

IMAGES FROM THE DARK: DATING THE PICTOGRAPHS AND PETROGLYPHS
FROM ACTUN UAYAZBA KAB, BELIZE

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ABSTRACT

IMAGES FROM THE DARK: DATING THE PICTOGRAPHS AND PETROGLYPHS FROM ACTUN UAYAZBA KAB, BELIZE

DAGMAR GALVAN

The primary objectives of this thesis were to document the rock art in Actun Uayazba Kab, Belize, to determine the archaeological date of the rock art corpus in the cave, and to contribute to the overall knowledge of cave use in ancient Maya society. The dating of the rock art was accomplished by combining relative and absolute methodologies. Relative techniques included comparative analysis of cave art in the Maya lowlands, and comparison of the ceramic assemblage of Actun Uayazba Kab with that from the Belize River Valley region. Absolute techniques employed the use of Accelerator Mass Spectrometry analysis on charcoal discovered adjacent to the rock and on human remains from two burials at the site. The combination of both approaches indicates that the rock art in Actun Uayazba Kab's is predominantly of Late Classic (600-900 A.D.) date.

ACKNOWLEDGEMENTS

I would first like to thank Jaime Awe for giving me the opportunity to work in Belize even though I had absolutely no knowledge about Maya archaeology and Maya cave studies. You, sir, have opened up my eyes to the underworld and an ancient civilization that has so many more secrets to reveal. I would like to thank my family for supporting me through this journey to get a higher education. I could not have done it without y'all asking me every month if I was done with my thesis. Thirdly, I owe Claire Ebert great big thanks for analyzing the charcoal samples from Actun Uayazba Kab. You are a savior. Elyse Bromser-Kloeden also deserves big thanks for documenting the petroglyphs and pictographs and stitching the photographs together to make three-dimensional models. Lastly, a big thank you to all the other BVAR students who assisted me with the research.

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Chapter 1: Introduction and Setting

Introduction

The primary research objectives of this thesis are to describe the corpus of rock art in Actun Uayazba Kab (aka Handprint Cave), to determine the temporal breadth of the rock art, and to contribute to the overall knowledge of the role of caves in ancient Maya society. The last three decades of research in the Maya area have witnessed considerable increase in the study of subterranean sites in this Mesoamerican sub-region (Brady 2004, Awe 1998, Moyes 2006, Morehart 2004, Ishihara 2000, Slater 2014, Spenard 2014). A few other studies have expended some research attention on the interpretation of cave art, and its associated symbolism (Strecker 1976, 1977, 1981, 1982a, 1982b, 1984, 1987a 1987b; Stone 1987, 1989, 1997 2010; Brady 1988, 1989, Brady et al. 1992). Despite the contributions made by these archaeologists, iconographers and epigraphers, however, rock art in caves continues to receive minimal archaeological research attention in the Maya area (Awe 1998). The research reported herein addresses this omission, adds new data to the corpus of Maya cave art, and contributes additional new information to the study of this ancient Maya art form.

Caves in Maya Context

In general, Maya oral and written histories designate caves as sacred places (McNatt 1996; Brady 2004). Caves are known to be the entrances to the underworld, called Xibalba by the Quiche, or Mental by the Yucatec Maya (Brady 2004). Xibalba or Mental is a watery place inhabited by deities representing death, disease, old age, sacrifice, decay and foul smells. Souls of the dead are required to pass through the nine levels of Xibalba and overcome various tests with wisdom and courage (Brady 2004). The Maya associate caves as living manifestations of spiritual power and with cycles of

life and death (McNatt 1996). Ethnohistoric documents such as the Popul Vuh, Chilam Balam of Chumayel, and Maya artistic representations on stelae, tomb tablets, vases, and plates describe and illustrate gods or rulers emerging or entering the underworld. Caves are thus sacred landscapes that constitute an important part of Maya cosmology and identity (Brady 2004).

The Maya lowlands of Guatemala, Mexico, and Belize are predominantly karstic in nature (Kieffer and Scott 2015; King et al 2012). These karstic limestone regions are also geologically conducive to the formation of numerous caves, particularly in places like western Belize (Stone 1997; King et al 2012). The study of these cave sites has resulted with the publication of various reports and articles that serve to place Mesoamerica cave studies at the forefront of the theoretical developments of cave scholarship (Kieffer and Scott 2015). Research in caves has focused on exploring the symbolic and utilitarian use of caves, and the documentation of considerable amounts of artefactual remains, architectural construction, human remains, and epigraphic data (Awe 1998). It is through these explorations that archaeologists have determined that caves play, and played, an important role in Maya religious life, and why they are rich repositories of ancient and modern Maya material culture (Stone 1997).

Cave Investigations in the Belize Sub-region of the Maya Area

Cave investigations in the Maya area date back to the late 1800's (McNatt 1996; Brady 1989; Brady and Prufer 2013; Kieffer and Scott 2012). Since then, however, most cave research has focused extensively in caves located in western and southern regions of Belize and Guatemala (King et al 2012). In Belize, Henry Lefroy published the earliest reference to archaeological research as early as 1884 (McNatt 1996). Several

publications from 1894 to 1930, by Thomas Gann, Henry Mercer, Edward Thompson, George Gordon, and Eduard Seler, also contributed to early investigations of caves in this area (Kieffer and Scott 2012). Thomas Gann specifically published a variety of information on caves within the western Cayo District of Belize, and to a lesser degree in the Orange Walk and Toledo Districts. Significant cave studies during this period also provided a solid foundation of data on cave use in the Maya area. Following this initial surge in cave research, the years from 1931 to 1954 represent a hiatus in cave research (McNatt 1996).

Cave studies resumed in 1955, as Alexander Hamilton Anderson established the Belize Department of Archaeology and began promoting cave archaeology in the country. Anderson conducted various excavations in Las Cuevas/Awe Caves and invited David Pendergast from the Royal Ontario Museum in Canada to join him in several cave projects. Pendergast subsequently carried on Anderson's work, publishing monographs based on his own salvage operations and cave projects (Awe 1998; Kieffer and Scott 2012). As a result of these efforts, Pendergast went on to become the primary figure in Belize cave archaeology throughout the 1960s (McNatt 1996). From 1969 to 1974, Pendergast (1969, 1970, 1971, 1974) investigated the cave sites of Actun Balam, Rio Frio Cave, Eduardo Quiroz Cave, and Actun Apolbilche (Awe 1998). His excavations lead to the first technical reports on caves in Belize. Following Pendergast's work, Belizean Commissioner of Archaeology Joseph Palacio initiated a program for the exploration of cave sites across the country. To assist with the project, Palacio enlisted the help of two American Peace Corps volunteers, Barbara MacLeod and C.J. Rushin. Unfortunately, the

project was short-lived, and was discontinued after MacLeod and Rushin returned to the United States (Awe 1998).

From 1971 to 1979, the Belize Department of Archaeology and foreign cavers, primarily from the United States, laid the groundwork on cave research in the country. In 1978, Barbara MacLeod and Dorie Reents-Budet (1986; Reents 1980; 1982) launched a major archaeological project that focused on Petroglyph Cave in western Belize. Following the work of MacLeod and Reents-Budet, most cave explorations between 1978 and 1987 were conducted by Geomorphologist Thomas Miller (1977; 1981a, 1981b; 1984; 1986a, 1986b; 1988; 1989 a; 1989b; 1990) and Logan McNatt (1996). Between 1988-1989, American Gary Rex Walters (1988) and a British speleological expedition (Marochov and Williams 1989; 1991) explored caverns reported by Thomas Miller.

The period 1980-1997, labeled as the Foundation Period in Maya cave studies, marks the appearance of methodological and theoretical approaches to study of caves in the region (Kieffer and Scott 2012). The discovery and subsequent investigations of Naj Tunich in 1979, in particular, spurred a renewed interest in cave archaeology among Mesoamerican archaeologists. Investigated by James Brady as part of his dissertation research, Naj Tunich was found to contain the largest corpus of cave art discovered in the Maya area (Stone 2010). Concurrent with Brady's investigations, iconographer Andrea J. Stone documented Naj Tunich's cave art and, in many respects, established the methodological framework for the study of Mesoamerican cave art (Scott 2007). Stone subsequently conducted a regional study of Maya cave art, dating from Pre-conquest times to the Colonial Period, by surveying twenty-five known painted caves in the Maya area, and analyzing the images and inscriptions. Her extensive research on regional

variation on cave art also served to set the standard for the interpretation and analysis of cave art in Mesoamerica in general.

A dramatic increase in cave investigations occurred in the mid-1990s with the launch of the Western Belize Regional Cave Project (WBRCP). Directed by Jaime Awe (1998), this problem-oriented project applied a regional approach to the study of cave sites in western Belize. The major questions addressed by the WBRCP included the following: 1. what was the temporal span of cave use in western Belize, and what was the period of most intensive usage? 2. Was there evidence to suggest that some caves may have been specifically for elite use while others were for public use? 3. Were there different activities/rituals conducted in different sections of caves, and if so, what were the reasons for these differences? 4. What was the age and sex distribution of skeleton populations in caves, and do these remains reflect particular traditions of ancient Maya society? 5. Were caves primarily sacred spaces reserved for important rituals and what were the nature of these rituals?

At the onset, the WBRCP (1997- 1999) focused its research attention primarily in the Roaring Creek Valley. In this sub-region of western Belize, they investigated Actun Tunichil Muknal, Actun Uayazba Kab, Actun Yaxteel Ahau, Actun Nak Beh, and several other smaller caves such as Tarantula and Old Man Caves (Awe 1998; Awe et al. 1998; Awe and Helmke 2015; Gibbs; Moyes 2001, 2002, 2003; Morehart 2002; Halperin 2005; Helmke 2009). From 2000-2010, the WBRCP extended its cave investigations to the Barton Creek and Macal River Valleys (Griffith and Morehart 2000; Ferguson 2000; Ishihara 2000; Halperin et al 2000). After 2010, several former students of Awe began their own research in the Caves Branch River Valley (Wrobel and Tyler 2006; Wrobel et

al. 2007; Jordan and Wrobel 2007; Jordan 2008; Jordan and Guerra 2008; Wrobel et al. 2009, 2013; Andres and Wrobel 2010; Morton et al 2012), in the Vaca Plateau (Iannone et al. 2010), the Chiquibul Reserve (Moyes 2011), and the Pacbitun area (Spennard 2014). In 2015, many of these projects continued their investigations of cave sites in western Belize and, cumulatively, continue to provide considerable new information on the ritual use of caves in the Maya lowlands. In many respects, the research reported in this thesis is a continuation of the work accomplished by the Western Belize Regional Cave Project, and of its contribution to Mesoamerican cave and rock art studies.

Objectives

As indicated above, the investigations conducted in Actun Uayazba Kab for this thesis are, in large part, an extension of the research goals of the WBRCP. The primary objective of this research is to conduct intensive investigations (photography, AMS dating, 3-D modeling, and comparative analysis) of the prehistoric art in Actun Uayazba Kab in an effort to a) record the types of art present in the cave, b) to determine the date of the rock art, and c) to ascertain the possible significance of the art in ancient Maya ideology. In addition, the research should also shed light on the types of activities that occurred within Actun Uayazba Kab, and serve to enhance our knowledge of the roles of caves in ancient Maya society.

Research Goals and Hypothesis

Hypothesis

Actun Uayazba Kab's rock art can be dated through non-destructive methods.

Research Goals

The primary research goal of this thesis is to determine the temporal range of the rock art in Actun Uayazba Kab. Other related goals are to record the corpus of rock art in the cave, extract charcoal samples for dating, and to conduct comparative analysis of the rock art. Rock art documentation is an extensive, integral and non-invasive process necessary to monitor degradation and alteration processes, and to guarantee the preservation and authenticity of the heritage (Domingo 2012). Re-documenting every pictograph and petroglyph from Actun Uayazba Kab will help to create a photographic database, as well as document any degradation that may have occurred since the discovery of the cave in 1996.

I also plan to conduct a stylistic analysis of the ceramics from Actun Uayazba Kab. This study will build on the preliminary analysis conducted by Helmke and Awe (1998). Besides identifying ceramic styles that are typical of this sub-region of the Maya lowlands, the ceramic analysis will identify temporally diagnostic types, and record quantitative data that will serve as an index of site intensity usage over time.

The final goal of the project is to collect organic remains that can be dated via Accelerator Mass Spectrometry (AMS). These samples will be acquired from charcoal found in archaeological contexts as a result of surface deposits, removing flecks of charcoal from smudges on the cave wall that were left behind as a result of torch tamping, and direct dating of human remains. Radiometric dating of these materials will provide chronological information that will allow us to determine the temporal usage of Actun Uayazba Kab.

Ultimately, the results of this research will contribute significant information regarding the form; diversity and date of ancient Maya rock art, as well as contribute to the development of a Mesoamerican cave paradigm (cf. Kieffer 2012).

Chapter 2: Site Description and Previous Investigations in Actun Uayazba Kab

Site Location

Actun Uayazba Kab (aka Handprint Cave) is located in the Roaring Creek Valley, approximately 10 km south of Teakettle Village in the Cayo District of western Belize (Figure 2.1). The Roaring Creek flows northward from its origins in the Mountain Pine Ridge to its confluence with the Belize River near the modern village of Roaring Creek. The cave is situated some 260 m west of the Roaring Creek, amidst the karstic limestone cliffs defining the western foothills of the valley.

