cook de Leonard 1952:424). Until the recovered cobs are dated, one may assume that they could have been deposited in the tunnel in relatively recent times, either for consumption or, as will be commented below, to be placed as offerings.

The survey of the tunnel also yielded other types of cultural materials (Figure 9). The surface of the ledge with the pools on the northwestern end of the tunnel, and of other flat surfaces immediately below them, were strewn with tiny turquoise and shell tesserae, small jade and coral beads, small and solid semi-cylindrical fragments of a black, non-lustrous unidentified material, fragments of yellow to orange colored copal, pieces of obsidian blades, the tip of a bone awl, the skeletal remains of small rodents, and several spherical unidentified seeds with white corrugated surfaces. The bones of rodents and the white seeds appear to be natural intrusions, but the other types of materials like the tesserae and the black semi-cylindrical fragments indicate the former presence of wooden objects decorated with mosaic work. The possibility that some of the decorated objects were actually representations of human faces is reinforced by the still extant memories of two local inhabitants who recall the finding of “wooden masks” (see section on ethnographic survey). Such type of objects, together with the beads, the remnants of obsidian blades, the copal fragments, and perhaps the corncobs, may be indicative of the enactment of penitential rituals and the placement of offerings in the overall area of the pools.

SURVEYS OUTSIDE THE TUNNEL

The roughed topography that characterize the landscape that bounds the small valley of El Rosario called for a survey strategy aimed at brief visits to sites with evidence of past occupation in order to collect small grab samples of surface materials. With one exception, the dense vegetation covering the surveyed sites did not allow to make maps of their natural and artificial features. The targeted reconnaissance relied on the knowledge of local inhabitants, which made it possible to visit seven of the ten

locales that were pointed out to us. Small amounts of ceramic materials were collected and notes were taken regarding the presence of other cultural materials and features (Figures 10 and 11).

Site on Cerro del Paredón

Albeit impressionistic, the largest site seen was the one atop Cerro Paredón, which extends over a flattened area in the summit of the hill. The site appears to be the remnants of a small community, perhaps some 30 to 40 households, whose domestic structures were built on rectangular platforms of variable height laid out in a compacted ‘mosaic’ configuration. Although not in a primary context, several instances of stone disks from composite columns were noted on the ground or integrated into the walls of the platforms. Numerous artificial terraces are evident on the western hillside, from where the site was approached. Yet, no ceramic materials were seen in these terraces. The lack of ceramics there suggests that the terraces were probably used for agricultural purposes.

Site atop Cerro Ndaxagua

This is a smaller site perhaps consisting of some 20 households. At the summit of the hill there are the mounded remnants of an elite house, and the top of the hillsides—particularly the one on the western slope, is terraced. The circular opening of an underground pit, known locally as “sótano”, was recorded. The site appears to extend discontinuously all the way to the bottom of the hillside. At the base of the eastern slope, the stone vault of a small tomb was seen sticking out from the surface.

Dispersed occupation on the western slope of Cerro Coscomate

This slope of Cerro Coscomate is currently used as the corral for goats of one of the residents at El Rosario. Although no evidence of terraces or architectural features was visible, there was a high concentration of shards on the surface. The members of the family living today in this area mentioned having occasionally found ancient human burials accompanied by vessel offerings.

Dispersed occupation on the southern slope of Cerro Coscomate

A small discrete concentration of cultural materials and traces of retaining walls that mark residential terraces or retaining features for agricultural purposes are present on the southern slope of the hill, adjacent to the dirt road that passes through El Rosario and eventually leads to the tunnel. A handful of structures pertaining to one or two households may be represented at the site.

Site sprawling over Loma del Coyote

This site probably included a dozen households that were established on the slopes of a low-lying hill. There is evidence of retaining walls that define terraces, the surface traces of an elite residence --including the stone disk of a composite column--, and the existence of *sótanos*.

Site in the western slope of Cerro de la Escalera

This site probably consisted of a handful of structures pertaining to two or three households. The site includes a circular feature with an encircling low wall of medium size boulders and a flag stone floor. Identical features that exhibit different construction techniques are still used today by local inhabitants to thresh wheat by enclosing bovines, who step on top of the wheat grasses. These features are locally known as “eras”. The few shards that were collected from the site are quite different in paste from the ceramics that come from the other sites. The distinction is also evident by their relatively small size and lack of decoration, although such differences are most likely due to erosion caused by flocks of domestic animals. The site may well be the remnants of a colonial or even more recent but now abandoned occupation.

The palace complex on the eastern slope of Cerro de la Escalera

Although evidently part of a larger settlement, the still standing architectural palace complex on the southeastern slope of Cerro de la Escalera was the focus of our attention in this locale. The building consists of two structures seemingly related by a relatively flat open space dotted with a few outcropping boulders (Figure 12). The southern structure is larger than the northern one, and they have slightly different

orientations. We mapped the entire architectural complex and made two ceramic collections, one from around the structures and another inside a looters hole excavated under the supporting platform of the southern complex. Both complexes were built by abutting their supporting platforms against the slope of the hillside. The construction technique in both buildings is veneer architecture with nicely cut blocks facing both sides of the walls and with a core of a mixture of small stones and lime (Figure 13). The blocks vary in size, and the exterior face of the walls had large recessed panels. The two rooms from the southern complex that still have standing walls evince the construction of interior small niches. The south room has, in addition, several peculiar features, including a vaulted opening that passes under the southernmost wall near its western terminus, an opening close to the center that spans the entire wall and leads to an oval or circular chamber that may have been domed, and a row of well cut stones placed against the eastern wall. The latter feature resembles a bench, but the relative height of the niches clearly indicates that the entire palace complex has a thick depositional layer of some 50 or 60 cm above the plastered floor. Thus, the row of stones on the eastern wall is most likely a retaining feature that may have been added later to prevent the original wall from collapsing.

Figure 10 plots other sites that we were unable to visit but that are known by local peoples to have shards and terraces. These include the site of El Zapote, perched atop the Cerro Tequelite to the northeast of the tunnel, a site on a separate slope immediately south of the palace complex, a settlement at the summit of Cerro Colorado, west of the modern community of Tepelmeme, and an occupation in Cerro Tepelmeme. People from Tepelmeme claim that the nearby hill was the original location of the community. The distribution of sites shown in Figure 10 suggests that the cluster of occupations in the Cerro Ndaxagua, Coscomate, and Loma del Coyote may have constituted a single community with dispersed households. The same can be said of the clusters in Cerro del Paredón and of the two locales on the eastern side of Cerro de la Escalera. The 1984 edition of the INEGI topographic sheets for Tepelmeme de Morelos and its environs mark the location of two additional sites, labeled in Figure 10 as sites 1 through 3. The former appears to be a mistake and most likely refers to the cluster of sites in and around the modern community of El Rosario. The existence of sites 2 and 3 could not be

confirmed. With the exception of the settlements at El Rosario and of the natural tunnel, none of the sites mentioned above appear in the archaeological map elaborated by Rincón (1999: 6, fig. 6).

PHOTOGRAPHIC DOCUMENTATION OF THE TUNNEL'S PAINTINGS

Before the photographic documentation began, the walls of the tunnel were thoroughly surveyed to detect the presence of paintings. Six discrete sectors were identified and labeled according to their cardinal context within the tunnel (Figures 14 and 15). Five of these sectors are situated near the openings, and it is evident that the paintings executed there relied on the availability of natural light. The paintings done in the north central sector, located in a more interior part of the tunnel, may have required in antiquity the use of artificial light, although some natural light illuminates the sector for a brief span in the summer time and towards the early evening. While the three sectors with paintings on the western half of the tunnel have been spared from the superposition of recent graffiti, those on the eastern sector have been more vulnerable. Some areas in this eastern sector have been almost completely covered by modern inscribing practices. The reason for such differential condition is the result of various factors. Most of the paintings on the southwest sector, which are readily evident as one approaches the tunnel, are very high on the wall and out of reach. Given the erosion processes in the tunnel discussed in a previous section, it is evident that in that sector the level of the streambed has dropped substantially due to water transport since the paintings were executed.

The relative effort needed to climb and reach the northwest sector, where the pools are located, may account for the lack of palimpsest there. The darker condition of the north central sector may discourage today the writing of legends over the pre-Hispanic paintings, many of which show multiple, superimposed, episodes.

To efficiently direct the effort of the multi-spectral documentation, we selected areas within sectors that exhibit superimposed ancient and modern inscriptions and that did not pose major logistical problems to set up the equipment. Most of the northeastern sector (interior) was recorded with the multi-spectral technique, and a panel in this sector required the construction of a scaffold. Another painted panel within the southeastern sector, at ground level, was also recorded with multi-spectral photography.

In addition to multi-spectral documentation, all the painted sectors were recorded by means of digital and analog photography, relying on natural light when possible or by casting artificial light at night. The use of lamps was the only way to document the entire north central sector, and scaffolding permitted taking photographs and making sketches of painted inscriptions on two panels in the southeast sector. The process of generating line drawings for epigraphic analysis is still underway, but Figures 17 through 25 provides those that have been completed thus far.

Although the modern inscriptions endanger the pre Hispanic paintings, it is evident that modern alphabetic legends are in themselves an anthropological phenomenon worth investigating. Thus, all the inscribed layers were documented (Figure 26). Alphabetic inscriptions consist mostly of “recuerdos” written to memorialize the presence of visitors, and they typically include the date of the visit, the names of the visitors, and sometimes their place of origin. Several of the names can be linked, directly or indirectly, to the community of Tepelmeme. But people from different parts of Mexico have also left their mark. Only one example of a foreign place of origin was detected, namely Houston Texas, but the visitor could have been a migrant from Tepelmeme who came back to his native community for a brief visit. Other categories of alphabetic inscriptions include names of couples in love accompanied by iconic representations of hearts, and—in one instance- the allusion to two professional soccer teams (America and Pumas). Our presence in the tunnel resulted as well in a new inscription that took a political turn and boasted local identities. Several visitors descended into the tunnel in mid August and one individual painted a legend that states: “Malditos gringos este territorio es nuestro” (Damn Gringos, this territory is ours).

ASSESSMENT OF THE PRESENT CONDITION OF THE PAINTINGS

The problem of the long-term preservation of the paintings needs to take into account human induced changes and natural factors. Of the former, the painting of alphabetic legends and imagery is the most striking. Paradoxically, tackling it from two directions can solve this aspect of the problem. One is to promote the cease of painting episodes, at least on sectors that have pre-Hispanic paintings, a task that can start by educational campaigns among local and non-local visitors. The other would be to have a

task force in charge of reinforcing strict rules of compliance among visitors to the tunnel. If desired, a cleaning program to remove existing modern inscriptions could be implemented contingent on the availability of funds. The recent inscriptions have been executed with a variety of substances, including charcoal (from wooden sticks burned in ad hoc fire pits), chalk, and oiled based paint. The metamorphic rock that forms the walls and the boulders in the tunnel has a hard, relatively smooth and non-porous surface. Thus, these different kinds of substances can be removed with diverse methods. Charcoal can be easily removed with erasers, and chalk comes off with water. Oil based paint can be dissolved with thinners.

The natural factors are the ones posing more challenging problems. One is their relentlessness. The other is the sheer size of the tunnel. The micro-environmental conditions through time and their changes have lead, among other things, to the formation of salts in the rocks that form the walls of the tunnels. The salts exuding from the rock are flaking off some of the paintings. In addition, the filtrations of water in certain sectors of the tunnel has laid thin calcareous depositions that in some cases promoted the fixing of pigments but in others has covered or is covering and obscuring some of the paintings. Microorganisms, including fungi, seemingly conceal some of the paintings. The renderings so affected could be cleaned and stabilized, but these treatments will be only temporal remedies. The strong winds funneling through both entrances and changes in temperature through the day and the seasons, make it difficult to implement regulatory controls. The colossal size of the natural tunnel and the complexity of the environmental factors at play render impractical any attempt to curtail the dripping of water or to maintain stable environmental conditions.

ETHNOGRAPHIC INQUIRIES CONCERNING THE TUNNEL

A series of interviews with local people from the communities of El Rosario, Puerto Mixteco, and Tepelmeme were conducted in order to elicit the role that the tunnel plays in the imagination and social memory of the inhabitants. Twenty-four people were interviewed, their ages ranging between 20 and 95 years old. The majority, however, were individuals between 60 and 95 years of age. Most striking of these conversations is that, invariably, people do not perceive the tunnel as something important, but simply as

a “hole in the ground that is difficult to visit”. While elders opine that it was created by god, younger generations recount that the tunnel is a natural geological formation. This version is undoubtedly related to the impact that teachers have had in the local communities. It is the teachers who most often visit the tunnel through school trips with elementary and high school classes. Thus, the production of alphabetic legends is in large part the result of those visits. It is the perception of the tunnel as a magnificent natural formation that has increasingly play a role in the relations between it and the local people. In 1994, the community decided to extend an existing dirt road that linked Puerto Mixteco with El Rosario. The extension followed the channel of the Ndaxagua stream to about 2 km from the natural tunnel. Between 2001 and 2004, in a collaborative project with the SEMARNAT (Secretaría del Medio Ambiente y Recursos Naturales) and with the assistance of the World Bank and the “Proyecto de la Biosfera Tehuacan-Cuicatlan”, the community of Tepelmeme embarked on a program of eco-tourism that capitalizes on the tunnel as one of several major natural attractions. A tourist’s camp, a facility used by the Ndaxagua project, was finished during our stay as the needed infrastructure for such a program. Hikes to the tunnel are part of the envisioned route for the visitors.

Most of the people that were formally interviewed or with whom we chatted during the course of our work are aware of the existence of paintings in the tunnel. Their interpretation of them varies. One person mentioned that the paintings depict shields that signal territorial disputes between ancient neighboring communities. Others alluded to the painting of a “man that is shown urinating blood”, drawings of “jars with flowers”, “the face of a saint, perhaps San Francisco or Santo Domingo”, or to “dots or rendering of beans as counts of the years”. Some of the interviewed people remembered finding buried green and blue beads that were thought to be part of necklaces and bracelets, as well as jars, bowls, “idols”, and stone and wooden masks. The latter are said to have been burned because they were thought to be the work of the devil.

Teresa Jiménez Bautista, a 64 year old woman, mentioned that the floor in the tunnel used to be higher and that with time the lowering of the surface by running waters has left some of the paintings too far up to be reached. After having been in the tunnel two or three times in the recent past, she also remembered that when she was a child more paintings were readily visible. Antonia Javier Meza, a woman 95 years old who

speaks Nahuatl and Spanish, commented that during the revolution (1910-1928) some people sought refuge in the natural tunnel to escape the atrocities of soldiers. Rafael Morales López, a man 75 years old, recounted the story of an American who studied the paintings of the tunnel in the 1970's. Although the name of this American escaped his memory, there are reasons to assume that the presence of Ross Parmenter in the 1960's still lingers in the memories of some of those who met him. It is known that local people gave Parmenter a finely incised feline femur that presumably was found in the western access to the tunnel (Rincón 1995: 59 and fig. 21; see also Figure 27).

PRELIMINARY CONCLUSIONS

The Ndaxagua project led to a more thorough documentation of the painted record in the natural tunnel, and this report includes several examples that were not previously documented or published. The tunnel was the setting for multiple episodes of painting during pre Hispanic times. Striking differences in representational styles strongly suggest that their execution was discontinuous (Figure 27). Following the opinion of Rincón (1995: 43 and 1999: 236), there are a series of signs--some of them seemingly referencing plants and humans--, which appear to be early and may have been done prior to the inception of an agricultural economy in the region. This style of painting is restricted to the southwest sector and is characterized by schematic icons. There is one painted glyph in the North central sector that may date to circa 100 and 300 ACE. It is the rendition of a human face in profile with the main sign of its calendrical name worn as a headdress. Another, more intense production of paintings that accounts for the great majority of the documented imagery can be securely dated between the 4th and 9th centuries ACE. The painting conventions display a wide range of variation, but they exhibit much affiliation with the Ñuiñe script of the Mixteca Baja. The archaeological evidence from this region consistently places Ñuiñe style inscriptions between 300 and 800 A.C.E. ((Matadamas 1997, Paddock 1966 and 1990, Rivera 1999, Winter 1994). The fact that many of the Ñuiñe inscriptions are superimposed with one another poses interpretative difficulties in determining syntagmatic relations. It also presents us with a series of semiological processes that could account for their production, including no semantic relationship between different episodes (a palimpsest proper); a relationship

intended to add to a previous message, or an over painting intended to nullify a previous meaning. So far only two obvious narrative scenes have been detected, one in the Southwestern sector and the other in the Northeastern sector (Figures 17 and 22).

Many of the Ñuiñe inscriptions include glyphs accompanied by numbers. In total, 25 or 26 sign with coefficients were documented. The lack of any instance of the known versions of the Ñuiñe year glyph strongly suggests that these glyphs have nominative function, referencing the names of individuals according to the day in which were born. Although those names are indexical to the regional calendrical system, they do not signal chronological properties. All the calendrical names can be identified in terms of their constituent elements and of their position in the 20-day list of the calendar (Figure 28). One important datum is the occurrence of the calendrical name 10 Skull (Figure 22). Until now, the Ñuiñe sign for the 6th position had been much debated, but the example painted in the tunnel makes it clear that the regional convention to render that day name followed those from neighboring or distant yet coeval scripts like the Cotzumalhuapa, Zapotec and Xochicalco traditions, or later but local or far away developments, like the Mixtec and Aztec scripts. The tunnel also yielded another day name position in the list so far unaccounted for in the inscriptions from the Mixteca Baja, namely the pictograph of a personified flint knife (with mouth and eye) that, on the basis of macro-regional comparisons, seemingly occupies the 18th position. The day-name positions not represented in the record from the natural tunnel include those for “Deer”, “Rabbit”, “Water”, “Knot”, “Monkey”, “Maize”, “Earthquake”, and “Lord”. Glyphs for “Deer”, “Water” (Figures 19 and 20), “Monkey”, and “Earthquake”, however, do occur in the tunnel but not accompanied by coefficients.

If the signs accompanied by numerals painted in the tunnel are interpreted as names of individuals, it can also be argued that several epigraphic clusters may be genealogical records². Three of these clusters involve triads of names, and may be linear reckonings encompassing three generations (Figure 29). Yet, the diverse syntagmatic relations between the constituent signs do not follow a pattern that would enable establishing with certainty the genealogical sequences. The linear arrangement of the

² This interpretative position of assuming that the inscribed record in the tunnel refers to mortals, their relations, and/or certain events in their lives differs from the one taken by Rincón (1995 and 1999) who reads four of the epigraphic clusters in terms of dates and deities.

first cluster shown in Figure 29, the direction of its profiled glyphs and footprints, and the pictographic rendition of a deceased individual shown in horizontal position with its body wrapped as a mummy bundle, allow making the inference that the sequence goes from 10 Owl (the remote ancestor) to 1 Grass (ego). The size differences of the glyphs in the second triad may signal that the larger glyph is the name of the apical ancestor. If so, the sequence could also proceed from left to right. This same order may apply to the third triad. The narrative rendered in the Northeastern sector (inside) has several syntagmatic properties that suggest paired relationships. If one assumes that the human figures are each identified by its calendrical name, then the skeletonized personage would be identified as 10 Skull, and the seated woman behind as 10 Serpent. The line linking her with the name 10 Skull may signal a marital relation. A clear break with the rest of the composition in the cluster is evident by the rendering of the human face in profile looking in the opposite direction painted behind the woman. Subsequent pairings of glyphs are suggested by their spatial contiguity, yielding a total of four couplets in the narrative. The facing direction of the first couple towards the interior of the tunnel and the eschatological connotations of death and resurrection signaled by the first figure (skeleton-heart) imply that they are already deceased apical ancestors. The facing direction away from the tunnel of the other three couples of names may have meant that the members of those three generations were still alive when the genealogy was recorded. An implication of the reasoning glossed in Figure 29 is that the nominal identities of those who actually painted the inscriptions or commissioned them are known, including four individuals whose names were 1 Grass, 5 Alligator, 10 Owl, and 1 Alligator/10 Eye. Although the name 10 Owl appears in two of the genealogical records and its relative position could lead to their "joining" to form a longer sequence, there is no solid evidence to follow this interpretative line, leaving us with at least four statements of intergenerational relations which may or may not have been related to one another. With the exception of a single paired sequence of calendrical names in one of the epigraphic clusters from the Southeast sector (names 5 Serpent and 5 House in Figure 24)-- a couplet that could register a short genealogy or a cohort couple--, the rest of the presumed nominal glyphs painted in the tunnel appear isolated.

Some painted motifs, particularly stenciled hands and dots applied by spitting the pigments with or without the aid of blowguns, appear to be coeval or to postdate the Ñuiñe style paintings (Figures 18 and 19). Most instances of stenciled hands in the tunnel appear in pairs and show them with “interlocking” digits. This implies that in each painting event at least two individuals were involved; one placing both hands against the wall while the other applied the pigment. Similar renderings of hands appear to be quite widespread in Mesoamerica, although not necessarily stenciled, paired, and/or with an interlocking position (Figure 30). Specific cases have been reported from two nearby locations: the “Cueva de los Músicos” in San Luis Atolotitlan, and on a limestone cliff below the site of La Socoya (Rincón 1999: 230-243, and fig. 50); from a cave at Peña Matías, Yautepec, Oaxaca (Bustamante 1997: 48 and 55), at Gie Ngola, Oaxaca (also near a cave) (Zárate 1997: 37-38), and even further away at localities like Cuautochco Veracruz (Ruiz Gordillo 1989: 7, fig. 8), Lake Petha in northeastern Chiapas (Maler 1901; Wonham 1985: 13 and 15), and an unspecified cave in Belize (Roberts 2004: 51). Most of these contexts involve caves or bodies of water, suggesting that the theme of stenciled hands may be marks of “presence” and allusions to fertility (agricultural and/or human) petitions.

There is tantalizing evidence that few of the paintings in the tunnel were executed between the 10th and the 13th centuries ACE (Figure 25). One glyph in particular is the use of the image of an alligator’s head with open jaws to signify “earth” or “cave”. This visual trope however, with clear stylistic antecedents in an earlier inscription painted in the tunnel and well known in the 13th to 15th centuries Mixteca-Puebla tradition, differs by the orientation of the sign and by its syntagmatic relation with the pictograph of an arrow (Figure 31). Another glyph, rendering the profile head of a serpent with a canopy of feathers, may also date to the early Postclassic. Visits to the tunnel after the 13th century may be evinced by the remnants of wooden objects with mosaic decoration that were seemingly deposited as offerings in the area of the pools (northwestern end of the tunnel). In this context it is relevant to mention the incised feline femur reported by Parmenter (1987). This bone contains imagery following the conventions of the Mixteca-Puebla style.

Although the analysis of the collected ceramic samples is still in process, internal cross-ties allow drawing a tentative relative chronology between the sites and the use of the tunnel (Figure 32). The occurrence of the distinctive red on buff ceramics in the tunnel, at Cerro Paredón, Cerro Ndaxagua, the hillsides of Cerro Coscomate, Loma del Coyote and at the palace complex on the eastern slope of Cerro de la Escalera, indicates that all these settlements have a coeval component. It should be noted that the red on buff found in the palace complex on Cerro de la Escalera comes from the samples collected from inside the supporting platform (in the looters hole), as well as from around the building. The first context suggests that the palace postdates the period when red on buff ceramics was produced (the shards of the same ware found on the surface around the palace are assumed to come from the construction fill of the collapsed parts of the buildings).

The ubiquitous red on buff ceramics bears a resemblance to the ware now commonly referred to as “Coyotlatelco” (Tozzer 1921; Armillas 1950; Sejourne 1959 and 1966; Rattray 1966). A notable difference in this regional cross-tie is the fact that the red on cream vessel-forms in the area of Tepelmeme are seemingly confined to shallow hemispherical bowls, while the “Coyotlatelco” ceramic complex from the Central Highlands includes a wide variety of ceramics forms. Pending the review of the ceramic periodizations from other neighboring regions and the comparative study of the wares, it seems possible that the production of red on buff ceramics in northwestern Oaxaca was a phenomenon dating approximately between the 6th and 9th centuries ACE. If so, settlement in and around the valley of El Rosario was by no means sparse, and people from at least six of the visited locales could have been among those who produced the Ñuiñe style paintings in the tunnel. During this time span the settlement atop de Cerro Paredón was the largest and closer to the tunnel.

The ceramic and epigraphic data from the Ndaxagua natural tunnel and nearby sites supports Rincón’s assessment that:

Peoples of the Basin were interacting and receiving information from two distinct areas. While the southern end of the Coixtlahuaca Basin seems to have been more related to the Mixteca Alta, the north [where the valley of el Rosario and the tunnel are located] seems to have been

influenced by cultural developments in the Mixteca Baja, the Tehuacan Valley, Teotihuacan, and Monte Alban in the valley of Oaxaca (1999: 249).

Yet, it is important to emphasize that the Classic period ceramic assemblages from the Mixteca Baja and the Ndaxagua natural tunnel appear to be quite distinct. In general, the presumed Classic period ceramics from the tunnel and nearby sites appear to exhibit some marked differences with the Ñuiñe phase assemblage known from Cerro de las Minas (Winter 1994: 207), where the red on buff ceramics are seemingly not present, nor the long and straight necked gray jars with everted rims, or the comales without a deep groove or a ring at the angle of the base.

It may well be that some of the settlements in and around the Valley of El Rosario continued being occupied after the 9th century ACE, but the later construction of an impressive and wealthy palace in the Cerro de la Escalera suggests a concentration of economic and political power there and a shift in the local settlement hierarchy from the site at Cerro del Paredón to that on the Cerro de la Escalera. Although Rincón (1999: 305 and fig. 75) dates the construction of the palace to the Classic period without providing the evidence to support such a chronological placement, its Postclassic dating is suggested by the ceramic evidence commented above, by the veneer type of construction, and by the fact that approximately half of it is still extant.

It is tempting to interpret the artificial terraces in the Ndaxagua tunnel, together with the evidence of wattle and daub constructions and of dwarf corncobs, as evidence of occupation during the revolution in 1910, when according to one of the interviewees, the tunnel was taken as a refuge. Although one may expect evidence of modern ceramics or of metals to substantiate this claim, it is equally probable that the refugees fled with light possessions and resorted to locally available resources.

The contemporary way in which the tunnel is perceived differs dramatically from the documented uses of the tunnel in ancient times. Both the epigraphic evidence and the remnants of material culture left in the tunnel strongly imply that the locale was charged with sacred connotations and that it was construed as a portal to the underworld. The convergence of a cave-like feature, the presence of water in the stream and the pools, and the winds blowing through the entrances rendered it particularly important during Late

Classic times, when paintings with eschatological themes of death, resurrection, sacrifice, renewal, apical ancestors and genealogical continuity were rendered on the walls, and later during Late Post-Classic times, when penitential rituals were enacted and offerings were deposited to petition for divine favors.

In sharp contrast to the way local inhabitants perceive the tunnel nowadays is the reconfiguration in people's minds of the ancient palace atop the Cerro de la Escalera. Although the site is referred to as "la Iglesia" (the church), this ancient local has now been appropriated to house a small shrine in honor of Santo Domingo, the patron saint of Tepelmeme. A fair number of people from the community and its surrounding settlements climb the hill once a year, on August 8, to celebrate mass and refurbish the shrine. Those visits are intended to memorialize the saint's miraculous apparition at that spot. According to local accounts the saint appeared embodied in a wooden sculpture, and the image was removed from the site and placed in the church at Tepelmeme.

DISSEMINATION OF RESULTS

Some of the preliminary results of the Ndaxagua project have been synthesized and submitted for their publication on the "News" section of the journal *Mexicon*. Date of publication is still unknown. A synthesis in Spanish of this report was recently submitted to the journal "Arqueología Mexicana". Date of publication is also unknown. The Spanish translation of this report will be hand-delivered to the authorities and other members of the community of Tepelmeme in early January. Epigraphic data from the tunnel and their implications for better understanding the Ñuiñe script and its macro-social dimensions have already been presented in two venues, including a presentation entitled "Ñuiñe writing of the Mixteca Baja: New Data, Old Problems" for the Mesoamerican weekend "Picturing the New World", organized by William Fash at Harvard's Peabody Museum (October 2, 2004), and an invited lecture on "Ñuiñe: An Undeciphered Script from Southwestern Mesoamerica" delivered at the University of South Carolina on November 5, 2004.

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Appendix 1 Ndaxagua Project personnel



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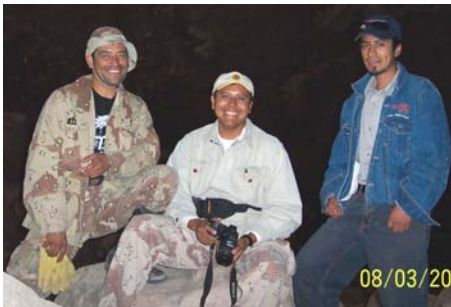
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Vidal Jiménez
Topografía Eptop



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Escuela de Conservación Churubusco

Melisa Santoyo	Documentation of paintings, surveys, ceramic analysis.
Jocelyn Knowles	Documentation of paintings, surveys, ceramic analysis.
Alejandro Serrano	Logistical support.
Paola Vera	Interviews with people from El Rosario, Puerto Mixteco, and Tepelmeme.
Judith Jiménez	Alternate cook.
Gene Ware	Multi-spectral documentation of paintings and all electronics troubleshooting.
Alfonso Herrera	Logistical support and handyman extraordinaire.
Matilde Jiménez	Alternate cook.
Bekka Saks	Documentation of paintings, survey, ceramic analysis.
Javier Urcid	Project coordinator, logistical support, documentation of paintings, surveys, ceramic analysis.
Alejandro Fierro	Topography of the tunnel (assistant).
Antonio Vargas	Topography of the tunnel (director).
Orlando Ramírez	Topography of the tunnel (assistant).
Vidal Jiménez	Topography of the tunnel (principal surveyor).
Pepe Carrasco	Logistical support, guide to surveyed sites and excellent finder of shards.
Mireya Olvera	Conservation assessment.

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Figure 31- Stylistic variation in the representation of the alligator as a visual metaphor for “earth” or “cave”.

Figure 32- Red on buff ceramics found at several sites in and around the valley of El Rosario.

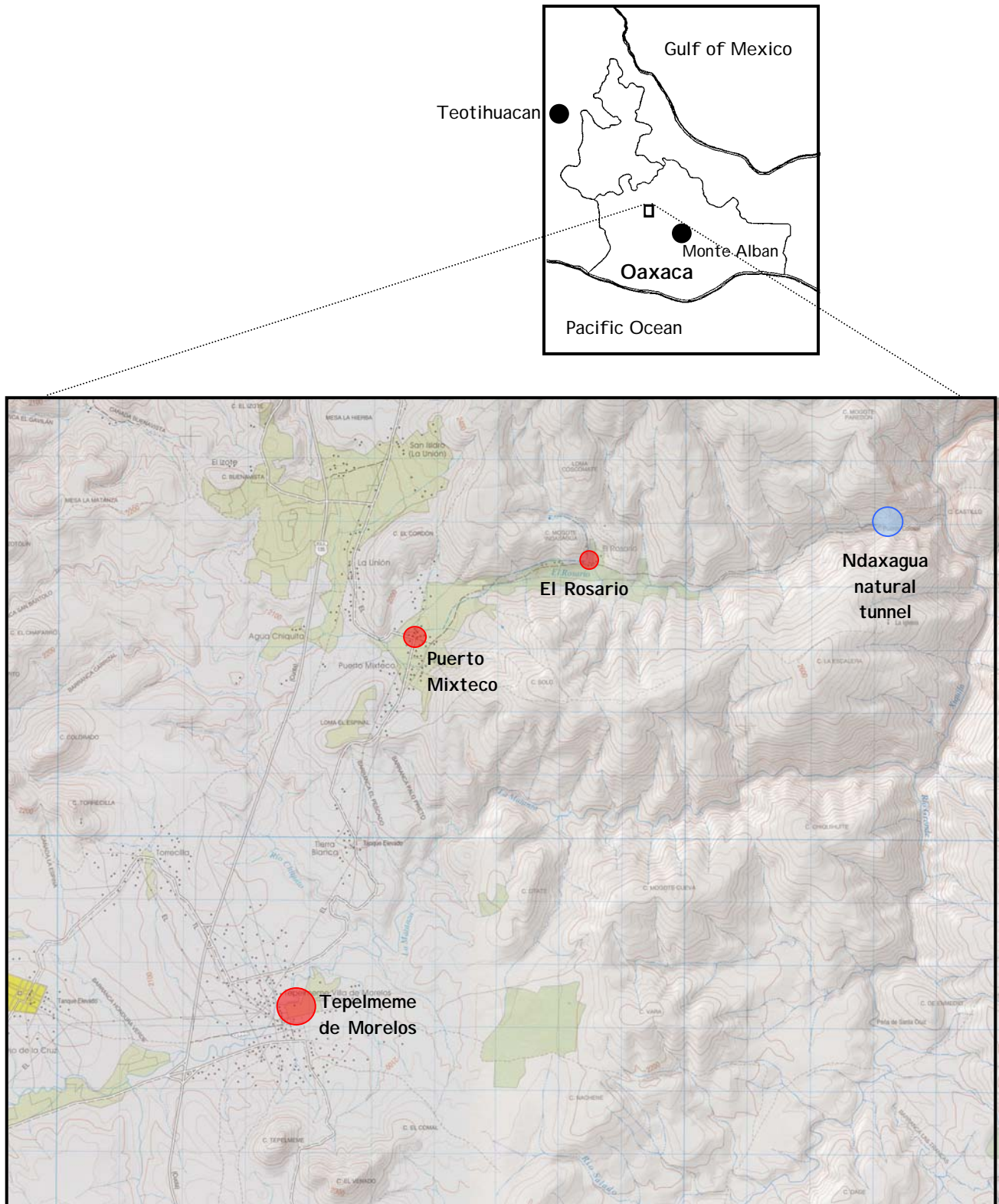


Figure 1- Location of the Ndashagua natural tunnel and the modern communities of Tepelmeme de Morelos, Puerto Mixteco and El Rosario (after the INEGI 2001 topographic sheets E14D15 and E14D16).