Actun Uayazba Kab was first recorded in 1996 by the survey crew of the Western Belize Regional Cave Project (WBRCP) (Awe 1998). The cave was subsequently surveyed, mapped, and excavated during the 1997 and 1998 field seasons of the WBRCP. Provided here is a summary of the latter investigations, plus an overview of the burials and cultural materials discovered during the WBRCP excavations. For more detailed information on the investigations, and on the cultural remains recovered at the site, one can refer to the WBRCP reports by Gibbs (1998), Ferguson and Gibbs (1999), Griffith (1998 and 1999), Helmke and Awe (1998), and Helmke et al. (2003).

Site Description

Actun Uayazba Kab is a cave with both dark and light zones. The entrance to the cave measures 24 m wide and just over 18 m in height. Half of the surface area of the cave is covered by a large entrance chamber. At the center of this chamber there is a large stalagmitic column measuring approximately 8 m in diameter and over 10 m in height. The stalagmitic column practically divides the entrance into two, interconnected, open chambers. The chambers are designated as Entrance I and II, with Entrance I located to the north of the stalagmitic column, and Entrance II to the south of the column

(Figure 2.1). The entrances to both of these chambers face east, and overlook the forested Roaring Creek Valley below, and the site of Cahal Witz Na just east of the river.

The ambient space defined by the entrance extend less than 14 m into the rock face, giving the cave the general appearance of a rock shelter. Actun Uayazba Kab includes a number of small passages that extend deeply westward into karstic limestone that define its cave component. These small passages include the Burial Alcove, Ledge 1, Mirro Passage, and the “Histo” Chamber.

The “Histo” Chamber is small dark chamber to the south of Entrance II. The floor is a mixture of silty dirt and black guano. Ledge 1 is small travertine ledge approximately 11 meters above Entrance I. Members of the WBRCF required specialized climbing gear and technical skills to reach the ledge (Griffith 1998). The Burial Alcove is located northwest of Entrance I (Figure 2.2.). The Mirro Passage is a small, narrow passage that leads into the side of the hill just north of Entrance I. The back of the Mirro Passage opens up to a small chamber. The ceiling of the passage is narrow with a small chimney that goes up diagonally from the ceiling. The walls in the back of the passage are comprised of dull green limestone bedrock (Griffith 1998).

Burial Alcove, Entrance II, and the “Histo Chamber. Units 1 and 2 were excavated in the Burial Alcove and Unit 3 was placed in Entrance I. Unit 4 was located in Entrance II and Units 5 and 6 were located on the Upper Ledge. The salvage operation was carried out in the “Histo Chamber” (Griffith 1998).

The “Histo” Chamber is a small dark chamber to the south of the Entrance II. Extensive looting occurred in the dry gour pool. The looter’s backdirt contained potsherds and human bone fragments. The presence of remains and artifacts prompted archaeologists to conduct Salvage Operation 1 to determine the extent of damage caused by looting (Figure 2.2.).

Units 1 and 2 were placed in between looter’s pits at the center of the Burial Alcove. Articulated remains were found along the eastern wall of Unit 1. Artifacts found in the Burial Alcove excavations included human cranial fragments, animal bone, lithic material, potsherds, obsidian blade fragments, quartz crystal and fragments of pyrite.

Excavations in Entrance I, Unit 3, were placed east of the petroglyphic panel. Several series of plastered floor surfaces were situated over the jagged bottom of the bedrock depression to provide a flat regular surface (Griffith 1998).

Entrance II, Unit 4 was located near the access tunnel to the Handprint Chamber. Unit 4 revealed a plaster floor that abutted the natural bedrock of the cave floor. Carbon deposits, ceramic sherds, and other cultural material were located beneath the plaster floor (Griffith 1998).

Excavations on the Upper Ledge, Unit 5 were defined by a large travertine pool (Figure 2.4.). Excavations occurred in the Ledge due to the presence of two large ollas and an abundance of polychrome sherds in Pool 1 (Figure 2.3.). The excavations in Unit

5 produced a collection of elaborate pottery sherds and a small number of non-ceramic artifacts. Unit 6 was placed in a small travertine pool. Excavations were opened due to the presence of olla sherds and charcoal in the pool, and to provide comparative data to the excavations in the large travertine pool (Griffith 1997). Unit 6 exposed the presence of numerous potsherds and an obsidian blade fragment in a small travertine pool. (Griffith 1998).

Human Remains from Actun Uayazba Kab

Gibbs (1998) focused her excavations in the Burial Alcove since the majority of the human remains were discovered there. Excavations in the Burial Alcove yielded five individuals, including a newborn (or possible fetus), a child, an adolescent, and two adults. The disarticulated adult individual remains include a large number of fragments, especially cranial fragments. Some of the bones include the shafts of a humerus, tibia and two femora (left and right), a number of phalanges, two mandible fragments, numerous cranial fragments, vertebral fragments and teeth (Gibbs 1998).

The human remains from the “Histo” Chamber were collected from the surface, as well as from a large pile of looter back dirt toward the rear of the chamber. The remains were damp and poorly preserved. Numerous small fragments were recovered, including cranial, vertebral, and long bone fragments. Fragmentary elements include the right pubic symphysis, right talus, a scapula fragment, and the distal end of a right tibia (Gibbs 1998).

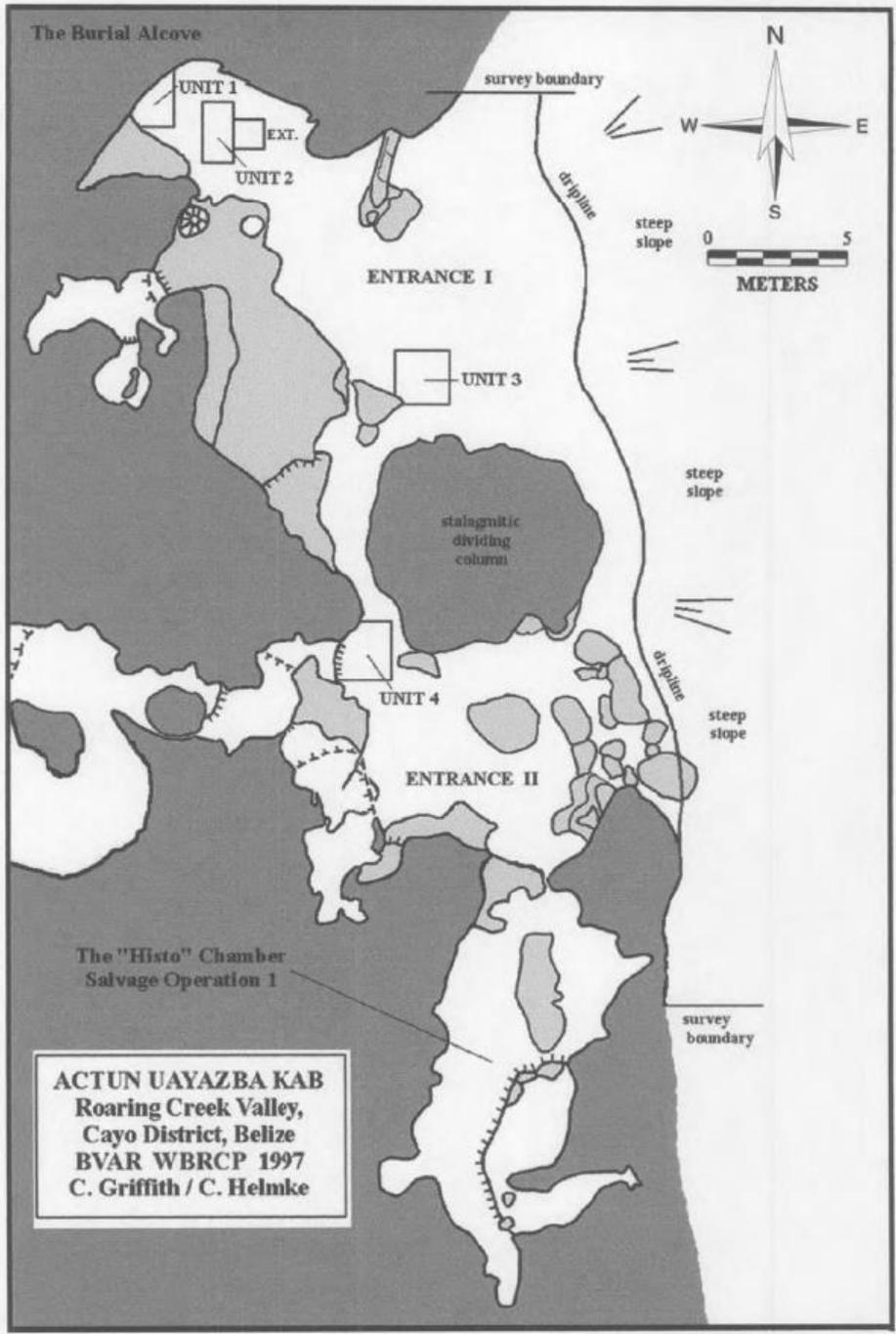


Figure 2.2. Actun Uayazba Kab map showing Entrances 1 and 2, Burial Alcove, and “Histo” Chamber (after Griffith 1998).

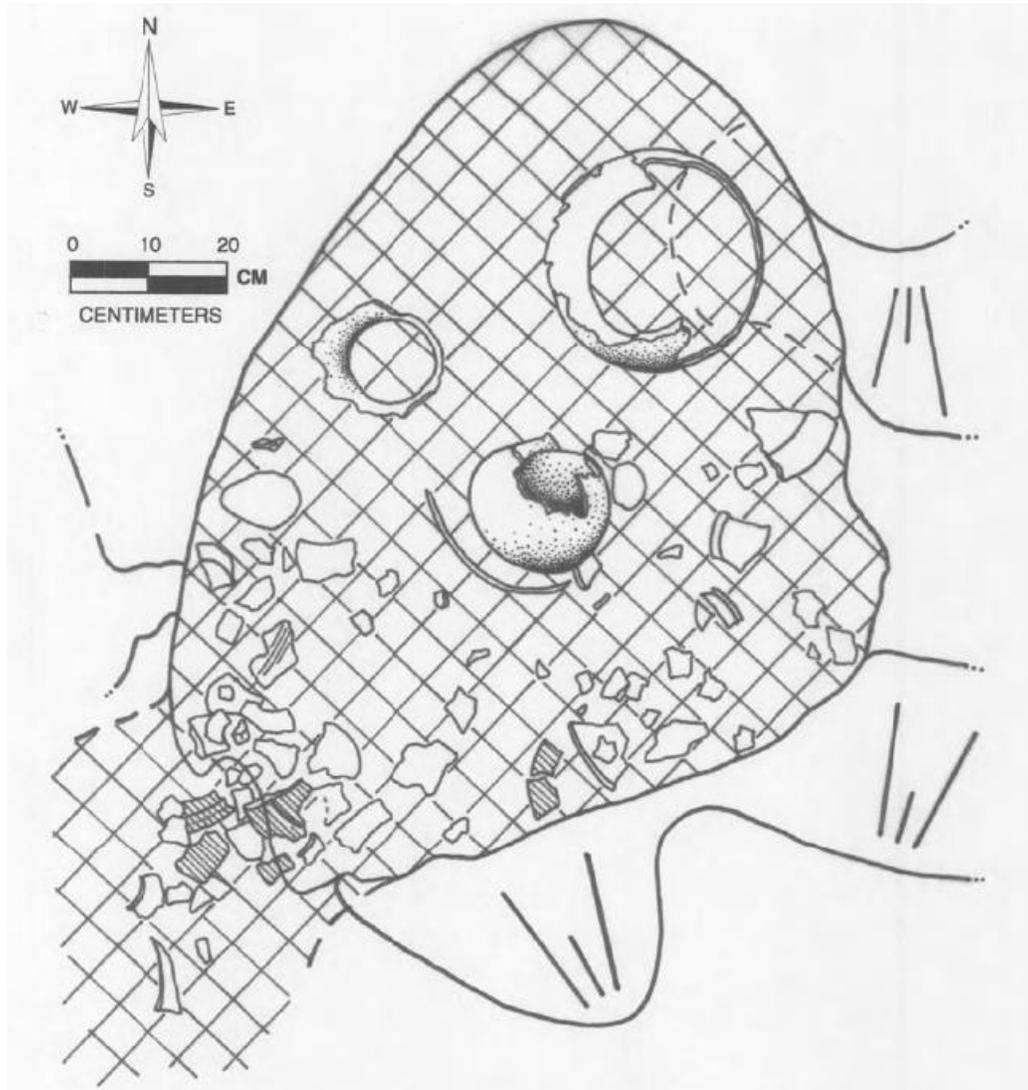


Figure 2.3. Pool 1, Unit 5 with Ollas and monochrome and polychrome sherds (after Griffith 1998).