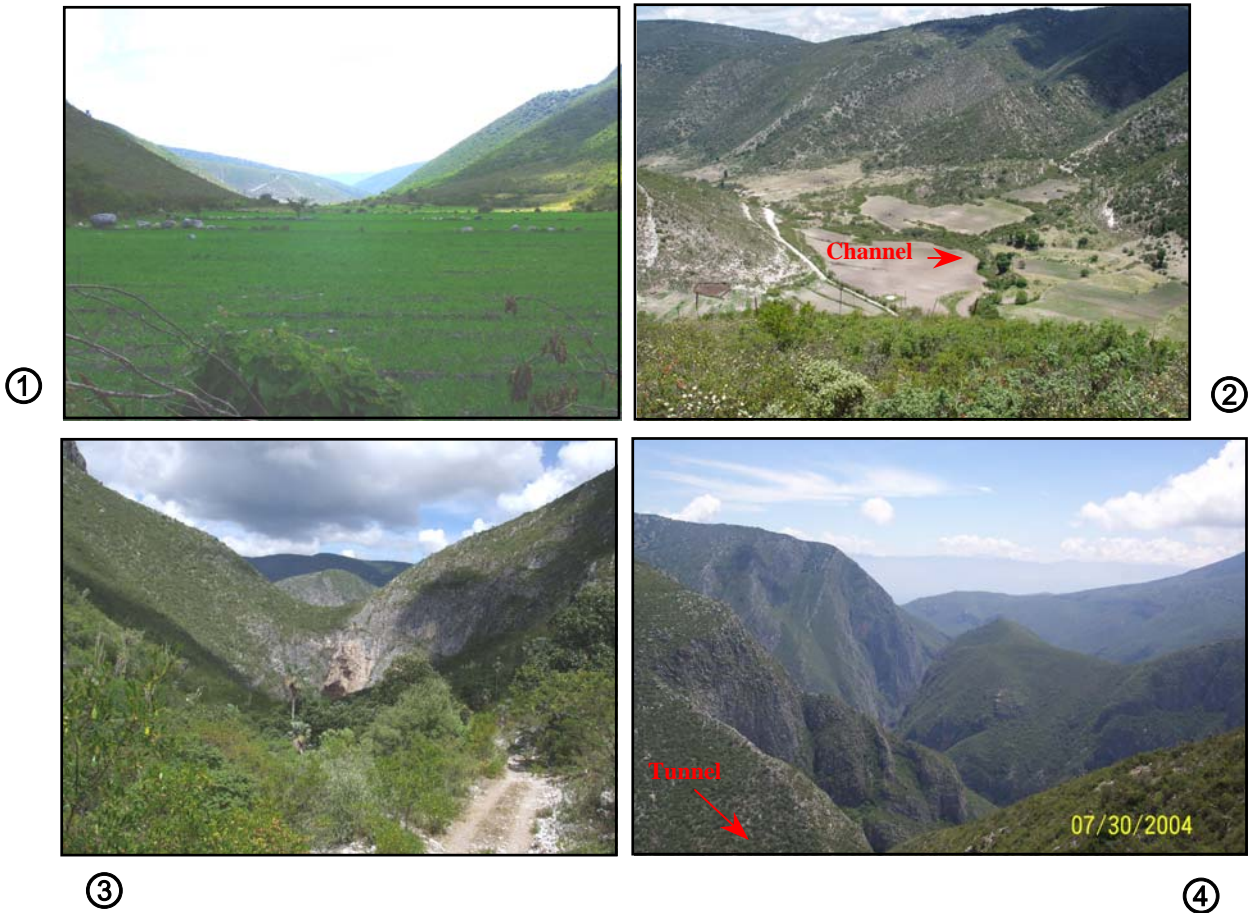
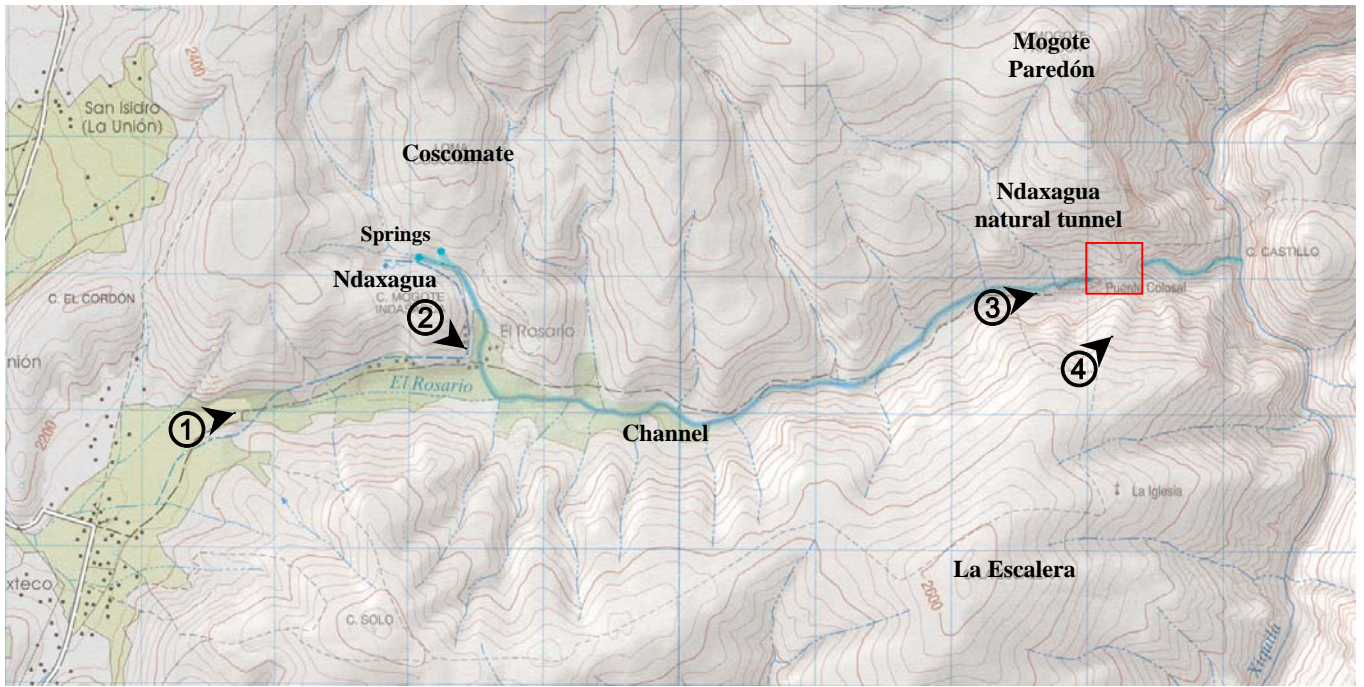


Figure 2- Map of the Valley of El Rosario showing the springs in the foothills of the Ndaxagua and Coscomate hills, the channel flowing in an easterly direction, and the natural tunnel passing through the saddle between the high hills of Mogote Paredón [north] and La Escalera [south] (the circled numbers and the associated arrows key the views of the photographs).

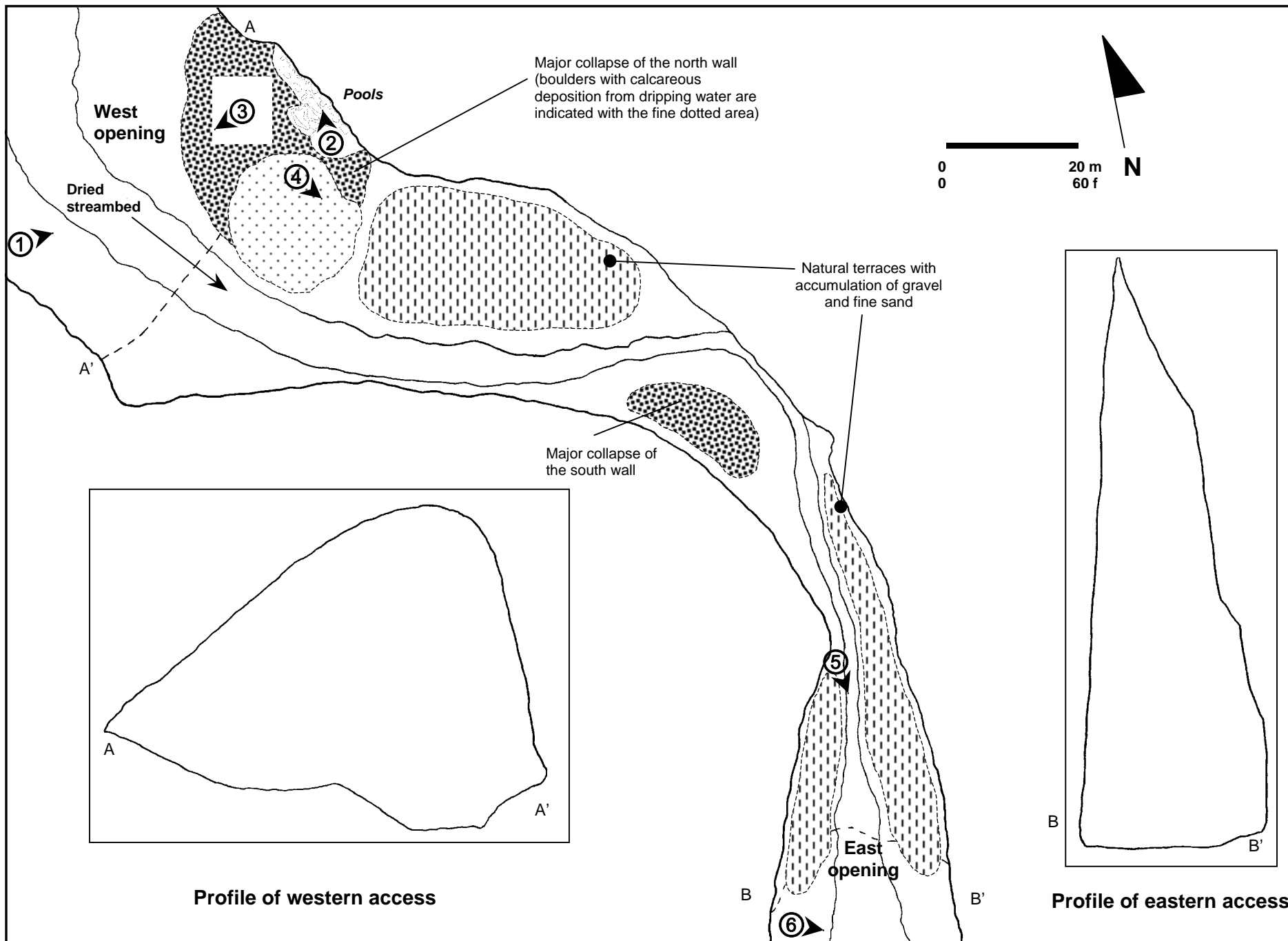


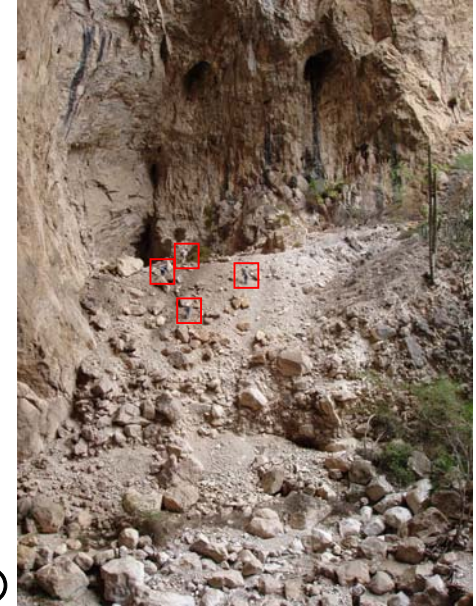
Figure 3- Plan of the Ndaxagua natural tunnel, profiles of the openings, and interior geological features (the circled numbers and the associated arrows key the views of the photographs shown in Figure 4.)



① View of northwestern end of tunnel. Red squares show three crew members surveying the area of the pools.



② Uppermost ledge on northwestern end with pools formed by stalagmites and stalactites.



③ View of the southwestern end. Red squares show four crew members surveying the area



④ View of the eastern opening from the area of the pools

View of the eastern opening from the interior of the tunnel ⑤



View of north wall in the eastern opening ⑥

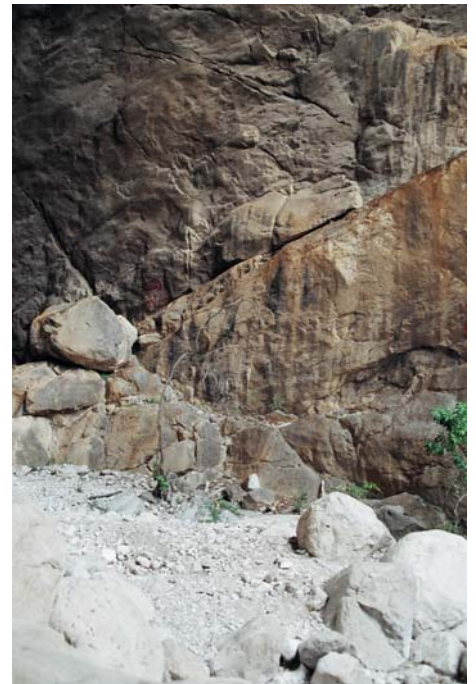


Figure 4- Photographic views of the tunnel plotted in Figure 3

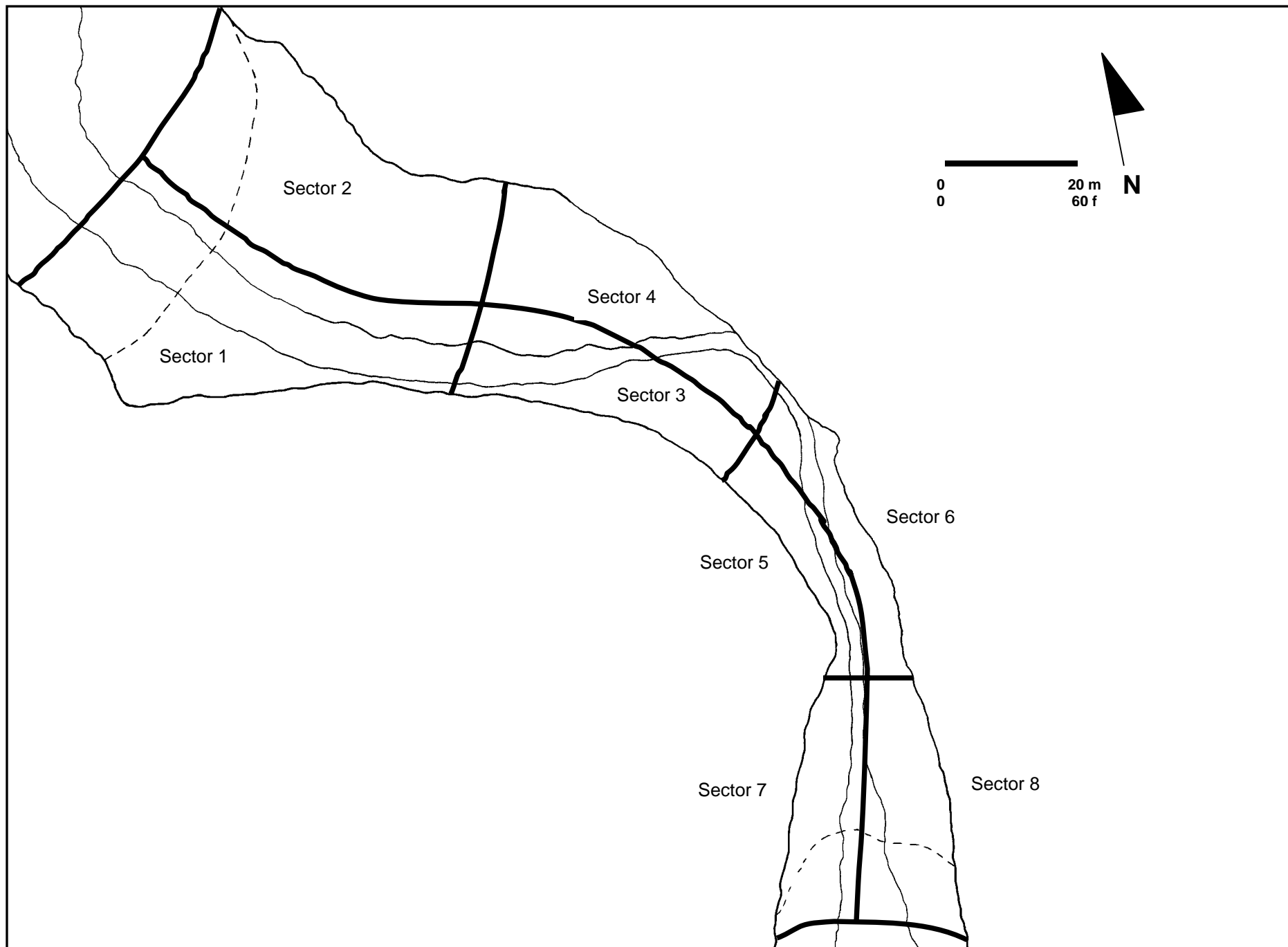


Figure 5- Plan of the Ndaxagua natural tunnel indicating the sectors defined for the collecting of surface materials.