Actun Uayazba Kab
Ledge 1
Western Belize Regional Cave Project
survey: C. Helmke, P. Colas, C. Griffith
graphics: Cameron Griffith

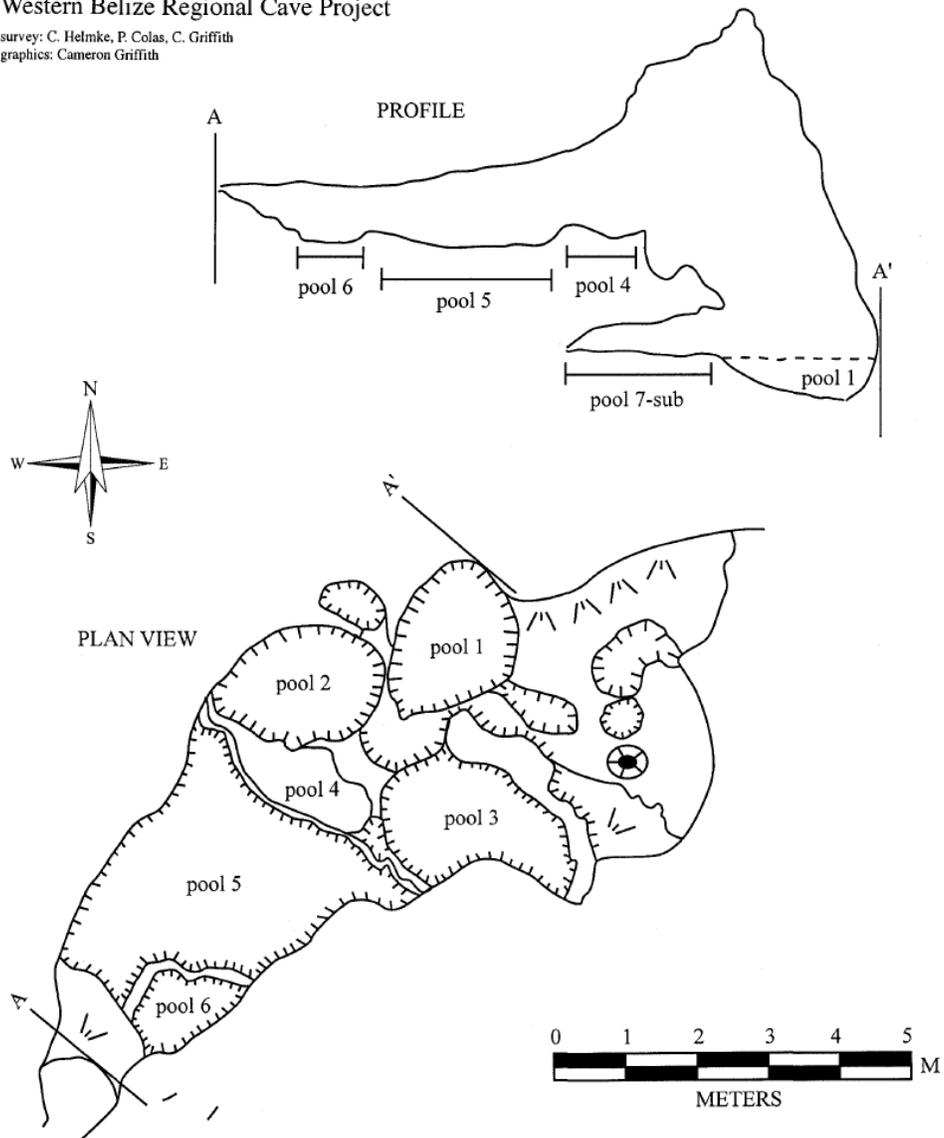


Figure 2. Ledge 1, plan view and profile

Figure 2.4. Map of Ledge 1 (Upper Ledge) (after Griffith 1998).

Investigations of the 1998 Season

The archaeological investigations of Actun Uayazba Kab were divided into four separate operations. Operation 1 consisted of excavation units placed in the two entrances of the cave. Operation 2 was conducted in Ledge 2; and operation 3 took place in Ledge 1 (located in the light zone). Operation 4 took place in the dark zone of the cave in two different loci: The Histo Pool Tunnels and Sac Tunich Na.

Salvage operations (Operation 1) occurred to determine what types of data had been affected by looters, the extent of damage, and to salvage any surviving deposits. Operation 2 is the result of the salvage excavation in the Burial Alcove and Entrance II (Ferguson 1998).

Four excavation units, two in the Burial Alcove and two in Entrance 2 were established in Actun Uayazba Kab. Unit locations were selected to encompass areas of new and expanded looters pits and to include adjacent areas with potentially undisturbed deposits (Ferguson 1998).

Excavations in the Burial Alcove were initiated for salvage operations to define looters pits (LP) and recover any associated but displaced cultural material. The excavations uncovered seven human burials, including one infant, two adult females, two juveniles, one adult of indeterminate sex, and one burial that could not be excavated due to time constraints. Excavations were expanded to include the remaining in situ deposits of both Units 8 and 9 (Ferguson 1998). Unit 8 and Unit 8-Extension generated Burials 98-6, burial 98-2, 98-3, 98-4, 98-5 (see Ferguson 1998 for further descriptions of burials).

Unit 9 was located east of Unit 1 and north of Unit 2, both of which were excavated during the previous field season. Excavation unearthed two concentrations of

poorly preserved, unarticulated human bone near the bottom of the pit in the northeast corner of the unit (Ferguson 1999). Human bone continued to be encountered including fragments of two long bones, a patella, and teeth. Artifacts recovered from this level included ceramic sherds, chert flakes, faunal remains, as well as 2 obsidian blade fragments, 1 piece of pyrite, part of a spindle whorl, and a piece of conch shell (Ferguson 1998).

Excavations in Entrance 2 consisted of two units (Units 10 and 13). Both units yielded various artifacts and cultural materials (Ferguson 1998).

Operation 3, Light Zone

Operation 3 is located in Ledge 1 (Figure 2.4.) and was a continuation of the excavations carried out in Actun Uayazba Kab in the 1997 season. The 1998 investigations consisted of three separate excavation units defined by the natural morphology of the travertine pools in ledge 1 (Griffith 1999).

Ledge 1 is small travertine ledge approximately 11 meters above Entrance I of Actun Uayazba Kab (Griffith 1999). Ledge 1 excavations consisted of placing three units (Unit 7, Unit 14, and Unit 15) along a small passage composed of limestone karst. Unit 7 yielded polychrome sherds, numerous faunal bones, and one lithic tool. Unit 14 revealed numerous potsherds, speleothem fragments, and slate material. Unit 15 generated numerous ceramic sherds, speleothem fragments, two modified pieces of slate, and obsidian blade fragments.

Operation 4, Dark Zone

Operation 4 took place in the dark zone of Actun Uayazba Kab in two different loci: passage leading to the Handprint Chamber (Figure 2.5.) and the Sac Tunich Na chamber (Figure 2.6.). Surface collections were conducted in the passage leading to the

Handprint Chamber. Sac Tunich Na is a small chamber located in the very back of the cave with a chimney that extends two meters into the ceiling. It is primarily composed of white, sparkling calcium carbonate and marked by numerous smudge marks throughout the cave wall, which are most likely torch tamp marks produced by tapping or scraping a torch on the cave wall (Griffith 1999).

Two excavation units (Units 16 and 17) were placed in Sac Tunich Na due to its morphological unique area within the cave (Griffith 1999). Unit 16 was placed on the pool position just below the chimney in Sac Tunich Na and below the torch tamps marks on the cave wall. Unit 16 was a very shallow unit that yield little cultural material. Unit 17 is defined by a small, dry gour pool located in a low squeeze in Sac Tunich Na. Unit 17 yielded little cultural material. The speleothems were imported and placed in the pool, but it is possible that they came from nearby, within the Sac Tunich Na chamber itself (Griffith 1999).

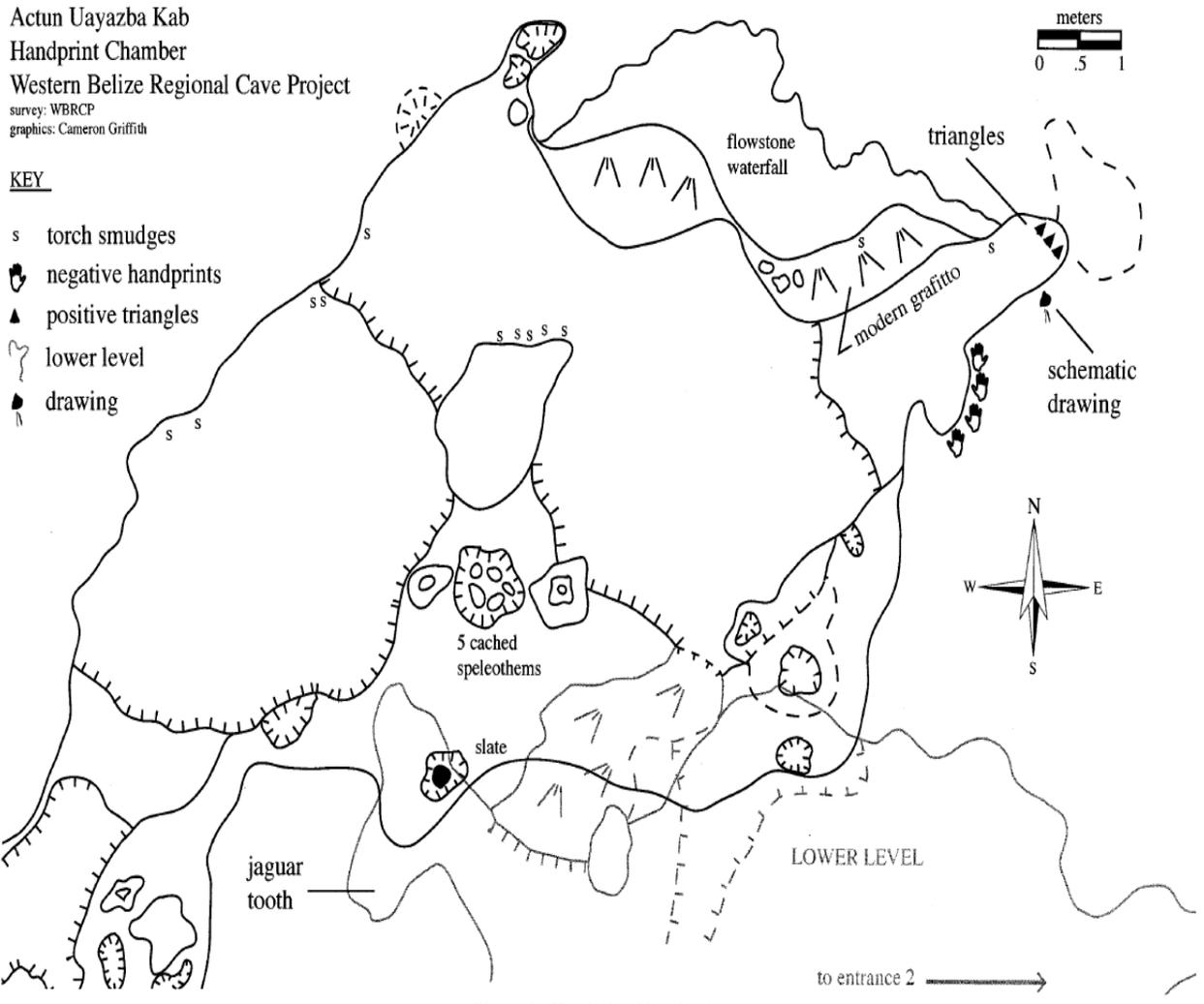


Figure 2.5. Handprint Chamber Map (after Griffith 1999).

Actun Uayazba Kab
Sac Tunich Na Chamber
Western Belize Regional Cave Project
survey and graphics: Cameron Griffith

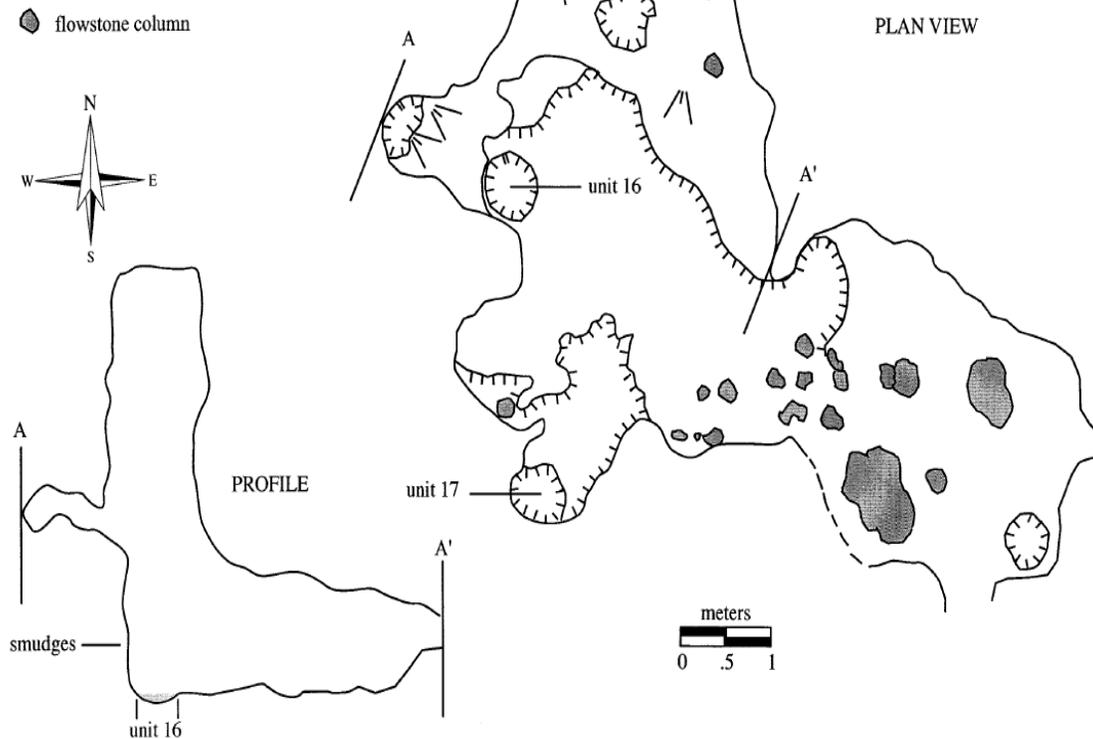


Figure 2.6. Sac Tunich Na Chamber, Plan view and Profile view (after Griffith 1999).

Chapter 3: Theoretical Frameworks

Theory governs the questions we address and the methods and techniques that are useful in research agendas. Theory therefore influences the types of data collected and how that data is reported (Schaafsma 1985). The main research question for this thesis is what is the archaeological date of the rock art present in Actun Uayazba Kab? This question will contribute to the overarching research objectives of the WBRCF concerning cave use intensification during ancient Maya occupation of the Roaring Creek Valley (Awe 1998). The research in Actun Uayazba Kab consists of dating the rock art present in the cave through relative and absolute dating techniques. Although both of these methods are still being refined, it is possible to designate a temporal scale of Actun Uayazba Kab's rock art. This chapter will discuss the two theoretical models of relative and absolute dating.

Relative Dating

Rock art worldwide can be assigned relative dates using eight major sorts of evidence: 1) association with dated archaeological deposits (e.g. ceramics and burials); 2) associated with dated portable art; 3) portrayal of datable subject matter; 4) superimposition of designs; 5) rock varnishing and weathering; 6) access to images; 7) ethnographic knowledge; and 8) materials used in the production of art (Keyser 2001). The relative dating techniques that are employed for this research are association with dated archaeological deposits, proximate cave and surface sites, and stylistic appraisal. These approaches have the potential to inform researchers on the chronological scale of the rock art. Rock art scholars examine styles of objects known from other dating contexts and compare stylistic details from region to region to yield data that will provide a chronological timeline. Given the controversies, surrounding topographic and stylistic

approaches it will be noted that these methods can still inform archaeologists of relative chronologies.

Association with Dated Archaeological Deposits

Archaeological deposits that contain ceramics and human remains can yield dates for ritual or ceremonies associated with images. Actun Uayazba Kab's petroglyphs are closely situated by various burials present in the entrance of the cave and ceramics have been found throughout the dark zone and light zone. The dates yielded from the ceramics and human remains can provide a minimum date for the use of the site. An analysis on Maya pottery, conducted by James Gifford, Gordon R. Willey, and Robert E. Smith, established the ceramic complexes present in Baron Ramie horizon. All of the ceramics discovered in Actun Uayazba Kab belong to the Baron Ramie horizon. Analysis of the ceramics present in Actun Uayazba indicate that the cave was used from Late Preclassic to the end of the Late Classic period. 70 percent of the pottery recovered dated to the Spanish Lookout Phase (Late Classic) suggests more intensive use of the site during this period. This date can give a proximate date that could reflect the date of the rock art.
(Human remains addition)

Proximate Surface Sites and Cave Sites

The idea of deducting the age of rock art from evidence nearby (e.g. surface sites) is based on the perception that different activity traces of the same period occur together than at diverse locations (Bednarik 2002). Three surface sites by Actun Uayazba Kab are Pooks Hill, Tipen, Chen Uitz, Cahal Witz Na'. The three sites will provide chronological information that will contribute to dating Actun Uayazba Kab's rock art, since it is

assumed that the sites' proximity and periods of occupation are contemporaneous with cave usage in the Roaring Creek Valley.

A database consisting of dates from surface sites and cave sites within the Roaring Creek and adjacent Caves Branch River Valleys will establish a “local” chronological sequence, which will then be used for making comparisons with Actun Uayazba Kab's ceramic chronology, and to identify where dates overlap. Proximate cave sites including Actun Tunichil Muknal, Actun Yaxteel Ahau, Footprint Cave, Caves Branch Cave, Petroglyph Cave, and Actun Nak Beh will be evaluated to determine the temporal breadth of cave utilization in the region (Figure 3.1). Although some of these caves do not contain rock art, they are useful for determining the temporal scale of usage of Actun Uayazba Kab due to their proximity. (Figure 3.1.) Figure 1.1. Map of the Roaring Creek Valley with neighbor sites highlighted.

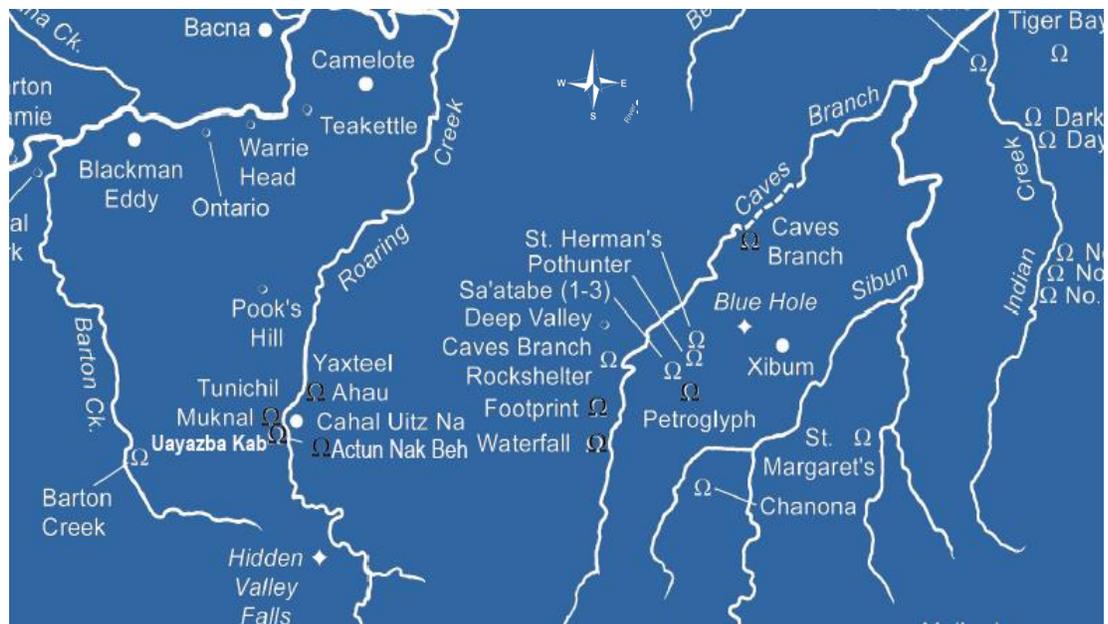


Figure 3.1. Map of the Roaring Creek Valley with neighbor sites highlighted by black omega symbol.

Stylistic Appraisal

Style is specific to certain times, places, and groups of people (Aubert 2012). Stylistic dating is one of the most enduring methods in the study of Paleolithic rock art in Europe for establishing chronological frameworks (Bednarik 1995b). Essentially, it is assumed that the theoretical constructs of archaeologists concerning cultural division and similarities correspond to the real cultures of a certain period (Bednarik 1995b). The stylistic approach is based on the subjectively perceived tool types (Bednarik 1995b). Style is subjective and decisions about style are made on the basis of individual experience and ichnographically guided intuition. A stylistic approach to dating rock art in Actun Uayazba Kab will encompass conducting a regional comparative analysis of similar rock art present in Western Belize and subsequently the Mesoamerica region. Although subjective methods of dating by style have been shown to be inadequate, style will continue to be a useful criterion for studying rock paintings.

The Maya Mountains in Belize and Guatemala contains one of the largest concentrations of caves in Mesoamerica (Stone 1997, 2010). In number of these caves, particularly in southern and western Belize, researchers have recorded evidence for cave art. Caves in the region will constitute part of the comparative database used in my analysis. Comparisons will also be made with rock art that has been recorded and dated in caves in Guatemala and the Yucatan. By identifying the temporal distribution of particular art forms in these areas, relative dates can be assigned to the rock art in Actun Uayazba Kab.

Direct Dating

Absolute dates for rock art can be acquired by dating substances physically

connected or related to the rock art in question (Bednarik 1996). Direct dating is contingent on two prerequisites: 1) the physical relationship of art and dating criterion must be direct and indisputable, 2) the propositions made concerning the chronological relationship of the rock art and dating criterion must be scientifically testable (Bednarik 2002). According to Bednarik (2002) the direct dating of rock art does not yield actual ages, but instead generates testable propositions about the relevance of specific physical and chemical data to the true age of rock art. Radiocarbon dating can encounter various problems when attempting to date rock art paintings. In order for radiocarbon age to be equivalent to calendar age, it requires several assumptions. These assumptions are 1) production of radiocarbon is constant over the time interval of interest; 2) there is rapid and complete mixing of the various carbon reservoirs on earth; 3) the isotopic ratios of samples are not altered except by radioactive decay; 4) the half-life is accurately known; and 5) the levels of C-14 in the samples are accurately measured (Rowe 2001: 142).

Conventional radiocarbon analysis involves counting the number of C-14 atoms that decay in a given amount of time. Accelerator Mass Spectrometric analysis (AMS) differs from conventional radiocarbon analysis in that it counts a relatively large total number of C-14 atoms present, not just those few that decay. The dating of the pictographs in Actun Uayazba Kab will be accomplished through AMS. Although many rock art researchers argue that dating rock art generates only a testable proposition, I would argue that AMS dating of charcoal smudges are residues directly associated with the production of handprints can provide absolute dates for the handprints in Actun Uayazba Kab.

Accelerator Mass Spectrometry (AMS)

The mid to late 1980s saw the onset of AMS radiocarbon dating on rock art. The advantage of applying AMS is that it requires only small amounts of organic materials for the dating process thus it is ideal for dating organic material in rock art pigments, charcoal paintings, organic inclusions in siliceous skins, rock surface accretions, and organic extracts (Rosenfeld and Smith 1997). This has enabled rock art researchers to date rock art directly improving the methods available for dating these cultural remains (Bruno et al. 2013). One example of how AMS has helped date rock art is reflected in the dating of prehistoric paint. Prehistoric paint pigments are usually inorganic and primarily iron and manganese oxides (Ilger et al. 1995). It is important for researchers to understand the components of pigments to address whether the pigment could have possibly been contaminated, blended, or combined with anthropogenic compounds (Bruno 2013). Once the chemical, mineralogical, and structural components of the pigment are identified, it is possible to differentiate the “recipe” used to make the paint (Bruno 2013: 4). Determining the recipe can be used as chronological markers because recipes changed over time and are thus temporally diagnostic (Rosenfeld and Smith 1997). For detailed discussion of AMS, see Finkel and Suter 1993 (Rowe 2001).

Charcoal Pigments

Actun Uayazba Kab’s pictographs are composed of charcoal. Charcoal is the most common C-14 dated archaeological material (Rowe 2001). It must be noted that the archaeological event from which one desires a date, such as when the rock art was produced, is not the same as the death of the organism from which the charcoal comes (Rowe 2001). An extrapolation is therefore necessary, in which one relates the charcoal date to an archaeological event. The usual assumption in rock art is that a charcoal

pigment date and the date of the painting are the same. Caution should be exercised when interpreting charcoal derived radiocarbon dates.

Several factors affect the deviation of the charcoal age from the time of the painting event. 1) The old wood factor contributes to dating charcoal rock art pigments. This effect renders a charcoal pigment radiocarbon date as the maximum age estimate. The charcoal might be older than the rock painting at Actun Uayazba Kab. 2) Another effect is the old charcoal factor where a fossil charcoal on a cave or shelter floor from a burning episode that occurred much earlier than the time it was used to construct a drawing. Thus it is important to keep the old wood and old charcoal factor in mind when assigning a date to a cave painting. 3) Charcoal sample size affects the accuracy of the AMS radiocarbon dates, since the effects of trace contamination by both contemporary and dead carbon, or isotopic fractionation during sample preparing and measurement may be different for large and small samples (Rowe 2001: 144). Fortunately, these effects are routinely evaluated and corrected in radiocarbon AMS measurements.

AMS dating was applied for dating charcoal smudges in Actun Uayazba Kab. Since AMS is a destructive method, charcoal from the smudges found next to the handprints were dated. In many cases, the smudges were created during the process of producing the handprints. By dating the charcoal from these smudges, we can therefore avoid destroying the handprints while at the same time acquiring absolute dates for this art form in Actun Uayazba Kab.

Conclusion

The two theoretical models of relative and absolute dating inform the types of methods useful for the research conducted in Actun Uayazba Kab. This chapter has

defined the theoretical frameworks and specific information used in the thesis to answer what the archaeological age of Actun Uayazaba Kab's pictographs and petroglyphs are.

Chapter 4: Methodology

The primary objective of this thesis research is to determine the temporal span of the rock art in Actun Uayazba Kab. Rock art dating can provide information pertaining to culture history by means of style analysis, but also with complex graphic imagery that reflects nonmaterial concepts and ideologies not necessarily represented in other aspects of the archaeological record (Schaafsma 1985: 237). Dating rock art and cave art is particularly significant to archaeology because rock art is the direct material expression of aesthetics and symbolism (Bruno 2013). Cave rock art is typically a rare phenomenon (Stone 1995). Mesoamerica and Western Europe are two of the areas in the world where pictographs are found in deep caves (Stone 1995). Cave art present in the Mesoamerican region offers an opportunity to gain insights on the motivation of “deep-cave art” (Stone 1995: 2). By researching rock art, archaeologists are able to understand how Maya individuals, through cave art, offer a perspective on how the natural environment shaped thought and action (Stone 1995). It can also provide a means of location in time.