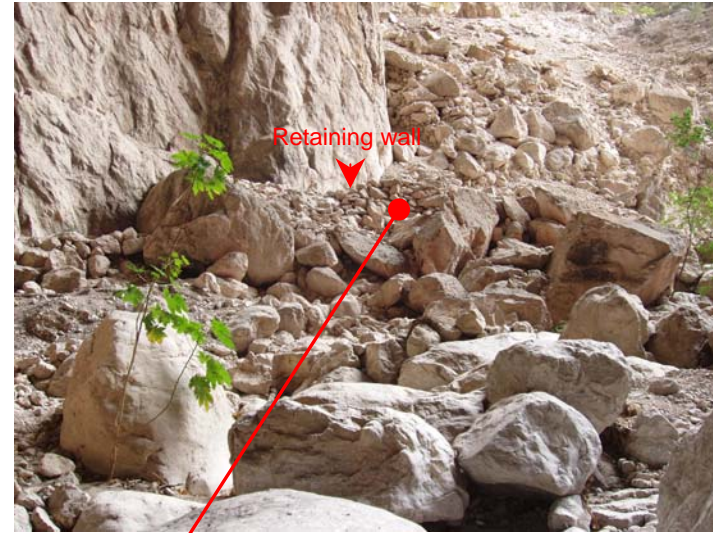
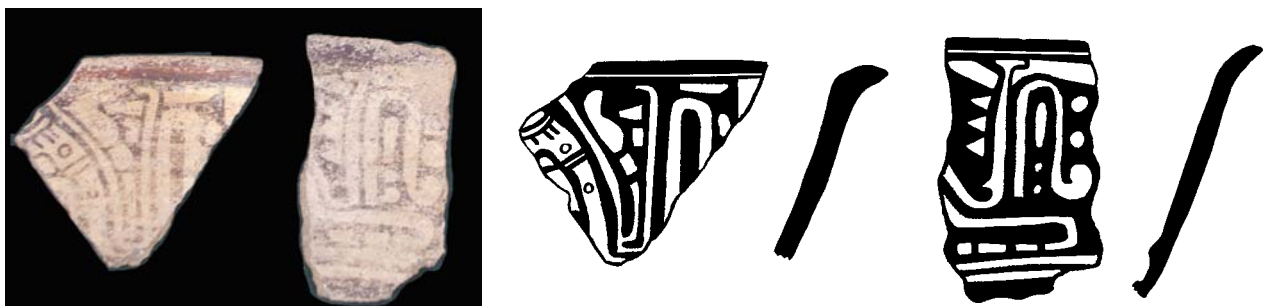
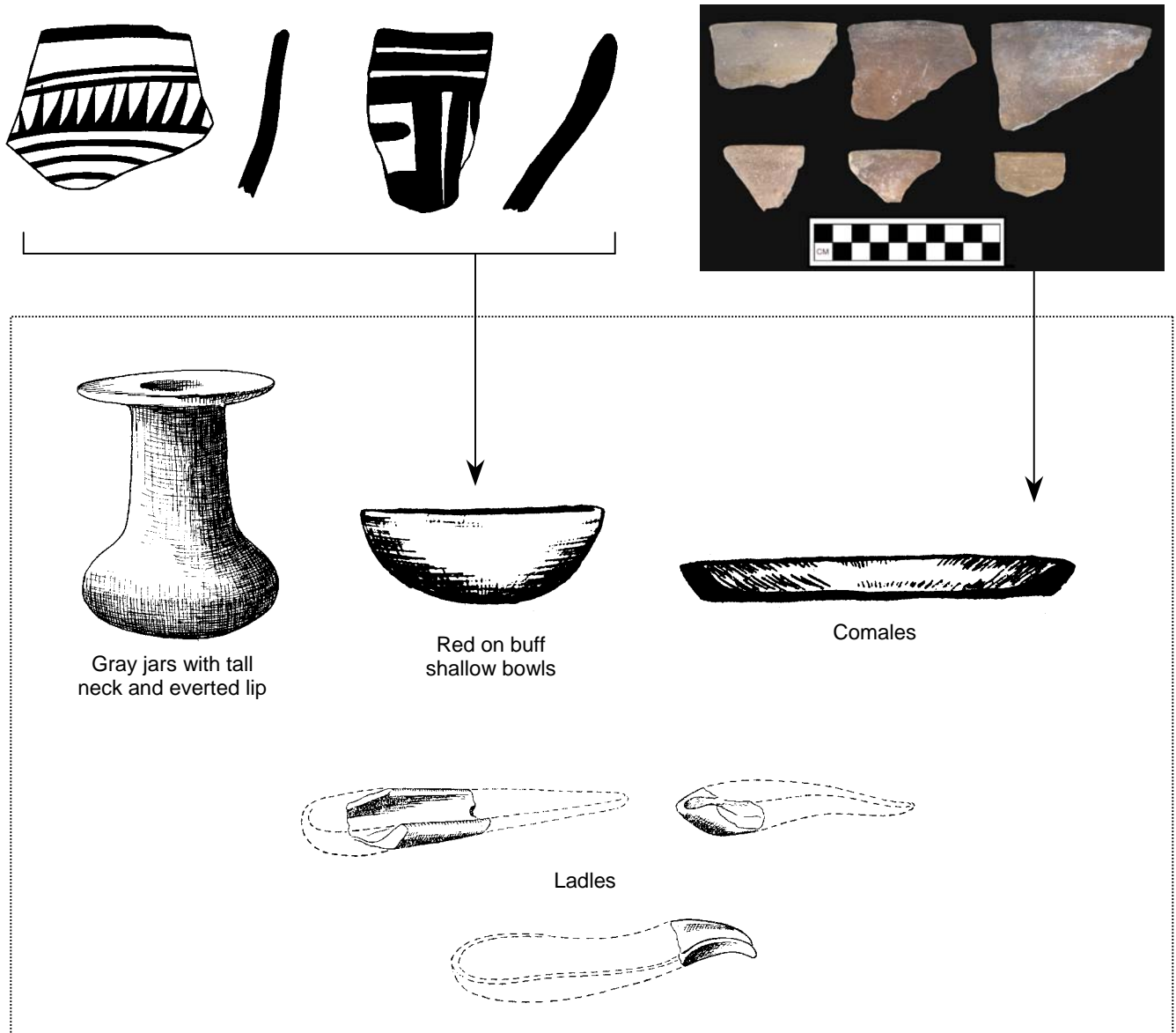


Figure 6- Retaining walls and artificial terraces in the southwestern end of the tunnel (sector 1).



Fragments of stamped-bottom bowls with black negative painting on the exterior walls (found in sector 2 of the tunnel).

Figure 7- Ceramic fragments and forms from the Classic period (top and center), and shards from the Postclassic period (bottom) found in the tunnel (drawings of shards by Jocelyn Knowles and Bekka Sacks).



Fragments of wattle and daub collected from sector 1



Corn cob collected in sector 2 (right) compared to a corn cob collected from a contemporary household at El Rosario (left)



Two views of the tip of a bone awl collected in sector 8



Obsidian blade fragments collected from sector 2, in the area of the pools

Figure 8- Non-ceramic materials collected inside the tunnel.



Turquoise tesserae



Unidentified semi-cylindrical black plaques



Jade beads



Small pieces of copal

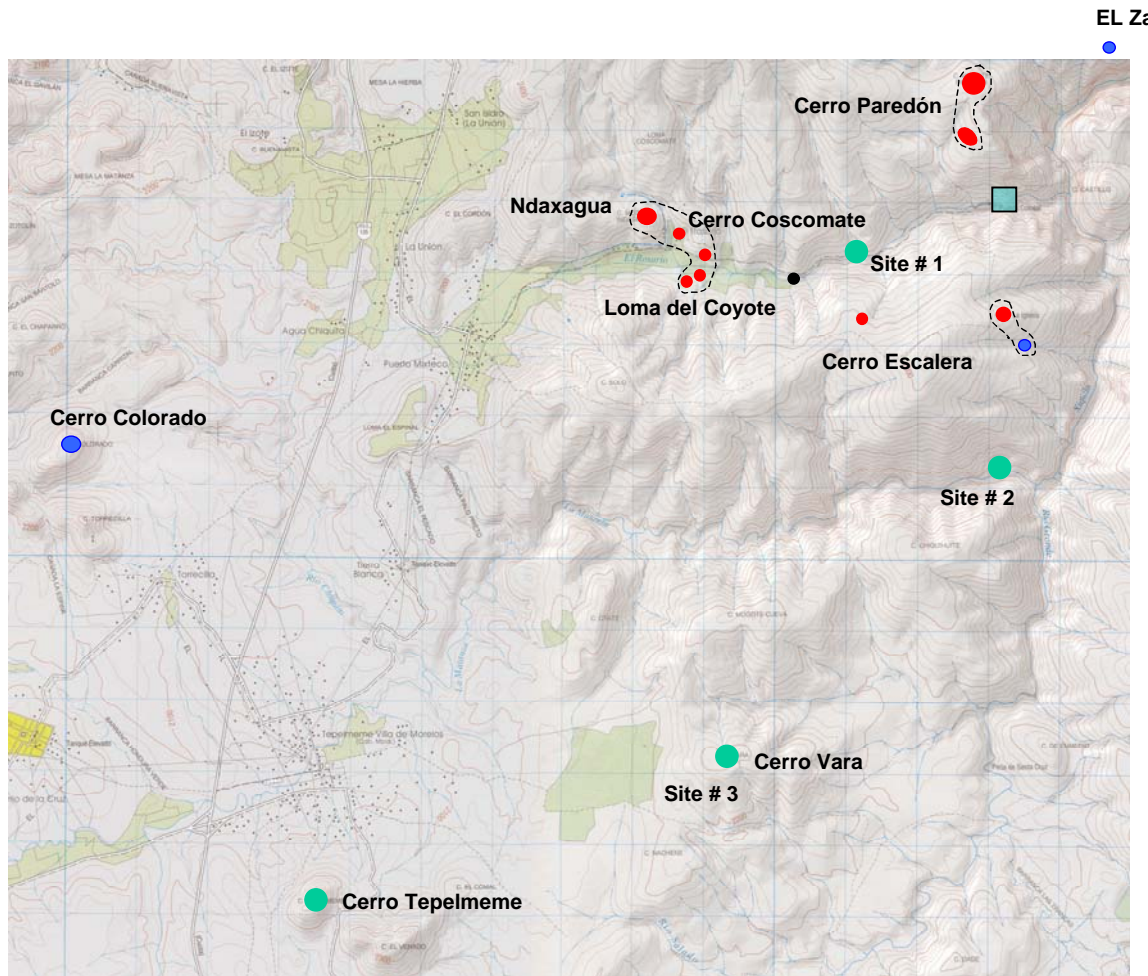


Remains of small rodents



Fragment of gourd and unidentified seeds

Figure 9- Cultural and natural materials collected from the pools formed in the northwestern end of the Ndaxagua tunnel.



- 0 1 km
0 0.62 miles
- Visited sites where grab surface collections were made.
 - Sites not visited which, according to local inhabitants, have shards and terraces.
 - Location of ancient occupations listed in the 1984 edition of the INEGI map for Tepelmeme de Morelos.
 - Location of the camp built by the Reserva de la Biosfera Tehuacan-Cuicatlan (headquarters of the Ndaxagua project 2004).
 - Original location of the community of Tepelmeme according to local inhabitants.
 - Location of the Ndaxagua natural tunnel.

Figure 10- Location of ancient settlements in the vicinity of the Ndaxagua natural tunnel.



The Ndaxagua hill seen from Loma del Coyote



Fragment of stone disk from a composite column in the elite house at Loma del Coyote.



Retaining wall of an artificial terrace in the southern slope of Cerro Coscomate



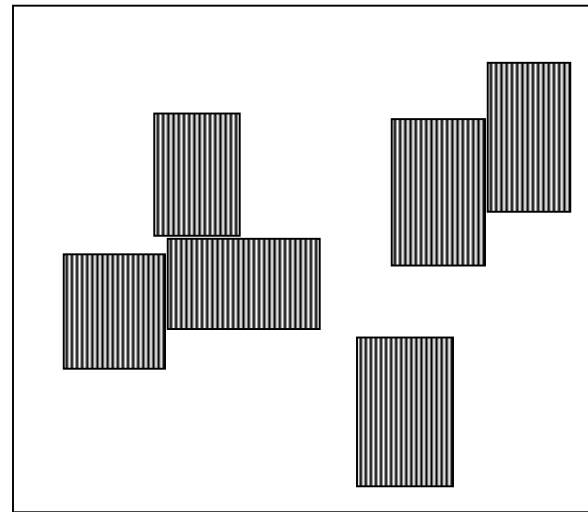
Abandoned 'era' in the site on the western slope of Cerro de la Escalera



Vaulted roof of a tomb at the based of the eastern slope of the Ndaxagua hill



Opening of a sótano atop Cerro Ndaxagua



Sketch of the arrangement of platforms at the site atop Cerro del Paredón

Figure 11- Features documented in the surveyed sites.