Archaeological Age of Rock Art

To date the rock art in Actun Uayazba Kab we plan to employ both absolute and relative dating procedures. The absolute dating technique will rely on Accelerator Mass Spectrometric analysis of human skeletal remains and charcoal samples. The samples of human remains were extracted from Burials 97-1 and 98-3 that were excavated in Entrance I during the 1997 and 1988 WBRCP’s field seasons. The two bone samples will be dated by BETA Analytic in Florida. The charcoal samples were collected at the site on July 16, 2015 and July 21, 2015. The latter will be processed at the Pennsylvania State University laboratory, and radiometric dating of the processed samples will be done at

facilities at the University of California Irvine. Relative dates for the site, and by extension the art work, will be acquired in two ways: by conducting comparative analysis of the Actun Uayazba Kab rock art with that from other sites in the Maya lowlands, and by establishing a site chronology through the stylistic analysis of the ceramic assemblage recovered in the cave.

Photographic Recording of Petroglyphs and Pictographs

In an effort to gather more detailed information on the cave art, we decided to experiment with the recording of the petroglyphs and pictographs in a three dimensional format. A Belize Valley Archaeological Reconnaissance (BVAR) staff member with experience in documenting images in 3-D facilitated this effort. Hundreds of photographs were taken and then entered into Agisoft Photoscan and stitched together, then edited in 3DS Max. The application of this approach provides considerably more detail of low relief carving, and serves to confirm the accuracy of illustrations that had been produced by Helmke in 1998 (Figures 4.2; Figure 4.3; Figure 4.4; and Figure 4.5).

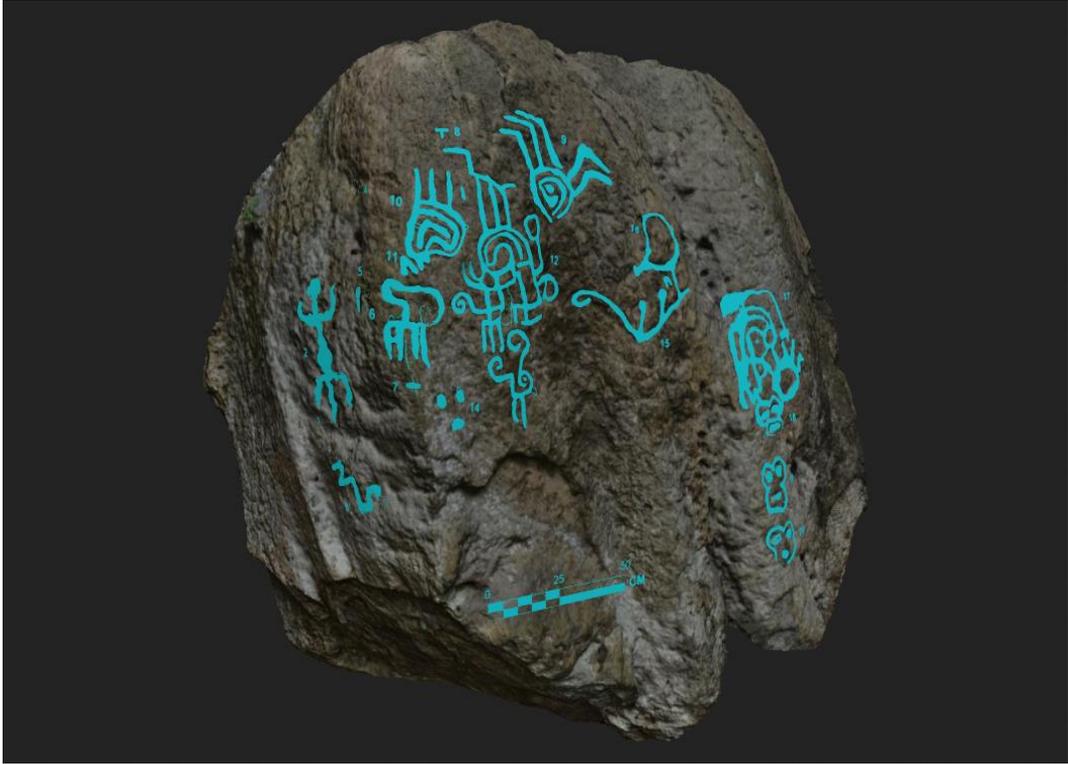


Figure 4.2. 3-D Petroglyphic Panel in Actun Uayazba Kab.

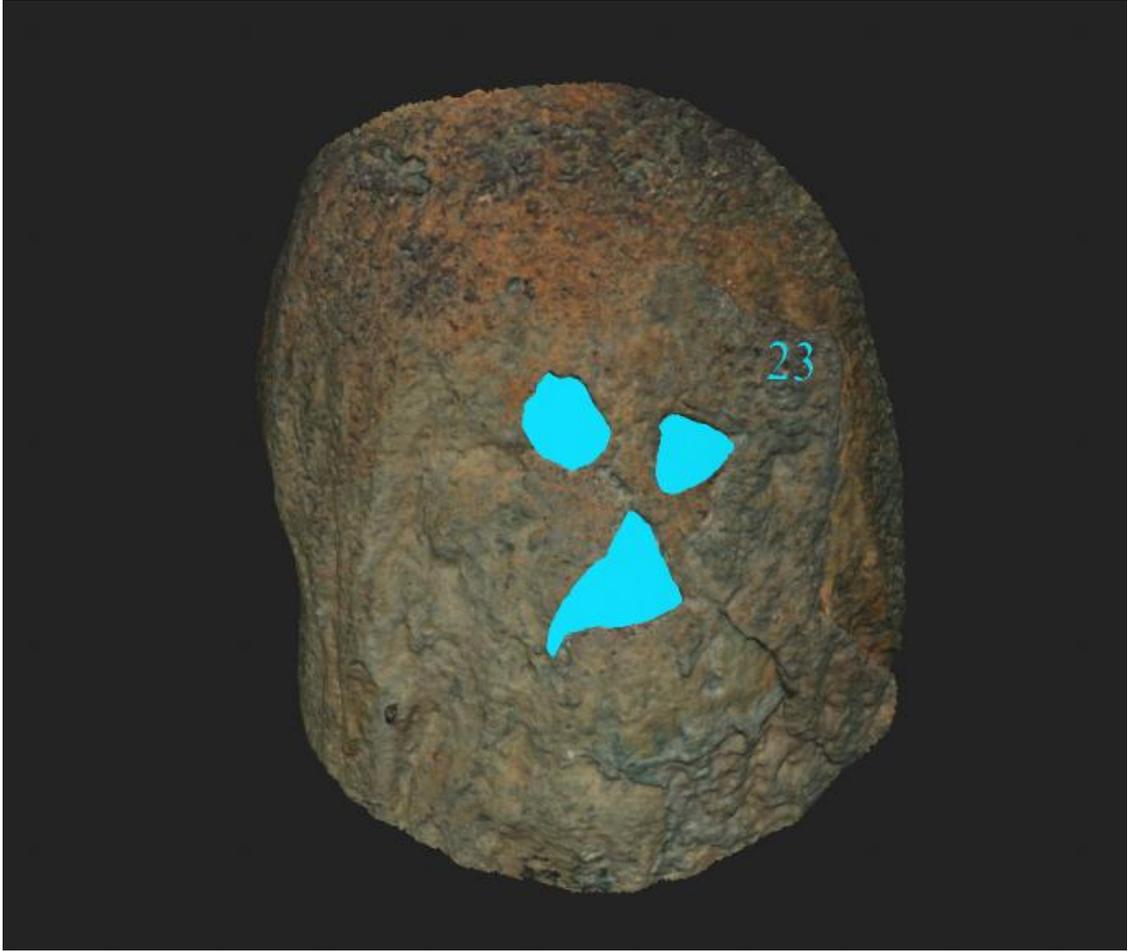


Figure 4.3. Petroglyph 23, The Scream 3-D model.



Figure 4.4. 3-D model of Negative Handprints.

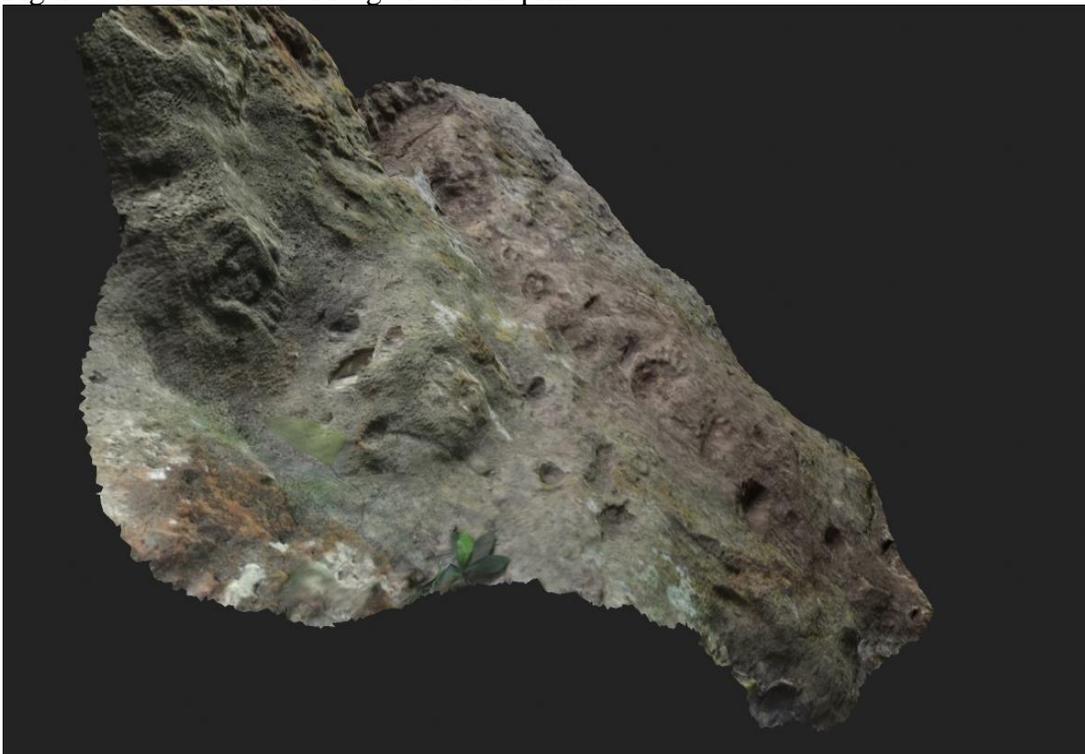


Figure 4.5. Footprints on Flowstone 3-D model.

Direct Dating

To acquire temporal information on the rock art, and the chronology of cave use, we originally planned to conduct radiometric dating of human remains, and of charcoal smudges and fragments of charcoal recovered on the walls and floors of the Handprint Chamber respectively. Since the smudges and charcoal found on the floor are both residues from the burning ends of torches used in the chamber during the “painting” of the smudges and handprints, the radiocarbon dates produced by this analysis provides absolute dates that can be applied to date the rock art in the cave. Of course, this approach is based on the assumption that these remains were deposited in the cave at the same time that the art was executed. In the case of the charcoal smudges, these features are adjacent to the pictographs and were almost certainly created contemporaneously with the art.

While not directly associated with cave art, we assume the burials in the cave were most likely deposited at the site during its use by ancient inhabitants of the Roaring Creek Valley. Dates derived from the dating of these human remains should therefore provide information on the temporal use of the cave site and, by extension, and indication of when the cave art was executed.

Charcoal Samples

Five samples were compiled from various areas inside the dark zone (Handprint Chamber) of Actun Uayazba Kab. Each sample was chosen based on its location to the handprint pictographs (Figure 4.1). An average of 5mg of charcoal was collected from each sample.

SAMPLE 1: Charcoal Smudging

Sample 1 is a charcoal sample gathered from a smudging (torching) located on the cave wall across from the four negative handprints. This sample was collected to date the pictographs, since the smudging is directly across the handprints.

SAMPLE 2: Surface Collection

Sample 2 was collected from a small concentration of charcoal on the floor of the Handprint Chamber. The sample was located three meters west of the negative handprints.

SAMPLE 3: Stalagmite Torch Smudging Sample

Sample 3 is charcoal that was collected from the base of a stalagmite about seven meters west of the negative handprints. Sample three was also the furthest from the pictographs.

SAMPLE 4: Surface Collection*

Sample 4 is charcoal that was surface collected 1.5 meters from HPT 2 datum. The sample was associated with ceramic sherds and fragments of slate in the Handprint Chamber. This sample was also associated with the largest concentration of charcoal in the chamber.

SAMPLE 5: Surface Collection*

Sample 5 is a surface collection located on a rock shelf situated on top of Sample 4. The rock shelf is about one meter above Sample 4 and two meters from HPT 2 datum. Sample 5 was also associated with ceramic sherds and fragments of slate.