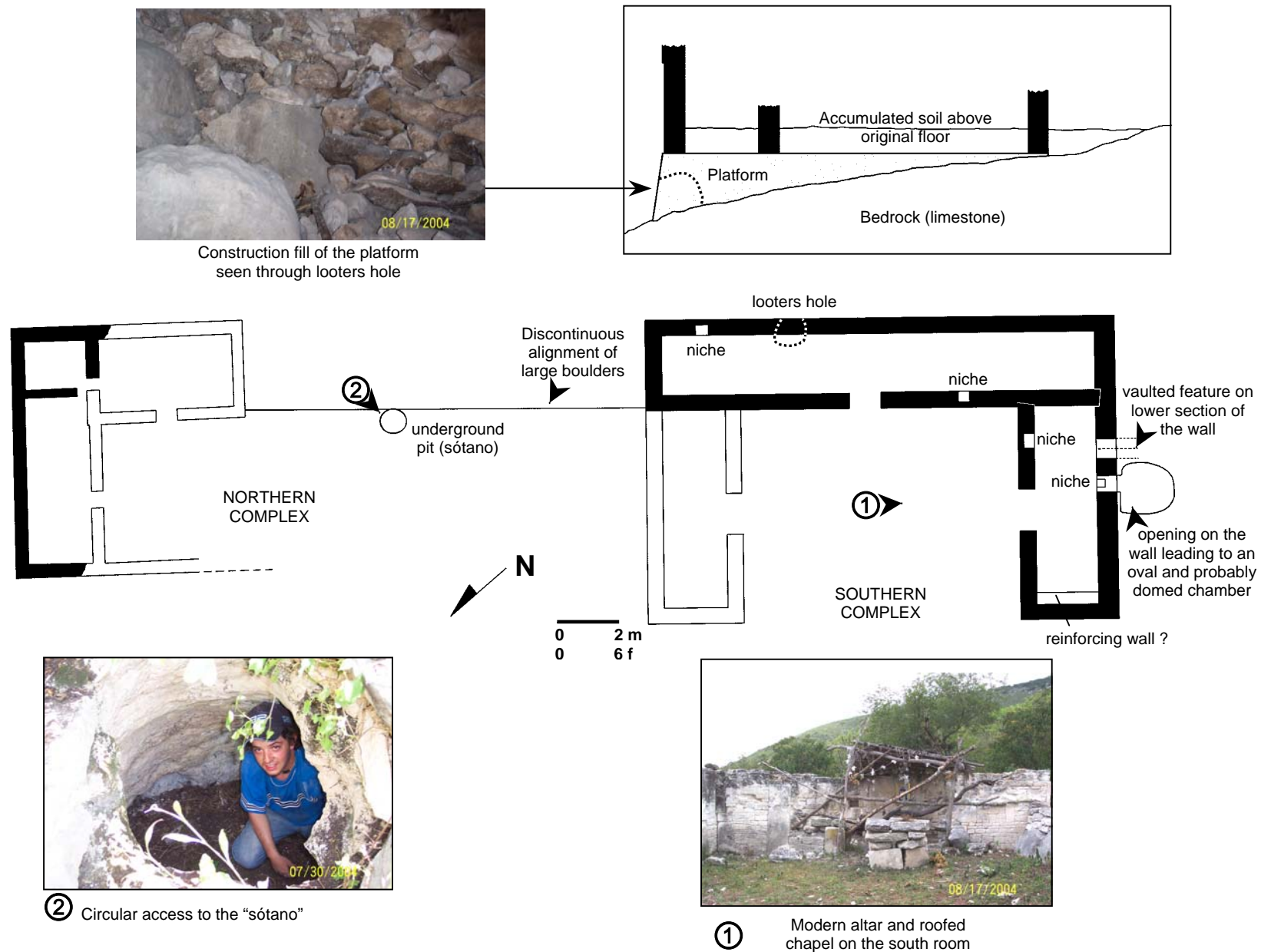
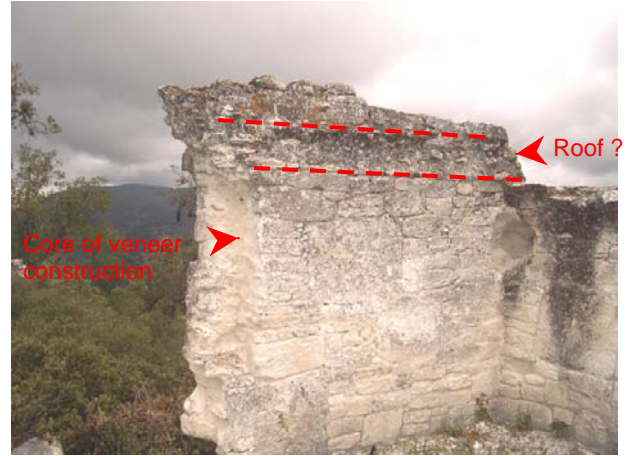


Figure 12- Plan and E-W profile of the palace in Cerro de la Escalera. Today, the southern complex is a chapel dedicated to Santo Domingo (walls in gray are not standing but their traces are evident on the surface).



East room, north façade with recessed panel.



East room, north interior wall with construction details.



East room, niche on eastern wall, south end.



Southeast corner of the patio. The veneer facades were built with blocks of various sizes



Oval shaped feature south of the south room (domed?).



East wall of patio (recent addition).

Figure 13- Architectural details in the southern complex of the palace.

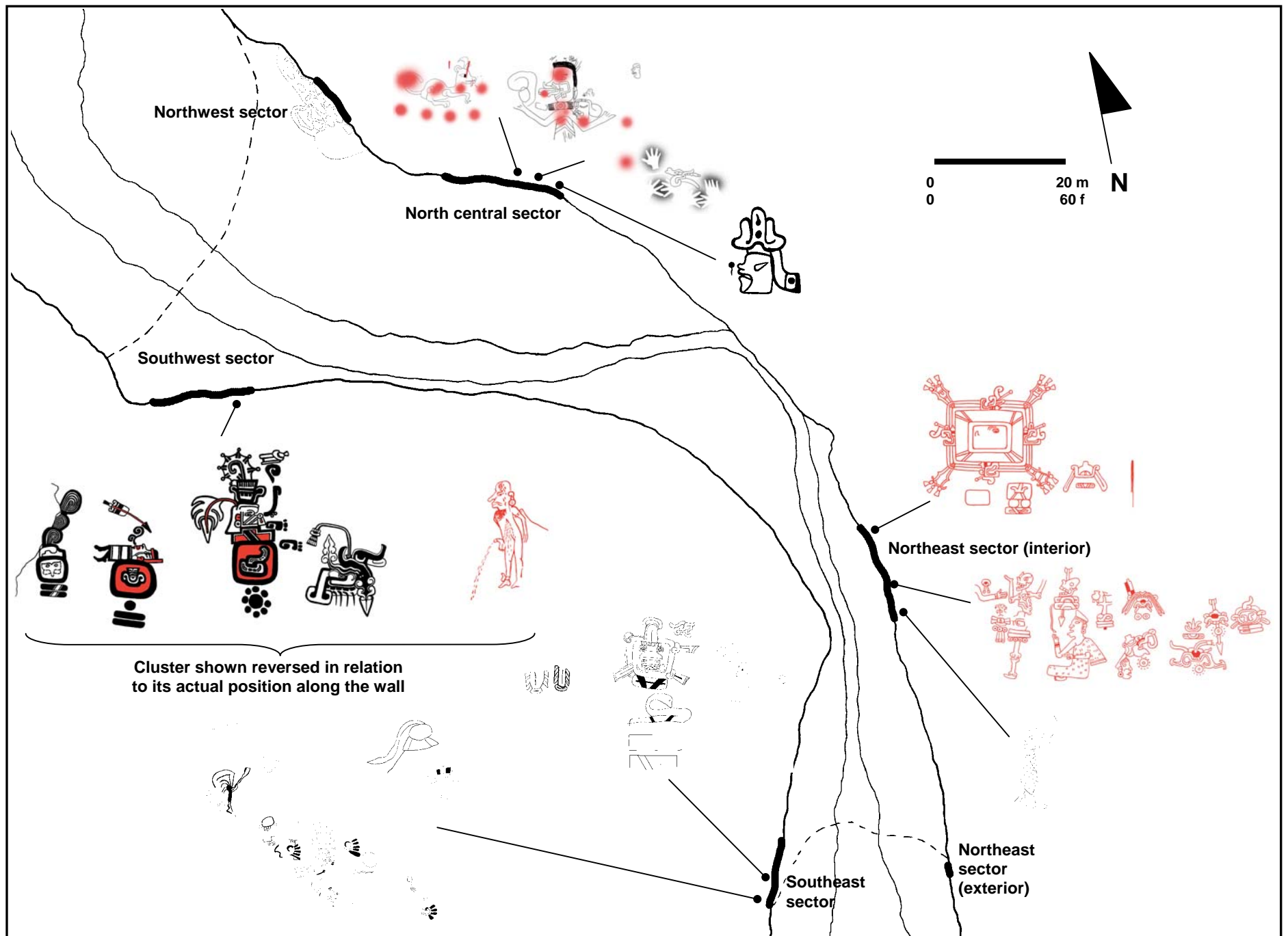


Figure 14- Location of painted sectors and some of the glyphic clusters (drawings are not at the same relative scale).

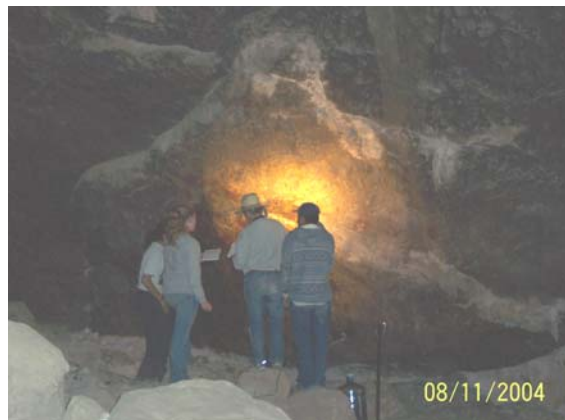
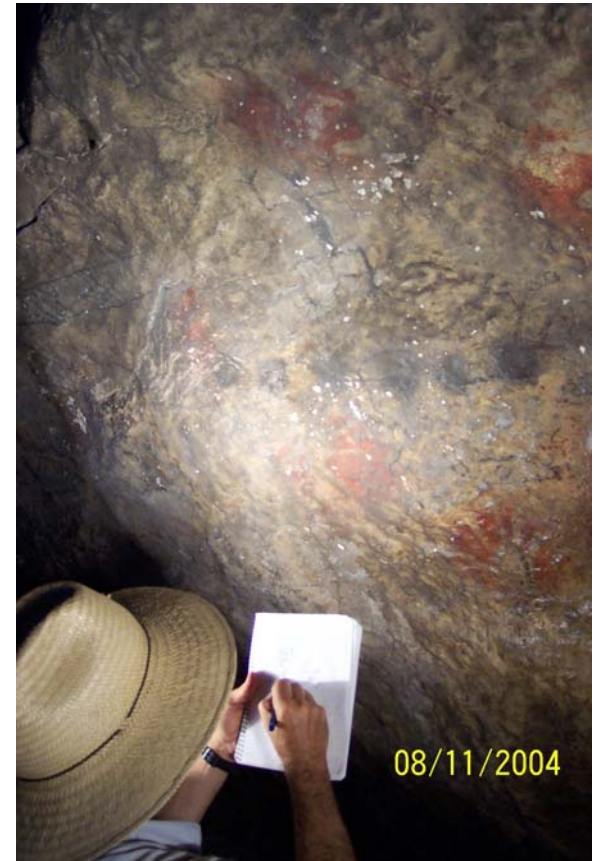
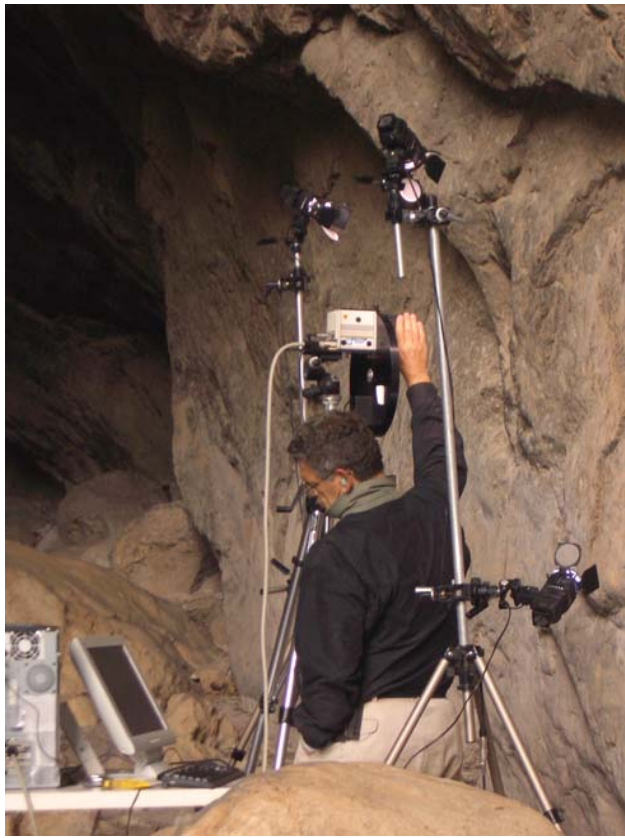


Figure 15- Documenting the inscribed record in the tunnel.

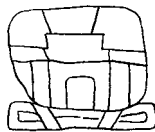


① Pre-Hispanic inscription in the Southwest sector unaffected by modern graffiti because of its present height (a white drawing of the glyphs has been superimposed to highlight the inscription).

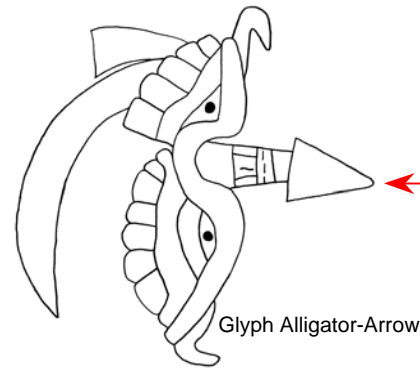
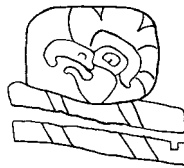
Calendrical name 8M
(8 Lightning-Wind)



Calendrical name 5 House



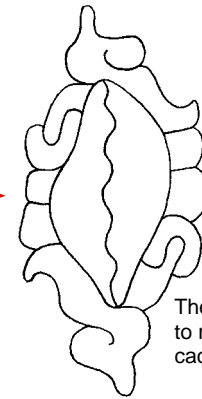
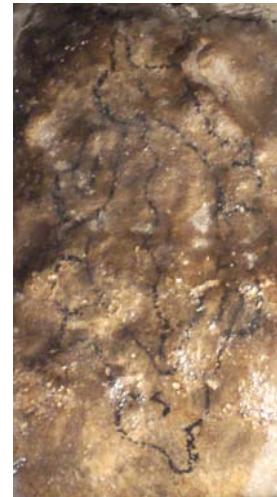
Calendrical name 10 Owl (equivalent to 10 House)



Glyph Alligator-Arrow

③ Glyphs painted with black pigment on top of the red painted cluster shown in Figure 21, indicating two different inscribing episodes in Nuiñe style.

② Pre-Hispanic glyph in the North central sector visible only with artificial light. This sector has no alphabetic inscriptions because it spans a darker section of the tunnel.