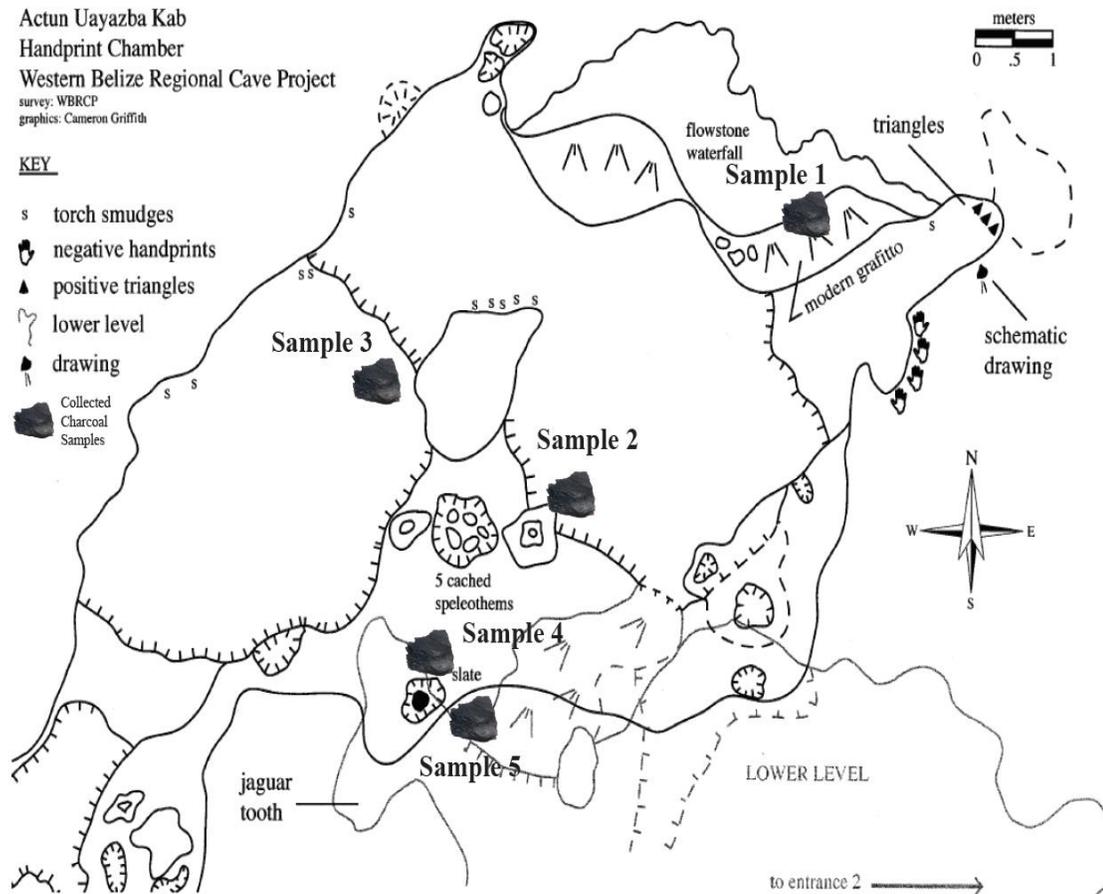


Figure 4.1. Actun Uayazba Kab (Handprint Cave) Chamber Map illustrating where samples were collected (after Griffith 1998).

Human Remains

Six primary burials (97-1, 98-1, 98-2, 98-3, 98-4, and 98-5) were excavated during the 1997-1998 field seasons in the Alcove 1 of the Main Entrance chamber Actun Uayazba Kab. The individuals are all interred below the surface of the cave floor, with some of them sealed beneath plaster floors. A large number of grave goods such as shell, obsidian, quartz crystal, pyrite, slate, ceramics, and lithic material accompanies each of the burials (Gibbs 1997). For AMS dating purposes, samples of bones were selected from Burials 97-1 and 98-3 and submitted to Beta Analytic for Analysis.

Relative Dating

Ceramics

A ceramic analysis of the Actun Uayazba Kab ceramic assemblage will be completed to determine when the cave was likely in use and, by extension, when the cave art was executed. The ceramic typologies that will be used for comparison include those previously established for the nearby site of Barton Ramie, and the lowland Maya sites of Uaxactun, Tikal, and Seibal.

Near-Neighbor Analysis: Proximate Caves

A database consisting of dates from caves sites within the Roaring Creek and adjacent Cave Branch River Valleys will be used to establish a local chronological sequence. The sequence will subsequently be used to make comparisons with Actun Uayazba Kab's chronology and to identify where dates overlap. Proximate cave sites in the Roaring Creek Valley include Actun Tunichil Muknal and Yaxteel Ahua. The Caves Branch River Valley cave sites include Footprint Cave; Waterfall Cave; Petroglyph Cave; and Actun Nak Beh. Although some of the caves do not contain rock art, they are useful for determining the temporal scale of usage of Actun Uayazba Kab due to their proximity.

Surface Sites

Archaeological data from the adjacent sites of Cahal Witz Na', Tipan Chen Uitz, and Pooks Hill will be used to determine the temporal limits of human occupation in the upper Roaring Creek Valley. This chronology will then be compared to the dates acquired for Actun Uayazba Kab, and to ascertain chronological overlap between the cave and nearby surface sites. Comparisons with local surface sites is important for it is logical to assume that the caves were actually used by the inhabitants of these sites. It

therefore stands to reason that the caves would have been used during the time that these surface sites were occupied.

Style Comparison

Helmke et al. (2003: 111-131) recorded 13 rock art sites with evidence of pictographs and/or petroglyphs in Belize. Five of these cave sites, Actun Dzib, Roberto's Cave, Bladen 2, Stela Cave and Actun Chapat, located in the southern and northern Maya Mountains of Belize, contain pictographs. The most prominent rock art site is the Actun Dzib Cave in the Toledo District (Helmke et al. 2003: 100, 114; Stone 1995: 91-94). It contains more than 75 drawings with black and brown outlines. Roberto's Cave, located near Laguna Village, Toledo, contains only six pictographs. Bladen Cave 2 rock art consists of four charcoal pictographs (Stone 1995). Actun Chapat, located in the Macal River Valley in western Belize, contains a singular type of pictograph. Stela Cave, located in the Sibun Valley, has two black handprints. The handprints are examples of negative and positive techniques. Two other sites containing pictographs were recently reconnoitered and recorded by Jaime Awe. The first, Painted Cave, is located in the middle Sibun River Valley. The images in Painted Cave represent a jaguar, four large glyphs or pseudoglyphs, and several abstract motifs and smudges. The second cave, also in the middle Sibun Valley, is still un-named and has a pictograph with lines that spiral from a central point outward, in a concentric pattern.

Petroglyphs in the form of simple faces are the most common element present in the general corpus of rock art in Belize. Various examples are also present throughout the Maya area. In Belize, Petroglyph Cave (McNatt 1996); Te Tun Cave (Bonor and Martinez 1995: 256-257); Pottery Cave (Bonner 2002); Waterfall Cave (Stone 1997: 38);

Jaguar Paw Cave (Jaime Awe pers. comm. 2015); Actun Halal (Griffith and Helmke 2000, Griffith and Morehart 2001); Actun Chapat (Griffith et al. 2003); and Actun Chuplal (Dema et al. 2002) incorporate petroglyphs. Recently, Awe (pers. comm. 2015) was also shown a couple simple faces at the main entrance to Actun Tunichil Muknal by tour guide Mr. Gonzalo Pleitez.

For the greater Maya area, Brady (n.d.:7-10) listed a large number of cave sites with petrogliphic faces, and which can be used for comparative analysis with the Actun Uayazba Kab specimens. . The caves in the Brady's list include Gruta de Jobonche (Brady 1999); Naj Tunich (Siffre 1993); Cueva Poxte (Siffre 1993); Cueva de las Pinturas (Brady et al. 1997); Calketo'k Cave (Bonor 1989); Xcosmil (Stone 1995); Cueva Cobanerita (Brady et al. 1997: 92, 94); Cueva de los Andasolos; Jovelte, Corosal; Cueva de la Cabeza; Cueva Mis; Cueva Petroglifos; Ehbis Cave; and Cahum cave.

The large database on cave art that is available for cave sites in Belize, and for the greater Maya area, will facilitate our stylistic and comparative analysis of the art in Actun Uayazba Kab. Identifying the temporal distribution of particular art forms in these areas, will also allow us to assign relative dates for the rock art in Actun Uayazba Kab.

Chapter 5: The Rock Art of Actun Uayazba Kab

As Helmke and Awe (1998) previously reported, Actun Uayazba Kab is distinct because it contains the greatest variety of rock art ever discovered in a cave site in Belize (see also, Stemp et al. 2012). Included in the cave's art corpus are petroglyphic footprints carved into flowstone, simple, anthropomorphic, petroglyphic faces, zoomorphic figures, abstract symbols, and negative handprints and pictographs rendered in charcoal (Helmke and Awe 1998, 2001; Helmke et al. 2004; Awe and Helmke 2015).

Description of the Rock Art

Petroglyphs and Sculptures (located in the light zone)

The term petroglyph is used here to designate any two-dimensional carving that is rendered on a plane surface, and composed mostly of linear elements or other simple geometric forms (Brady n.d.: 13). The term sculpture represents geometrical elements that are similar to petroglyphic ones, but unlike petroglyphs which, for the most part are carved into flowstone, sculptures are carved into three-dimensional forms on bedrock. Although a distinction is made between sculptures and petroglyphs in terms of subject matter, rendition, and execution, however, they are both labeled as "petroglyphs."

The Petroglyphic Panel

The Petroglyphic Panel refers to a group of petroglyphs that were carved on the eastern surface of a flowstone-covered boulder, which is the dominant feature of the northern entrance (Entrance 1) (Figure 5.1.). The Petroglyphic Panel is predominately carved on the eastern side of the boulder, but extends over a corner onto a small section of the boulder that faces south. At least 20 petroglyphs are carved on the vertical face of the boulder. The 20 petroglyphs range in intricacy from a simple notch to a complex set of intersecting spirals, coils, and lines. One section of the boulder is covered with

recently deposited flowstone, which possibly conceals more carvings, and another section that appears to have been affected by erosion and exfoliation of the rock surface (Helmke and Awe 1998).

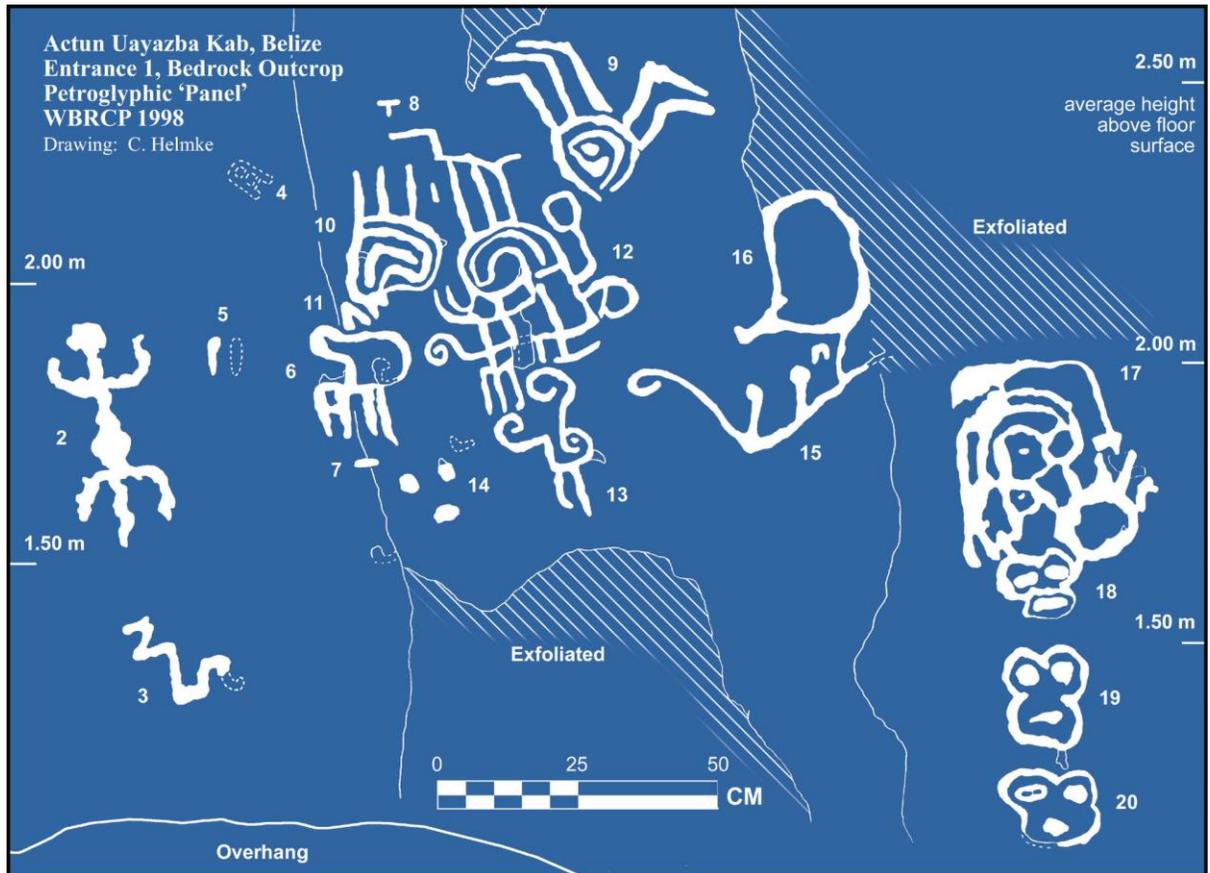


Figure 5.1. Petroglyphic Panel on the Eastern Surface of a Flowstone-Covered Boulder (after Helmke and Awe 1998).