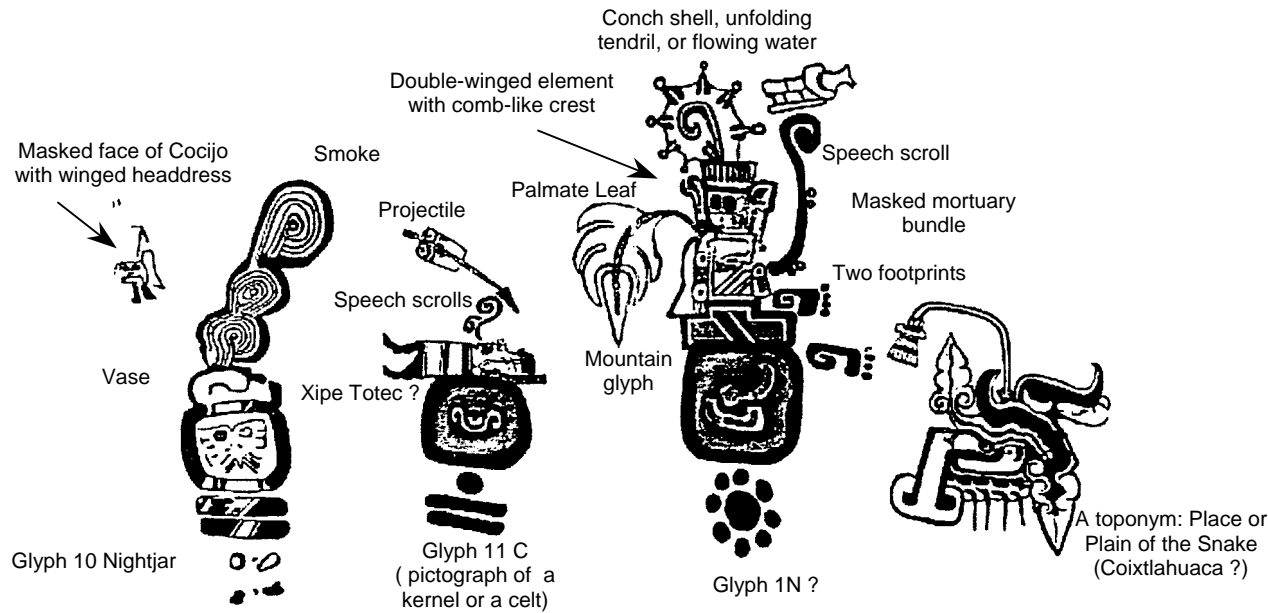


The sign appears to represent a cacao pod

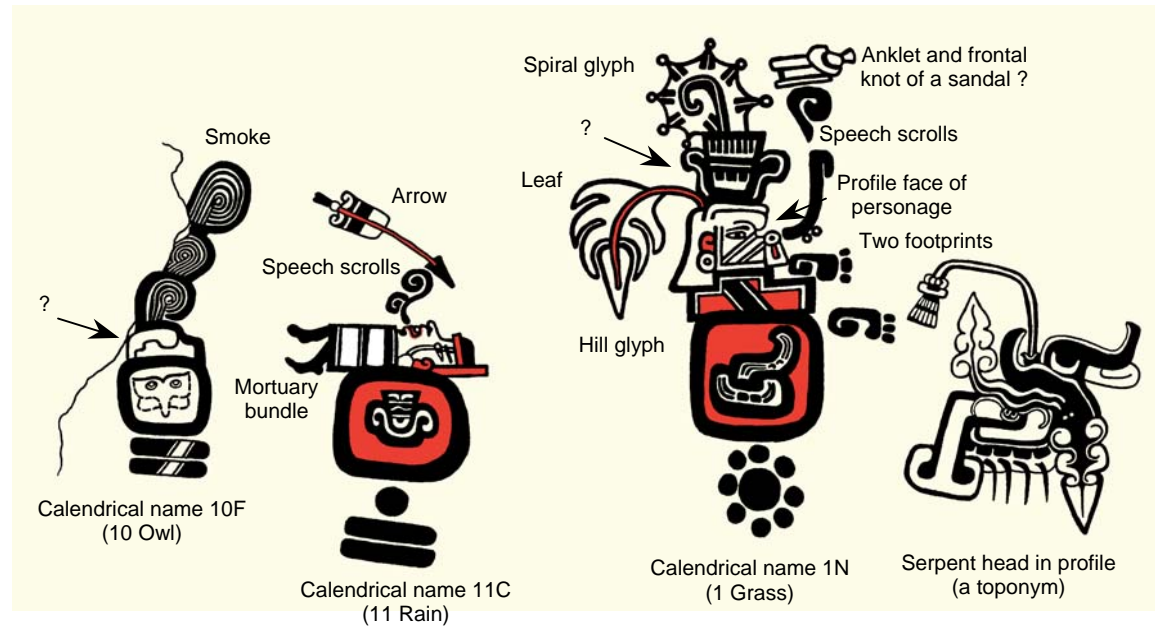


④ Detail of an area in the Southeast sector with multiple ancient and recent overlapped inscriptions. The drawing on the right replicates an ancient glyph readily discernible within the red inset.

Figure 16- Single or overlaid inscriptions in various parts of the tunnel.



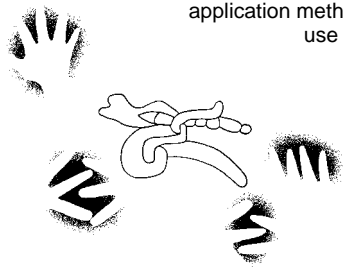
Naked man with bleeding erect penis, hands bound behind his back, wounded at his side and in the cheeks, and cut across the throat as in an intended decapitation.



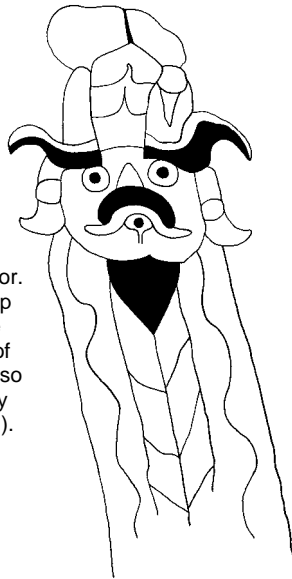
Bearded naked prisoner with arms tied in the back and wounded in the head and chest. The rendering of ejaculation is probably a visual metaphor of sacrifice as pre-condition for agricultural and community fertility

Figure 17- Epigraphic cluster in Ñuiñe style painted on the Southwestern sector. Upper rendition and interpretations after Rincón (1995); lower drawing and interpretation by Urcid. The glyphs on the left side were painted using black, red, and white pigments. For a sense of the scale of the inscription on the left see Figure 16-1.

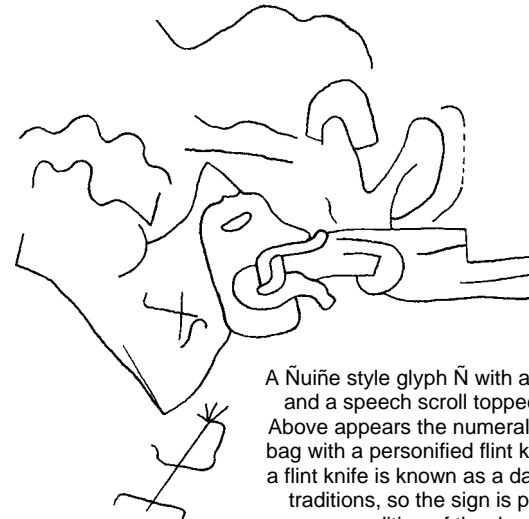
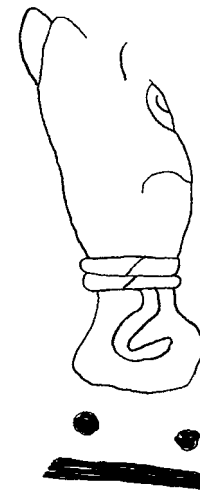
A serpent head in Nuiñe style rendered amidst four sets of hand imprints executed earlier by spitting black paint over single or paired and interlocked hands. The application method probably relied on the use of blowguns.



Frontal rendition of a rain god impersonator. The face, adorned with earplugs and a lip plug, is topped by a headdress with the rendition of maize. The representation of the body lacks arms and legs, and the torso is simulated by undulating lines that may signal pouring water (Early Postclassic?).



0 20 cm
0 0.65 feet



A Nuiñe style glyph Ñ with an elaborate headdress and a speech scroll topped by glyph J (maize). Above appears the numeral 7, and what may be a bag with a personified flint knife. The pictograph of a flint knife is known as a day name in later scribal traditions, so the sign is probably a late Nuiñe rendition of the day name '7 Flint'.

Figure 18- Epigraphic cluster in the North central sector. Only the group on the right was partially published by Rincón (1999: 270, fig. 62).

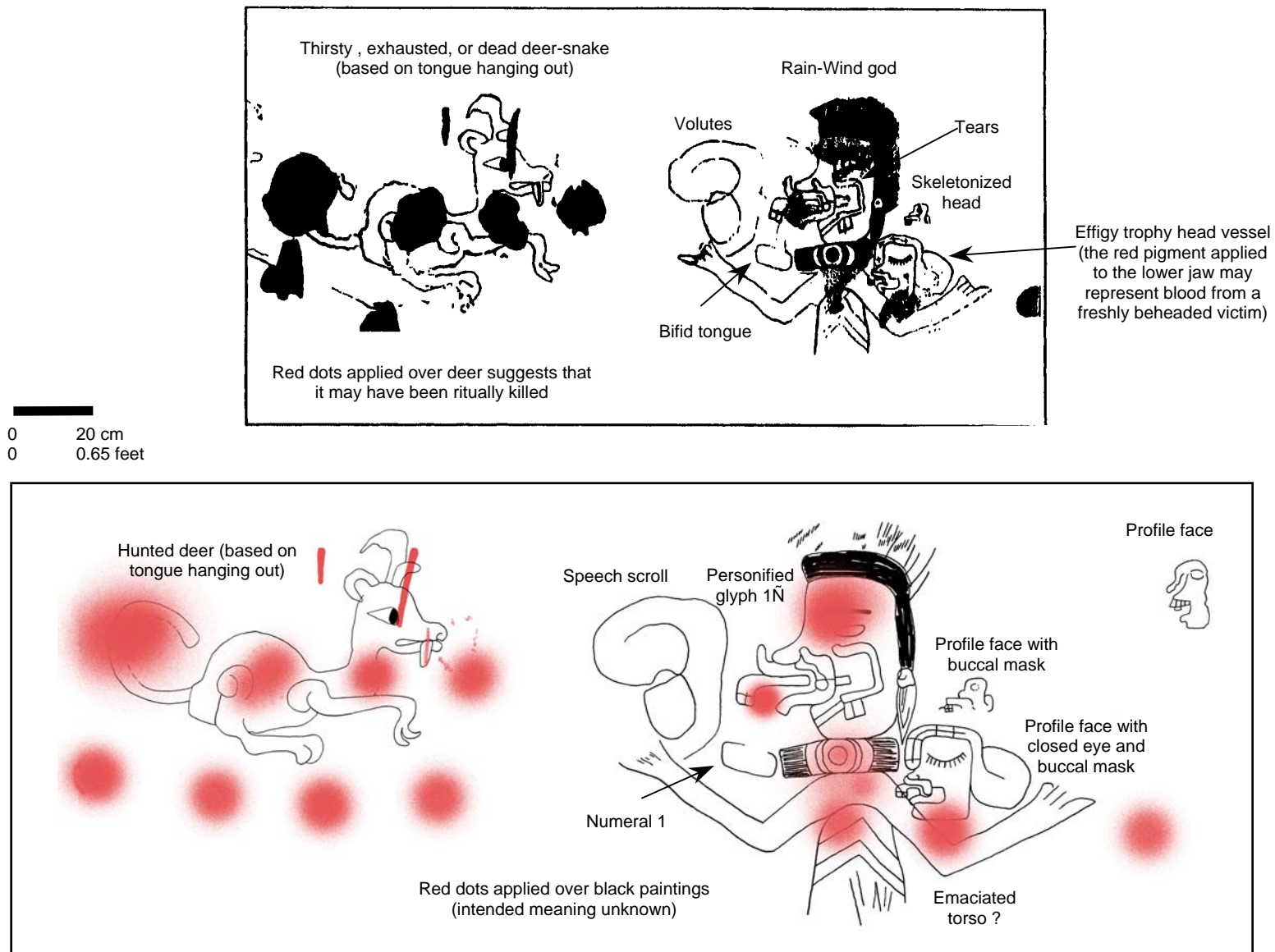


Figure 19- Comparison of the renderings and interpretations by Rincón [top] (1999: 263, fig. 69) and Urcid [bottom] of a cluster of Ñuñe style paintings in the North central sector.

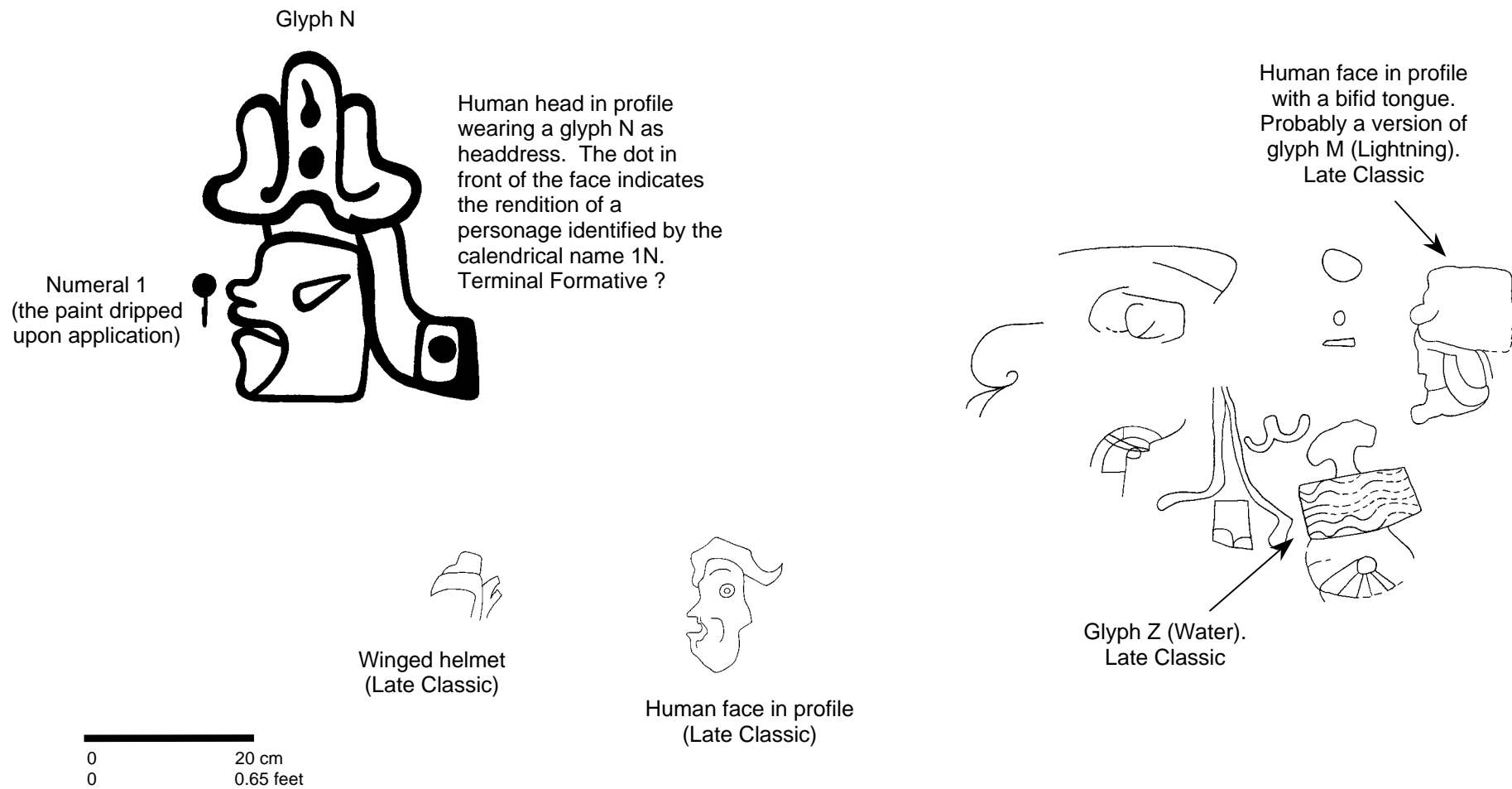


Figure 20- Epigraphic cluster in the North central sector (a group not reported by Rincón).

A large cartouche alluding to a quadripartite conception by four motifs in the corners that differ slightly in detail and four almost identical images of glyph U oriented to the four directions. The cartouche may have had inside the glyph Ñ̃. The small plain square under the cartouche is most likely the numeral one, and the entire composition the calendrical name (1Ñ̃) of an important individual

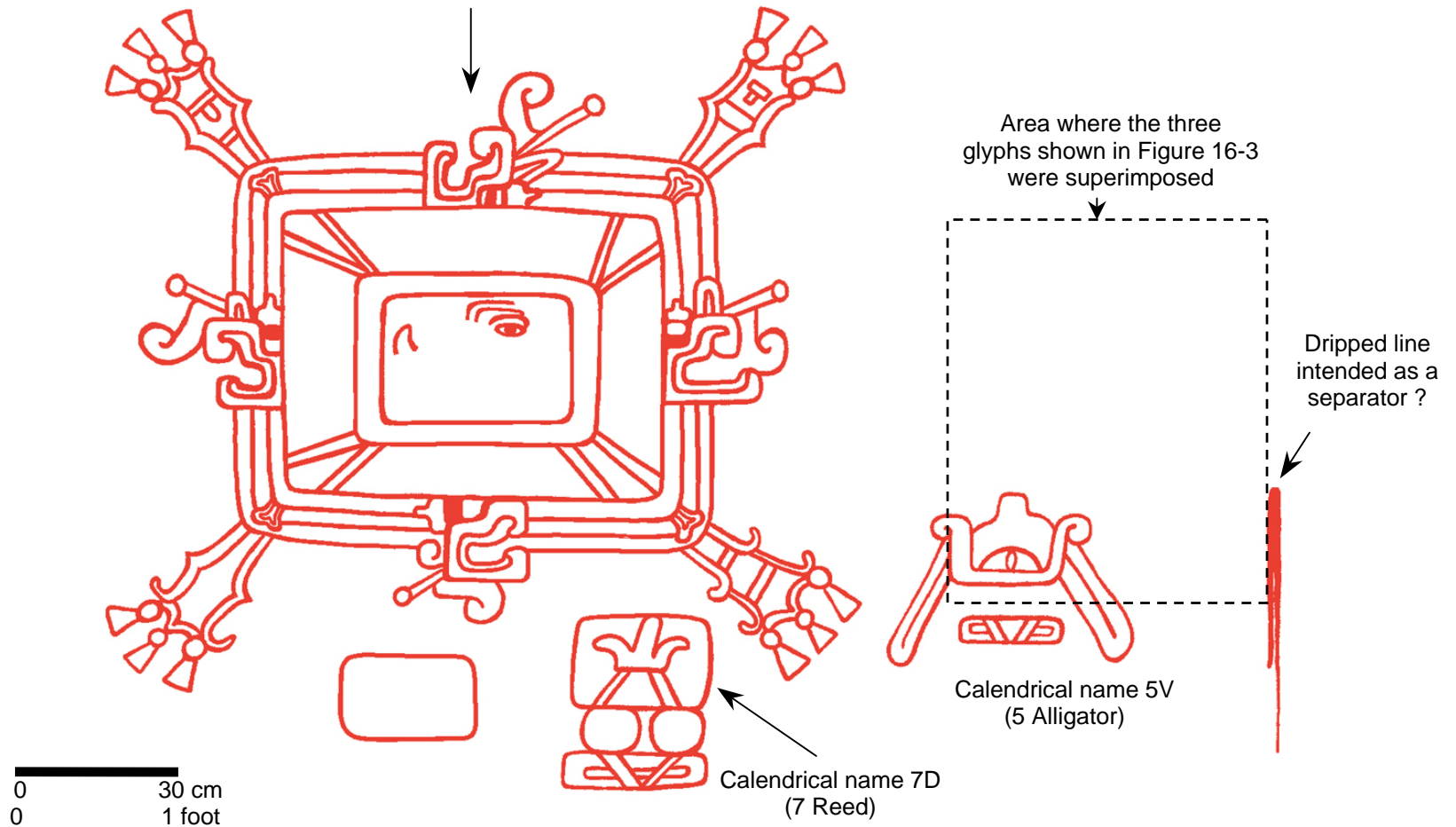


Figure 21- Epigraphic cluster in Ñuiñe style painted with a red pigment on the Northeastern sector (inside). The group was not reported by Rincón.

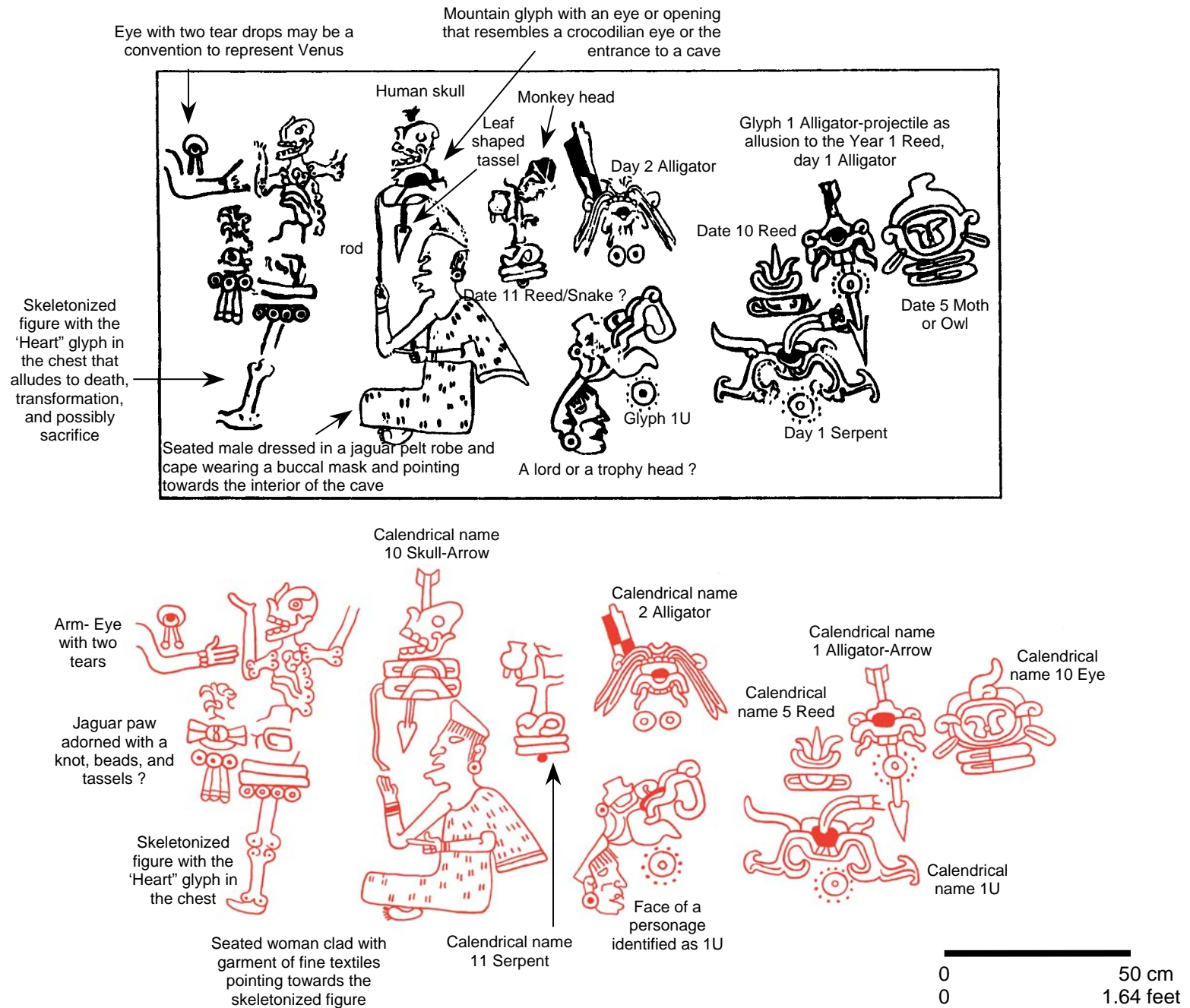


Figure 22- Comparison of the renditions and interpretations by Rincón (1999: 272) [top] and Urcid [bottom] of a Nuiñe style glyphic cluster painted with red pigment on the Northeast sector (interior).

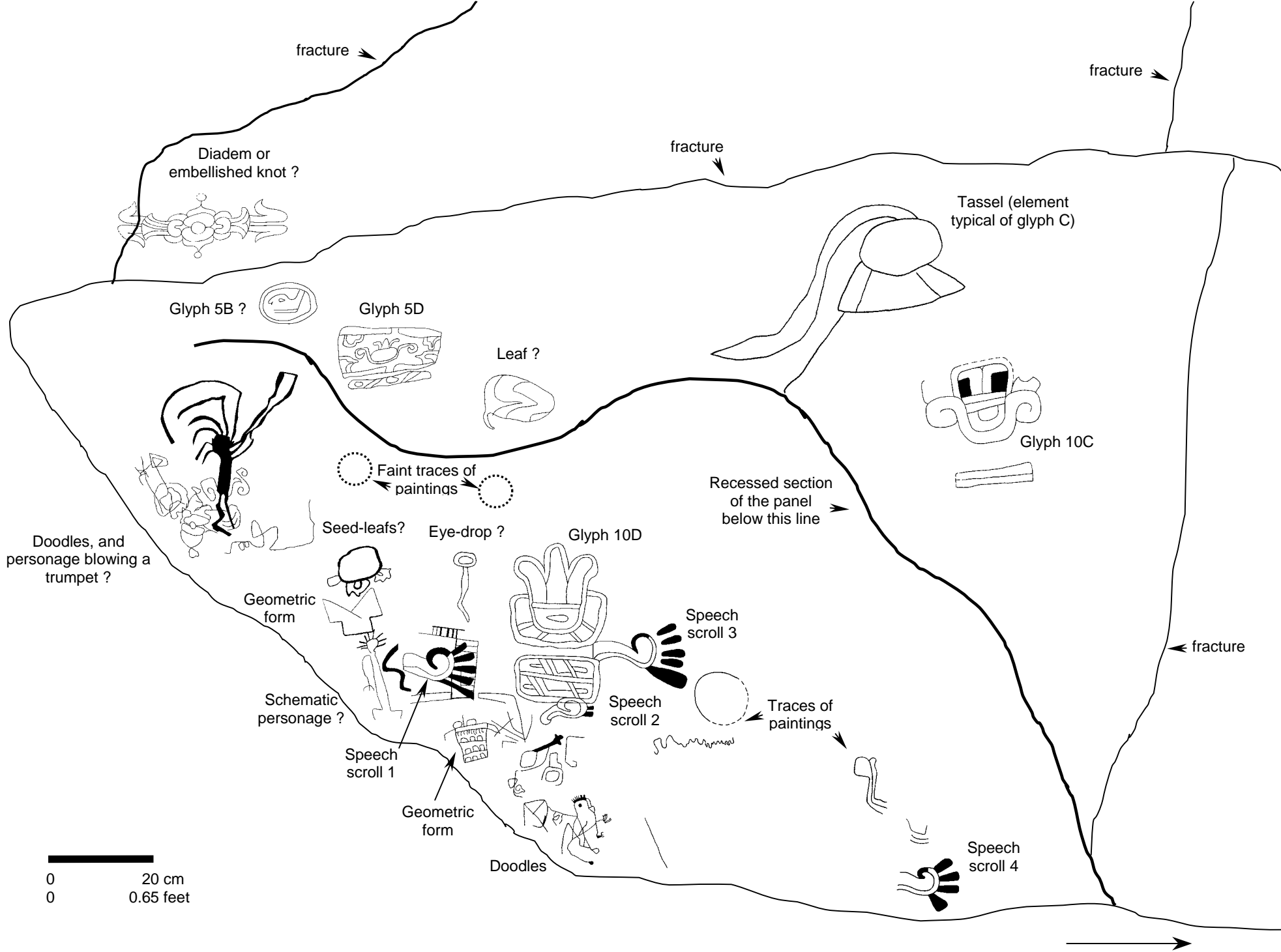


Figure 23- Ñuiñe style paintings in the Southeast sector (Panel of glyph 10D) rendered with black pigment. Group not reported by Rincón.

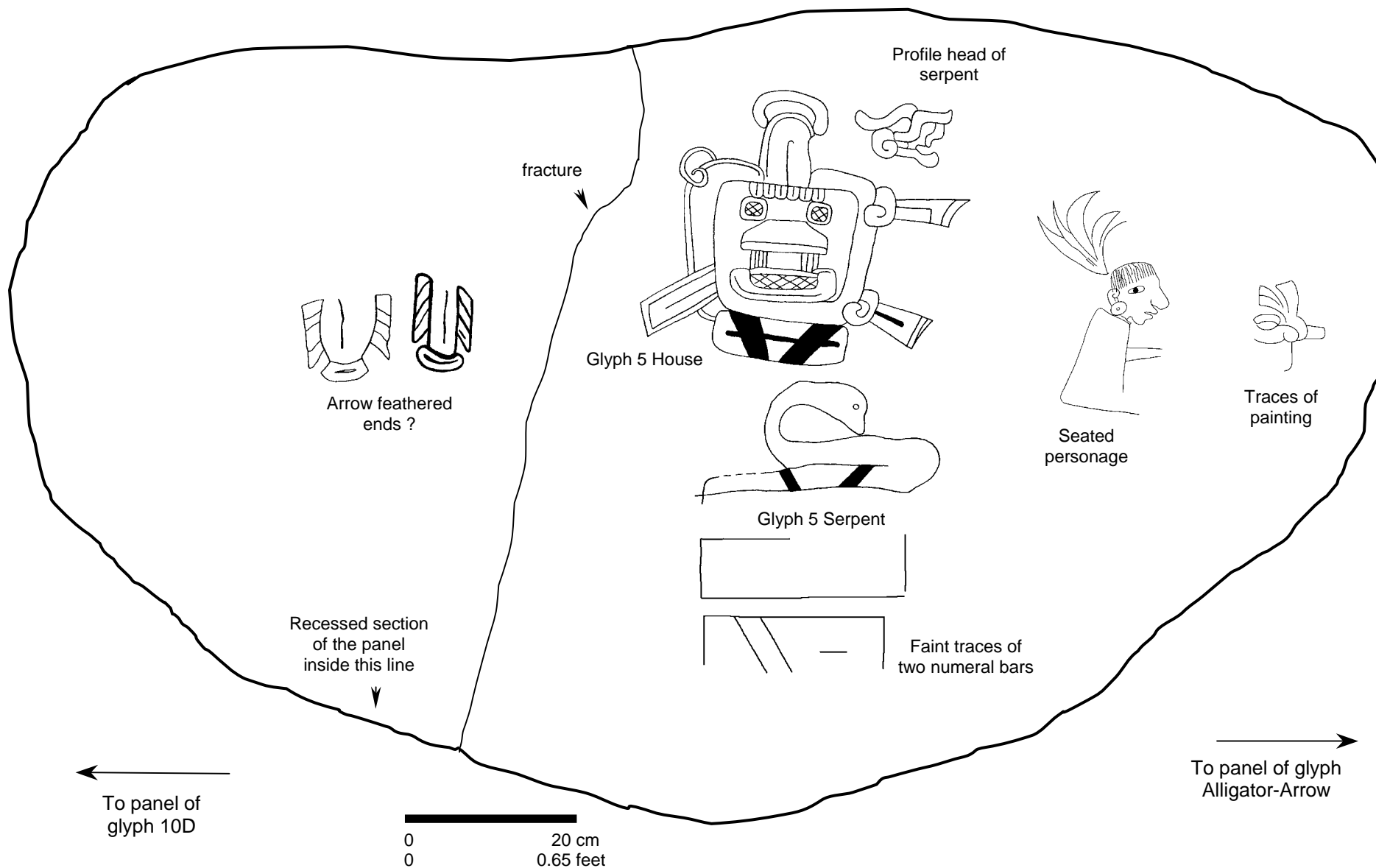


Figure 24- Ñuiñe style paintings in the Southeast sector (Panel of glyph 5 House) rendered with black pigment. Group not reported by Rincón.

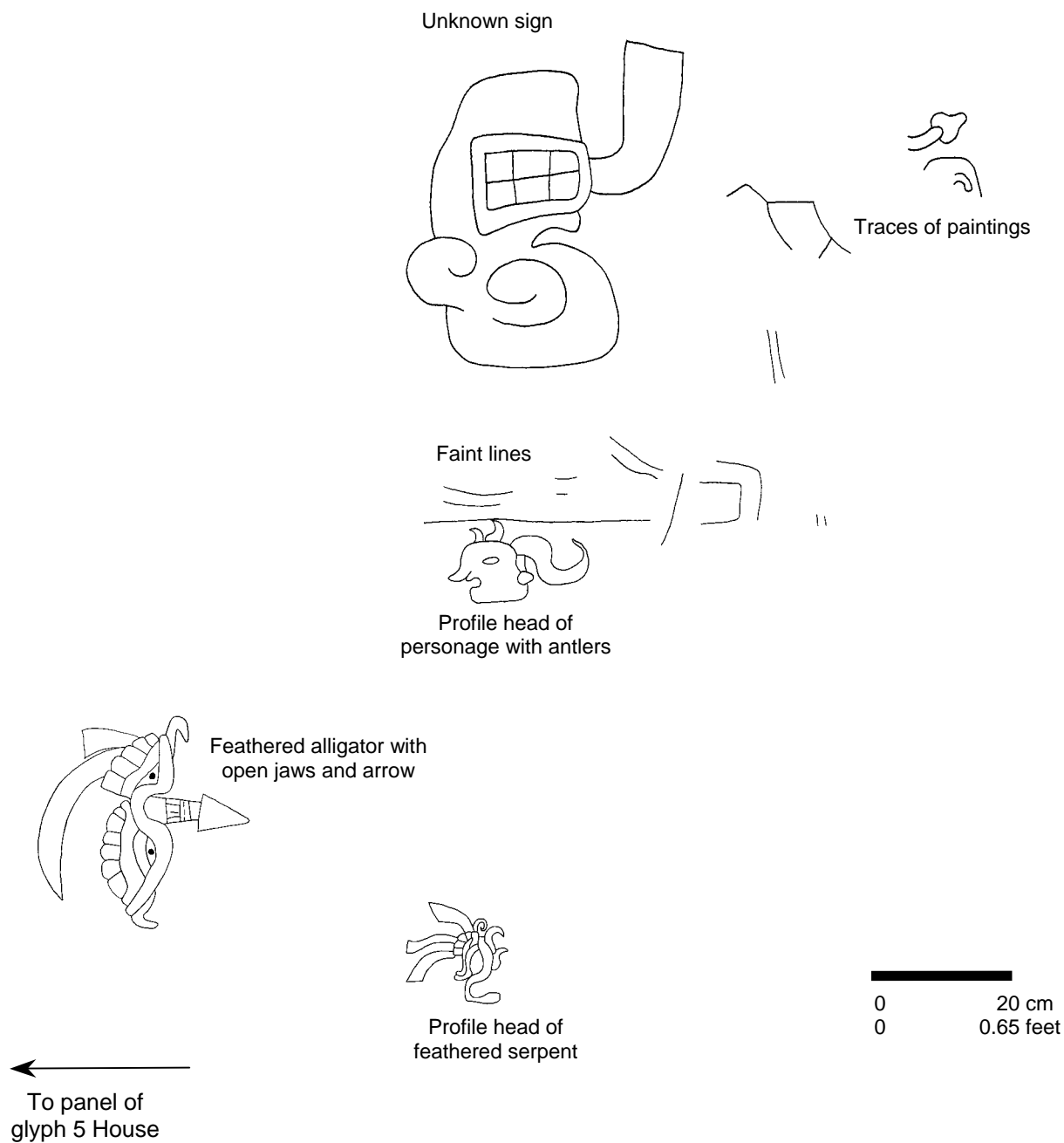


Figure 25- Paintings in the Southeast sector (Panel of glyph Alligator-Arrow) rendered with black pigment. The two lower glyphs may date to the Early Postclassic. Group not reported by Rincón.