The Petroglyphic Panel is subdivided into five nearly equal sections. These five sections are dubbed from south to north: the flowstone section, the southern section, the central section, the eroded section, and the northern section. The flowstone section is the only segment on which petroglyphs cannot be recognized. South of the Petroglyphic Panel is another section on the Flowstone Boulder which displays a large petroglyph concentration and two sculptures. The carvings of the Petroglyphic Panel are carved on

the nearly vertical eastern face of the Flowstone Boulder, while the petroglyphs and sculptures of the southern end of the boulder are carved upon a sloping surface, labeled the Access Slope. The Access Slope lies between the points where the southern end of the boulder meets up with the western wall of the northern entrance. At that point, the summit of the boulder slopes down to the floor. The sloping section contains several carved petroglyphs (Helmke and Awe 1998).

a) Flowstone Section

Between the petroglyphs on the Access Slope and the southernmost carvings that are executed on the vertical face of the boulder is the first section of the Petroglyphic Panel. This area is the flowstone-covered section. Petroglyphs here are found on either side of the flowstone section, and it is likely the flowstone is concealing other petroglyphs (Helmke and Awe 1998).

b) Southern Section

The edge of the drip/flow formation on the south and the corner of the boulder, which runs on an almost north-south axis, defines the southern section of the Petroglyphic Panel (Figure 5.1.). The southern section measures 55 cm wide. Six carvings are present on this feature, and an additional petroglyph extends over the corner of the boulder. Petroglyph 2 dominates the southern section; it represents an anthropomorphic figure with a circular head, arms outstretched in the form of a U, while the legs form an upside-down U shape. Extending downwards between the legs is a long tail, suggesting that the petroglyph might represent a monkey (Helmke and Awe 1998). Below the anthropomorphic figure is a contorted line possibly representing a snake (Petroglyph 3). Above Petroglyph 2 is a ladder-like petroglyph (Petroglyph 4). To the

right of the anthropomorphic figure are two short vertical lines (Petroglyph 5). Next to the lines is Petroglyph 6 that extends over the corner and is formed by a spiral shaped scroll that emanates from a comb-shaped design beneath it. Petroglyph 7 is small horizontal notch carved on the corner of the boulder, which delineates the southern section and the central section. To the left of the anthropomorphic figure is Petroglyph 1, which is a faintly incised spiral out of which several lines sprout (Helmke and Awe 1998).

c) Central Section

The central section of the Petroglyphic Panel aligns with a large fallen speleothem that lies just east of the panel. This section displays the highest concentration of petroglyphs and the most elaborate ones recorded in the cave. The large speleothem found in alignment with the section of the Petroglyphic Panel shows signs of having been altered in two ways by human action. The eastern point of the speleothem faces east and is decorated with a simple three-dimensional face (Petroglyph 22). The upper surface of the speleothem is nearly flat and along the southwestern edge of the speleothem where there is a sequence of drip formation layers. The speleothem could have been deliberately flattened by pecking or gouging. Its morphology, particularly its flat upper surface, and its location in front of the Petroglyphic Panel, strongly suggests that the speleothem may have functioned as an altar (Helmke and Awe 1998).

A prominent corner of the boulder on the south and the eroded section on the north demarcates the central section of the Panel. The central section of the panel measures approximately 60 cm wide and is decorated with seven petroglyphs. The uppermost carving represents a small T (Petroglyph 8) that lies directly above the left end

of another winding line, which is part of Petroglyph 12, and delineates the upper edge of the central section. To the right of Petroglyph 8 is a spiral shape (Petroglyph 9) whose center is decorated with a small dot, and out of which five V-shaped and parallel lines emerge. Three of these lines point south (left), while two point to the north (right). The center of Petroglyph 9 is 1.78 m above the surface of the speleothem/altar and 2.26 m above the floor. Petroglyph 10 is composed of two concentric circles filled with a sideways placed L-shaped design. Three parallel and vertical lines emerge from the circle and another fourth and fainter line can be seen to the right of these. Below Petroglyph 10 is Petroglyph 11, which is a small notch that emerges as a continuation of one of the concentric circles. Directly below is the scroll-comb design (Petroglyph 6). To the right is Petroglyph 12, which is composed of concentric lines, out of the top of which emerge three parallel and vertical lines. Extending to the left of the design are two superimposed and widened U shapes that appear to extend to Petroglyph 10. To the right, Petroglyph 12 has a line, which extends into a square cornered and upturned U, which terminates in a circle. Four lines extend downwards from the concentric lines above and the two on the left extend downwards (right one bisects the other at a right angle terminating in a spiral). The spiral faces the scroll/spiral of Petroglyph 6. The left line extends downwards and terminates as the central line of a down-turned comb design. The two lines on the right also bisect each other in a similar fashion. The scroll-like element extends from the rightmost of the four lines, which is thereby comparable to the scroll on the left. Below Petroglyph 12 is a set of three intertwining spirals, which end in three little lines. Petroglyph 13 seems to come out from the lower center of Petroglyph 12. Between Petroglyphs 6, 12, and 13 is a simple face (Petroglyph 14) with eyes represented

by two small circles and the mouth by a short horizontal line. The center of Petroglyph 14 is 1.15 m above the surface of the speleothem/altar (Helmke and Awe 1998).

d) Eroded Section

The eroded section only displays signs of carving. Two, and possibly more, petroglyphs are represented in the eroded section (Figure 5.1.). These petroglyphs are heavily eroded and were damaged by the exfoliation of the flowstone, which covers the boulder. The eroded section is approximately 58 cm wide. The exposed carvings represent an elongated V (Petroglyph 15) with three lines coming out of the right side, two of the lines end in knob-shapes. The left side of the V shape extends over to the central section and ends in a scroll to the right of Petroglyph 13. Above Petroglyph 13 is Petroglyph 16 which is represented by a square-like shape. Between both elements is a small upside down U. Petroglyph 16's upper and right edge border a large section of exfoliated flowstone. It is possible this petroglyph could have extended further, but the state of erosion makes an accurate assessment of the feature difficult (Helmke and Awe 1998).

e) Northern Section

The northern section is composed of two groups of petroglyphs (Figure 5.1.). Petroglyph 17 is the upper-most grouping composed of a set of concentric lines that extend into other lines forming small polygons. The center design is a small rounded rectangle that is decorated by a dot at its center. The low right section of Petroglyph 18 is a circle from which five short lines emerge. The element could possibly represent a paw or a hand. Below Petroglyph 20 are three stacked faces that are similar to the simple faces of the central section (Petroglyph 14) (Helmke and Awe 1998).

Simple Faces

Actun Uayazba Kab contains 10 recognizable faces, and two additional loci of carving that mostly like represent two weathered faces. The simple faces were numbered as Petroglyph 21 to Petroglyph 28, from north to south in clockwise fashion, excluding the four faces included in the Petroglyphic Panel (i.e. Petroglyphs 14, 18, 19, and 20). Petroglyph 21 is the northernmost face that was carved on a rim stone dam on the northern wall of the Flowstone Boulder. Petroglyph 22 is the simple face carved at the eastern extremity of the flattened speleothem/altar. Petroglyph 23 petroglyphic face is carved on the western side of the stalagmitic column dividing Entrances I and II. The face that carved on the southern side of the passage leading to the Handprint Chamber is Petroglyph 24. Petroglyph 25 is carved on a protruding section of stalagmite, south of the latter carving. Petroglyph 26 and 27 are ; two elaborate faces that decorate the western side of the petroglyphic footprints that lead up to the summit of the flowstone boulder (Helmke and Awe 1998).

The faces of the northern section of the Petroglyphic Panel (Petroglyphs 18, 19, and 20) differ from Petroglyph 14 in which the edge of the face is delineated by a line. The lines form a three-leaved cover inside which are the two small circles representing eyes, and the short lines forming the mouth. The lowest face (Petroglyph 20) was carved 1.15 m above the floor. All three faces are similar in design and execution.

As noted above, Petroglyph 21 is a face carved on a small rimstone dam, which faces north (Figure 5.2.). The face is comprised of two circular orbits and an ovoid mouth. A U shaped line delineates the jaw and chin of the face. The edge of the forehead is formed by the edge of the small rimstone dam upon which it was carved. The source

of water which forms the series of rimstone dams adjacent to the petroglyph emanates from a fissure between the bedrock forming the western wall of Entrance I and the northwestern corner of the Flowstone Boulder.

Petroglyph 22 is the face sculpted on the easternmost outcrop of the fallen speleothem, which lies in front of the Petroglyphic Panel. The approximate north-south alignment formed by two other corners of the speleothem is parallel to the vertical surface of the central section of the Petroglyphic Panel. The eastern alignment of Petroglyph 22 could possibly represent the rising sun. The orbits of the face connect on either side of the corner as they were carved through the speleothem in a straight line. An elongated oval shape that is carved on the corner of the speleothem represents the mouth. The carving of the mouth is at least 2 cm deep. Between the orbits and the mouth, the speleothem projects out and over the floor giving the appearance of a nose or snout to the face (Helmke and Awe 1998).

On the rear, or western, side of the large central column that divides the Entrance Chamber there are several stalagmitic columns which merge and reach up to the ceiling of the cave. On one of these columns is a simple face (Petroglyph 23). It is framed by a circular dripstone crown, which defines the contour of the face. The carving is situated approximately 3 meters above the modern floor level of the cave. Petroglyph 23 has been named "The Scream" for it resembles Edvard Munch's 1895 painting (Helmke and Awe 1998).

Petroglyph 24 is a very eroded carving that lies to the lower left of the rear or western wall of Entrance II, next to the tunnel leading into the Handprint Chamber. The

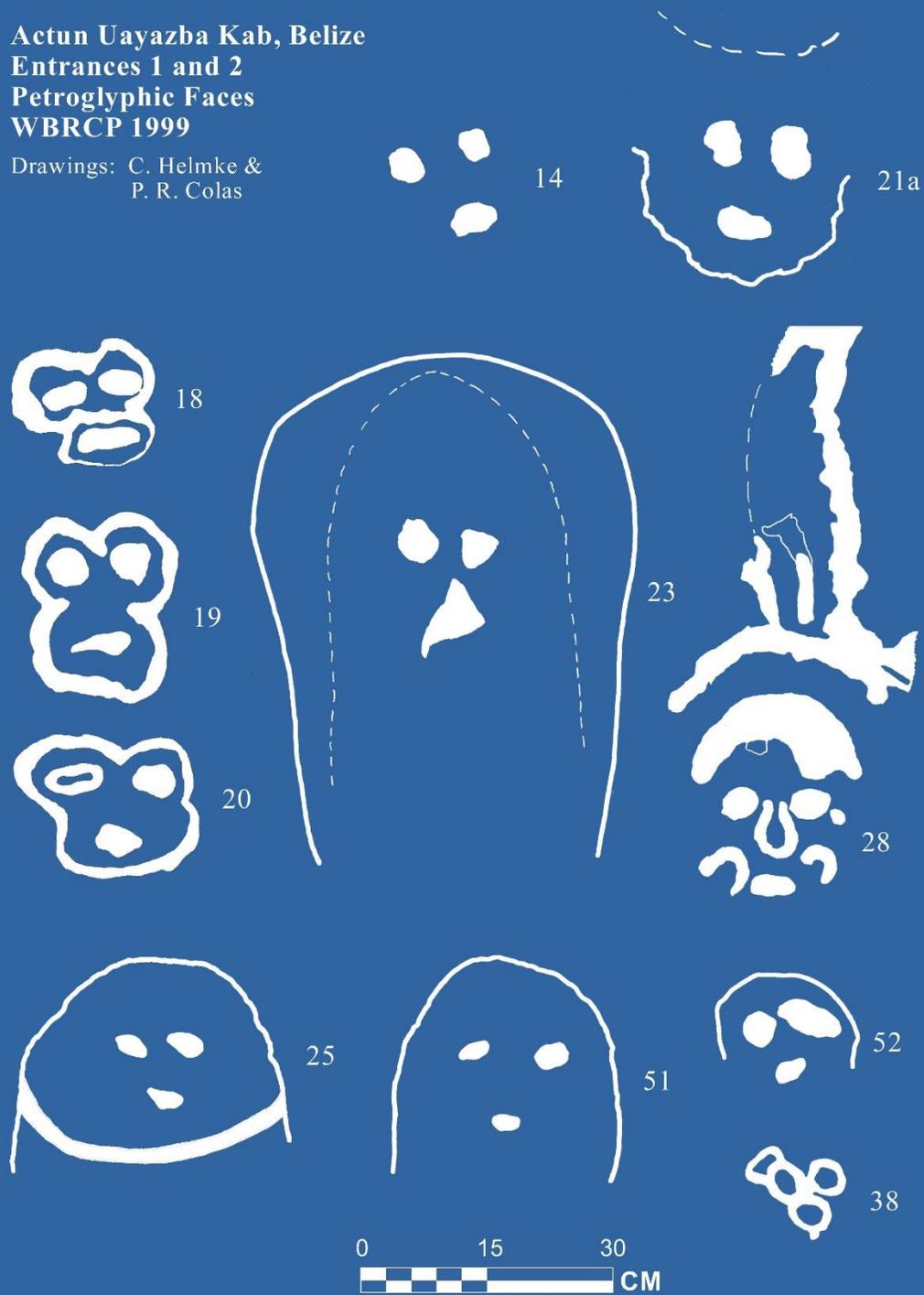
two orbits for the eyes of this face are still visible but the line for the mouth is eroded. As a result, the carving was not illustrated (Helmke and Awe 1998).

Petroglyph 25 is the southernmost carving in Actun Uayazba Kab, but it is poorly preserved (only a few of the incisions are visible today). A protuberance of flowstone that caps a section of the western wall of the southern entrance (Entrance II) is carved to form a simple face. The most distinctive feature of this face is a horizontal groove, which circles around the protuberance. This line most likely represents the slit of a skeletal mouth. The orbits are not visible although there are signs suggesting that the areas above the line are deliberately altered, possibly representing the orbits (Helmke and Awe 1998).