Vino la
Familia Garcia
y Fam. Jimenez
Por ultimo Fam. Meza
Fecha
03-13-04



Recuerdo
de
Morelos en
Oaxaca
Alex. Zent. Mart.
(Zenteno)
8-de- Julio-1991



Recuerdo
de
Sergio M.M.
Herminia M.M.
Ma. Eugenia G.M.
Alejandra Z.M.



Houston
Texas
USA



America
Ganador



Malditos Gringos
Este Territorio
Es Nuestro

Figure 26- Major types of alphabetic inscriptions painted in the Ndaxagua tunnel.

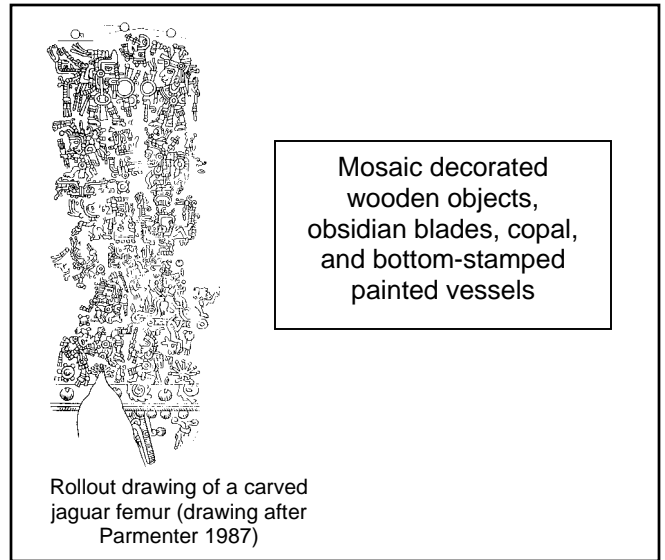
PAINTINGS ON THE WALLS

PORTABLE OBJECTS

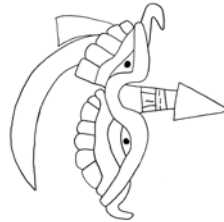
1950's

← "Recuerdos" written in alphabetic script begin

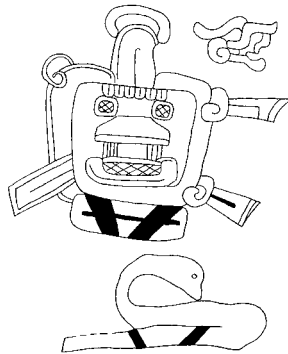
Late Postclassic



Early Postclassic



Late Classic



Red on buff ware similar to Coyotlatelco

Terminal Formative



Archaic ?



Figure 27- A timeline for the paintings and material culture from the Ndaxagua tunnel.

Day name	Glyph designation	Glyphs from the Mixteca Baja	Glyphs from the Ndaxagua tunnel
1) Alligator	V		
2) Lightning / Wind	M		
3) House	F		
4) Lizard	Ñ / S		
5) Serpent	Y		
6) Skull	H		
7) Deer	G		
8) Rabbit	T		
9) Water	Z		
10) Knot	A		
11) Monkey	O		
12) Grass	N / U		
13) Reed	D		
14) Jaguar	B		
15) Maize	J		
16) Eye	L		
17) Earthquake	E		
18) Flint	Q		
19) Rain	C		
20) Lord	X		

Figure 28- Glyphs accompanied by numbers documented in the Ndaxagua tunnel (right) and their position in the Ñuiñe day name list.

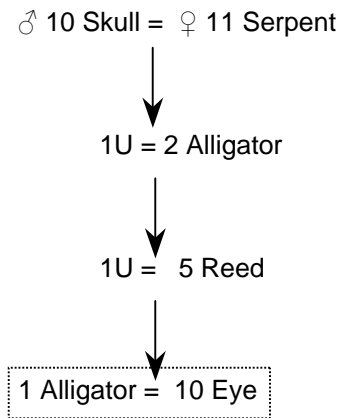
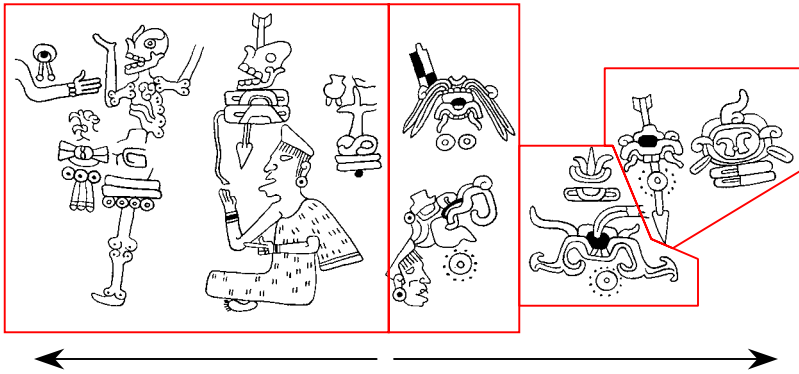
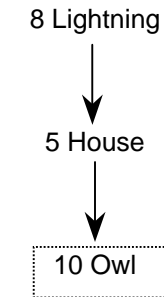
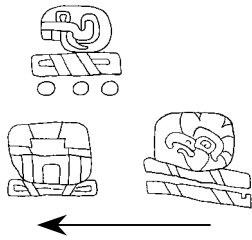
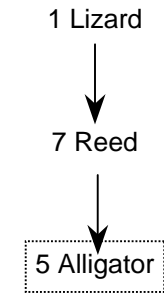
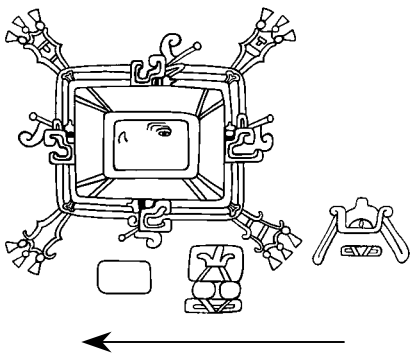
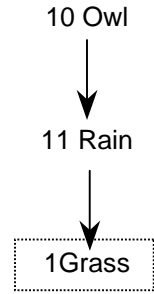
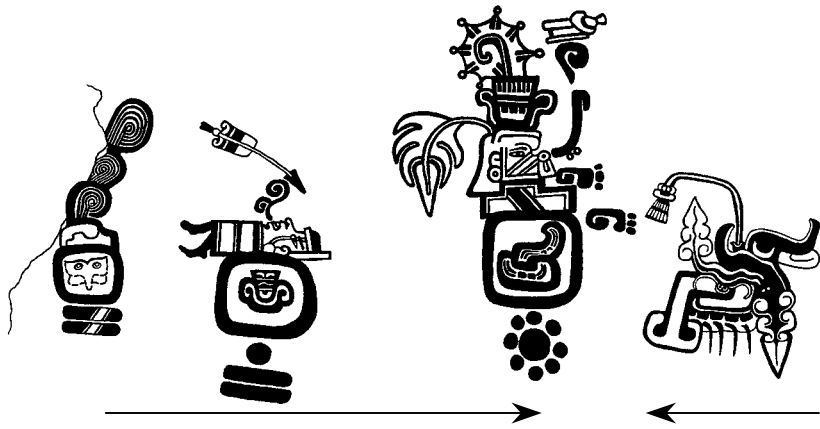
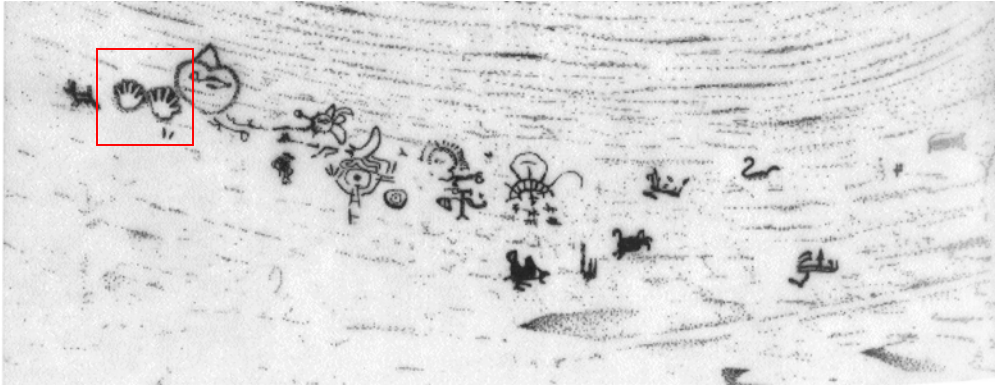
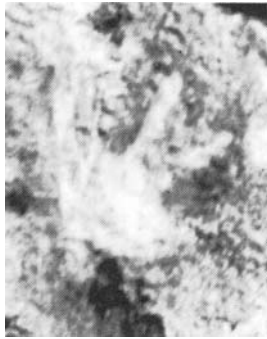


Figure 29- Possible genealogical records in some of the epigraphic clusters painted in the tunnel. Arrows below the inscriptions indicate the direction of profiled glyphs.



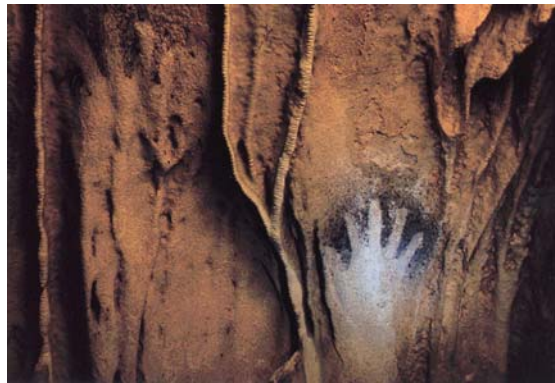
Pair of stenciled hands at Peña Matías, Yautepec, Oaxaca (after Bustamante 1997)



Painted hand at a cliff in Lake Petha, Chiapas
(after Wonham 1985)



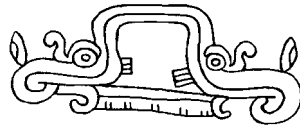
Pair of painted hands at a locality near
Cuautochco, Veracruz (after Luis Gordillo 1989)



Painted hand at unspecified cave in
Belize (after Roberts 2004)

Figure 30- Painted hands reported at other localities in Mesoamerica.

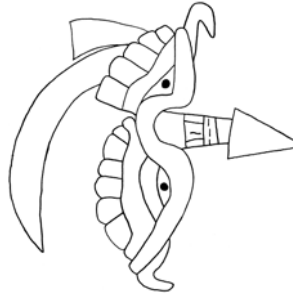
Late
Postclassic



Depictions of alligators as a
“cave” [above] and as “earth”
[below] in the narrative
incised in the jaguar femur
from the Ndaxaqua tunnel

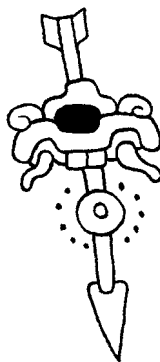


Early
Postclassic



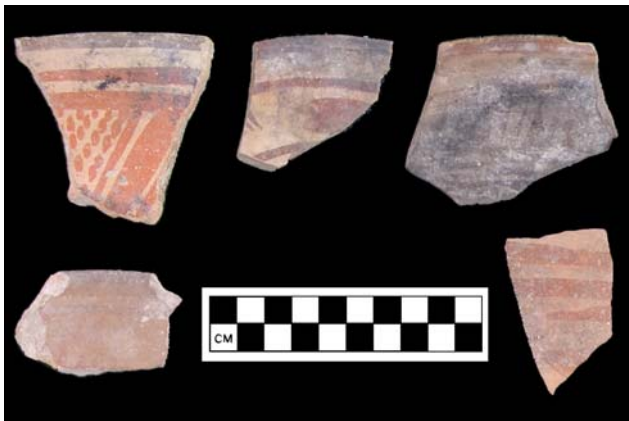
Noncalendrical sign of an
alligator and an arrow (from
an epigraphic cluster in the
Southeast sector)

Late
Classic



Calendrical name 1 Alligator.
The arrow may signal a
quality of the named person
(from an epigraphic cluster in
the Northeast sector [inside])

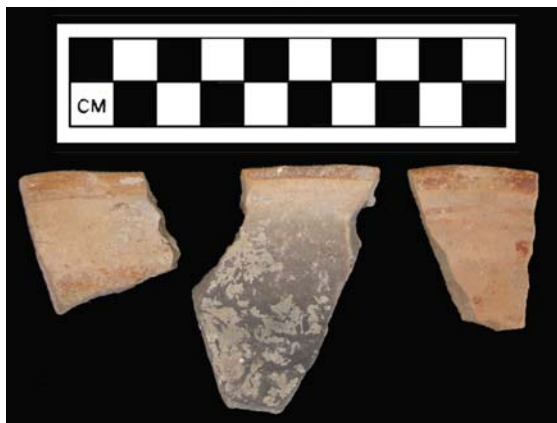
Figure 31- Stylistic variation in the representation of the alligator as a visual metaphor for “earth” or “cave”.



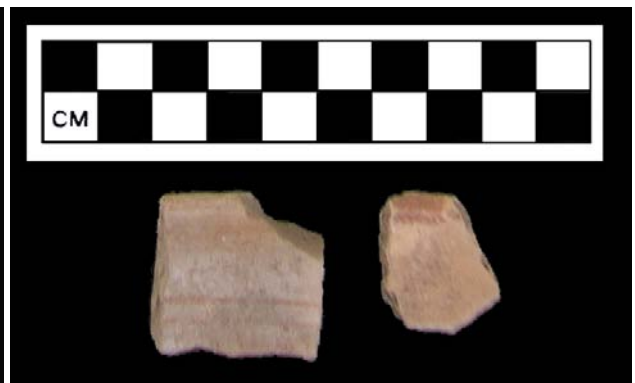
Sector 2 of Ndaxagua tunnel



Sector 3 of Ndaxagua tunnel



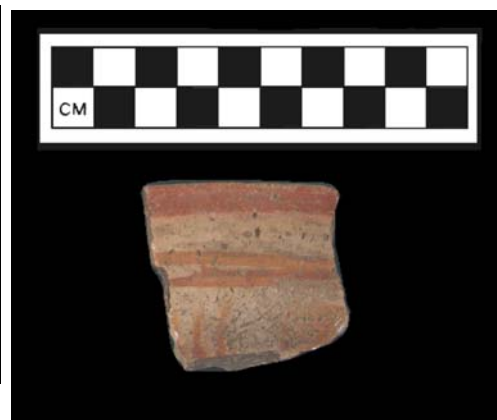
Cerro de la Escalera, inside the Palace's platform



Cerro de la Escalera, around the Palace



Loma del Coyote



Cerro del Paredón

Figure 32- Red on buff ceramics found at several sites in and around the valley of El Rosario.