Petroglyph 28 is carved on the western wall of Entrance I at the summit of the Flowstone Boulder. It is the only complex petroglyphic face discovered at Actun Uayazba Kab and the highest carving found in the cave. It is also the only face that portrays a nose as well as orbits and a mouth. A crescent with ends pointing downwards is carved above the eyes. From the crescent, two convex lines that run upwards toward the wall emerge. In between the two-curved lines is a shorter shorter line that runs approximately out of the center of the crescent, perpendicular to its tangent. On either side of the mouth, there are two small downward-pointing U shapes (Helmke and Awe 1998).

Actun Uayazba Kab, Belize
Entrances 1 and 2
Petroglyphic Faces
WBRCP 1999

Drawings: C. Helmke &
P. R. Colas



Faces not represented here due to poor preservation are Petroglyphs 21b and 24.
Petroglyphs 22, 26 and 27 are not represented here as these are sculpted rather than carved.

Figure 5.2. Petroglyphic Faces (after Helmke and Awe 1998).

The Access Slope

The Access Slope is comprised of a complex set of overlapping petroglyphs that represent several episodes of carving. The Access Slope's petroglyphs are clustered sufficiently to classify it as a separate locus of carving from the Petroglyphic Panel (Figure 2.4.). Fifteen out of 23 petroglyphs present on the Access Slope represent footprints. There are actually only a few petroglyphs representing things other than footprints and steps on the slope. Two of these are faces (Petroglyphs 26 and 27). All the petroglyphs of this locus are carved into the flowstone, which covers the bedrock. The majority of the carvings are shallow in terms of relief, few exceeding 1 cm in depth. In contrast, the five small cavities that are the steps are approximately 5 cm deep and expose a portion of the bedrock in their bottom. The holes are spalled out of the flowstone down to the bedrock. Three similar steps are spalled out of a small wall forming the eastern edge of the antechamber of the tunnel leading to the Handprint Chamber (Helmke and Awe 1998).

Petroglyphs 26 and 27 represent two of the most complex faces recorded in Actun Uayazba Kab. These two petroglyphs also differ from all other faces at the site for they are sculpted instead of simply pecked or incised. For this reason they are considered sculptures instead of petroglyphs. The orbits, mouths, and the contour of the faces are sculpted in a different manner. The eyes of Petroglyph 26 are represented by two circles, similar to the Tlaloc "goggles" worn by Central Mexican rain deities and Early Classic Maya analogs. A face that is carved in bas-relief, with a small ovoid depression representing the mouth, represents petroglyph 26. "Coffee bean" shapes that may be the result of an effort to represent the pupils of the eyes characterize petroglyph 27's eyes.

The lips of the mouth are embodied with a horizontal slit in the center signaling the mouth. Below the mouth in the chin area are a few downward-pointing grooves that may represent a beard. The ears and ear-spools are indicated by protuberances on either side of the face, although the minor details have not survived. Both faces are sculpted on rock outcrop on the western side of the Access Slope (Helmke and Awe 1998).

There are only three petroglyphs (38, 44, and 45) on the Slope with simplified elements (Figure 5.3). Petroglyph 38 represents another triangular configuration of three circles from one of which emanates a small appendage. It most likely does not symbolize a face. Petroglyph 22 and 45 represent two spallings that are quadrangular in shape. The distinct edges of these two elements are the main attribute suggesting these were cultural rather than natural patches of exfoliation (Helmke and Awe 1998).

Three of the five steps are not embellished by other attributes (Petroglyphs 32, 34, and 49) (Figure 5.3.). Petroglyphs 39 and 43 were added 5 and 3 “toes” respectively. The other three steps examined revealed that they might have once had parallel and linear appendages representing toes, but poor preservation precludes confirmation of these features. Three of the 15 footprints (Petroglyphs 41, 46 and 48) are characterized by grooves delimiting their outlines rather than spalling out the impression of the foot. All these three feet point down the slope towards the floor. Petroglyphs 33, 36, 37, and 42, have four toes each and all of them face east. Three more feet were carved on a nearly vertical section of rock (Petroglyphs 29, 30, and 31), two of which (Petroglyphs 30 and 31) point towards the ceiling, and represented by a left and a right foot carved next to the elaborate sculpted features. Petroglyph 29 is stylistically similar to Petroglyphs 30 and 31

and also point upwards. All three footprints are shallow and are pecked from the flowstone, rather than carved (Helmke and Awe 1998).

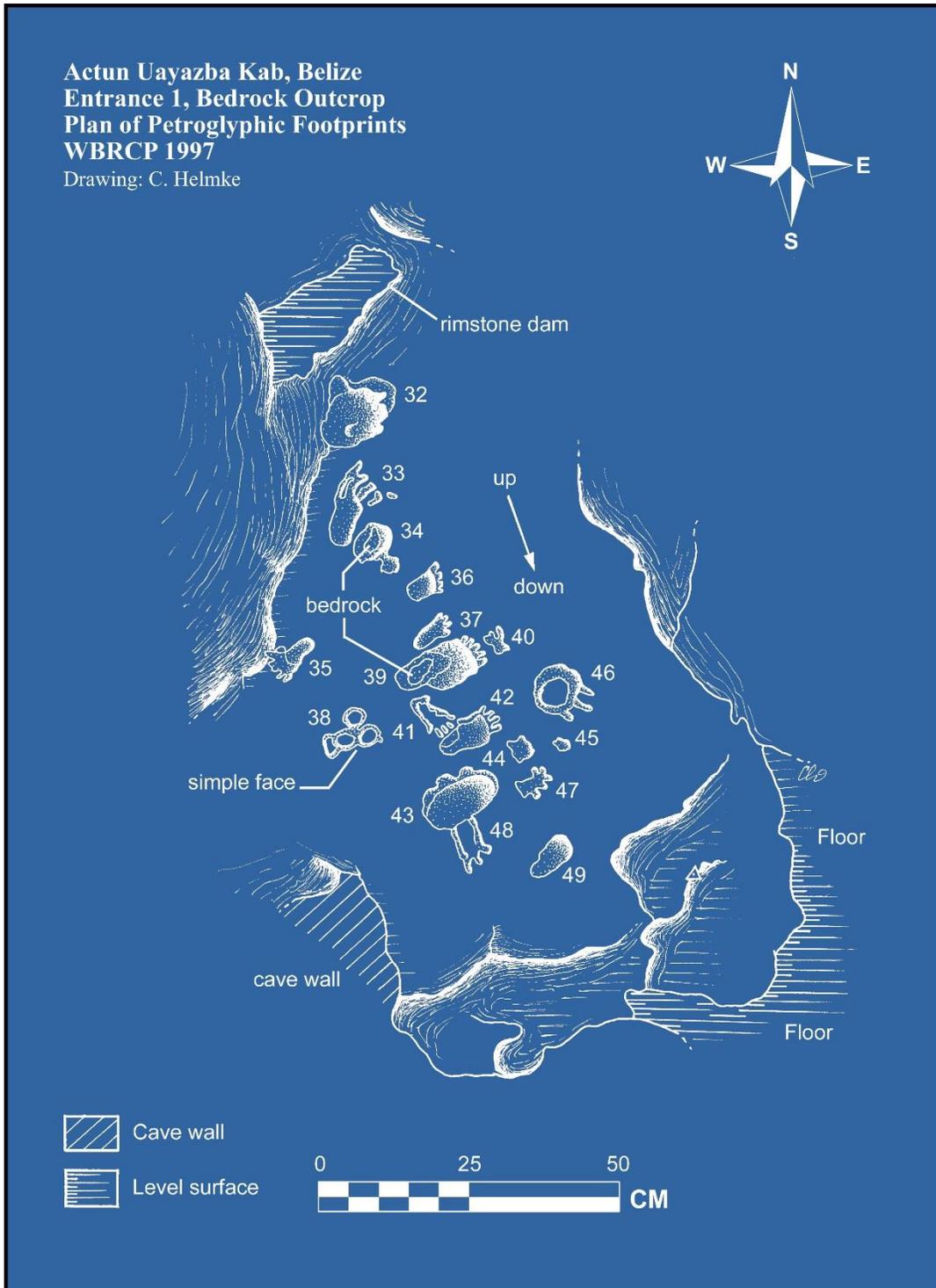


Figure 5.3. Access Slope comprised of a Complex Set of Overlapping Petroglyphs (after Helmke and Awe 1998).

Pictographs (located in the dark zone)

- 1) Three triangles (pictographs 1-3)
- 2) Schematic drawing (pictograph 4)
- 3) Four negative handprints (pictographs 5-8)
- 4) Charcoal torch marks (smudging)

The pictographs of Actun Uayazba Kab are found in the “Handprint Chamber”. The latter is accessed by a low tunnel that meanders westward for about 12 meters from Entrance Chamber II (Helmke and Awe 1998). The pictographs are predominantly executed on the walls of the chamber and are numbered sequentially from north to south in clockwise fashion. The small corpus of pictographs co-occurs with torch marks and is comprised of three triangular prints (pictographs 1-3) (Figure 5.4.), a schematic carbon drawing (pictograph 4) (Figure 5.6.) and four handprints (pictographs 5-8) (Figure 5.5.).

Pictographs (1-3) represent negative triangles produced by joining the thumbs and index fingers of the left and right hands (Helmke and Awe 1998). The triangles are 3 cm apart and their bases are 1.62 m above the floor of the chamber. They are all about 8 cm from base to apex and 7 cm wide at their base it is possible that a single individual’s hand were used as the “stencil” for the creation of the triangles.

The schematic drawing (pictograph 4) (Figure 5.6.) possibly represents a tree of life with a moon or sun. The tree measures approximately 20 cm from base to apex. The moon/sun has a diameter of approximately 9.5 cm.

The four negative handprints (pictographs 5-8) (Figure 5.5.) are framed by black carbon splatters. Three of the handprints are right hands and one is a left hand. The middle finger of the northernmost right-handed handprint (pictograph 5) is 88 cm above

the floor of the chamber. The middle finger of Pictograph 6, also a right hand, is 92 cm above the floor. Pictograph 7's middle finger measures 96 cm above the floor. The southernmost pictograph 8 (left handed) is 77 cm above the floor.



Figure 5.4. Triangular Prints inside the Handprint Chapter (after Helmke and Awe 1998).



Figure 5.5. Negative Handprints in Actun Uayazba Kab (after Helmke and Awe 1998).



Figure 5.6. Schematic Drawing Possibly Representing a Moon/Sun and Tree of Life (after Helmke and Awe 1998).

Chapter 6: Results and Discussion

Introduction

In an effort to determine the temporal span, or dates of production, for the pictographs and petroglyphs in Actun Uayazba Kab, we employed both absolute and relative dating techniques. This chapter discusses the results of our analyses, and the implication of this data.

Absolute Dating by AMS

Charcoal

Six (6) charcoal samples were collected in the Handprint Chamber of Actun Uayazba Kab and exported to the Pennsylvania State University for processing before sending them to the University of California, Irvine for dating. Three of the samples were collected from charcoal deposits on the floor of the chamber, and three were from charcoal smudges on a stalagmite (N=1), and from the cave wall (N=2). Unfortunately, all the samples taken from smudges were inadequate, or they did not yield enough carbon for dating. The same was true of one of the samples taken from surface deposits. Two samples, HPC5 and HPC6, were therefore dated by AMS at the Keck Carbon Cycle AMS Facility (Table 6.1). The two samples are surface collections located 1.5 meters from HPT 2 datum. The first sample (HPC5) yielded a calibrated date ranging 685- 865 AD (2 Sigma). The second sample (HPC6) yielded a calibrated date range of 675-855 AD. (2 Sigma). Figure 6.2. illustrates the calibrated date ranges for the two samples, both of which confidently fall in the Late Classic period

KECK CARBON CYCLE AMS FACILITY
EARTH SYSTEM SCIENCE DEPT, UC IRVINE

¹⁴C results Culleton / Kennett Jan 07 2016

PSU #	UCIAMS #	Sample name	Other ID	fraction Modern	±	δ ¹⁴ C (‰)	±	¹⁴ C age (BP)	±	Date Range (cal 2-σ)
6742	167260	HPC5	Hand Print Cave, BZ. Surface materials (top)	0.8565	0.0019	-143.5	1.9	1245	20	683-865 AD
6743	167261	HPC6	Hand Print Cave, BZ. Surface materials (bottom)	0.8553	0.0020	-144.7	2.0	1255	20	675-853 AD

Radiocarbon concentrations are given as fractions of the Modern standard, δ¹⁴C, and conventional radiocarbon age, following the conventions of Stuiver and Polach (Radiocarbon, v. 19, p.355, 1977).

Sample preparation backgrounds have been subtracted, based on measurements of ¹⁴C-free wood.

All results have been corrected for isotopic fractionation according to the conventions of Stuiver and Polach (1977), with δ¹³C values measured on prepared graphite using the AMS spectrometer. These can differ from δ¹³C of the original material, if fractionation occurred during sample graphitization or the AMS measurement, and are not shown.

Comments:

Samples JA3 and JA6 ;Lower Barton Creek, BZ contain 14C from nuclear weapon tests.

Table 6.1. Keck Carbon Cycle AMS Facility’s AMS analysis of Samples HPC5 and HPC6 from Actun Uayazba Kab, Belize.

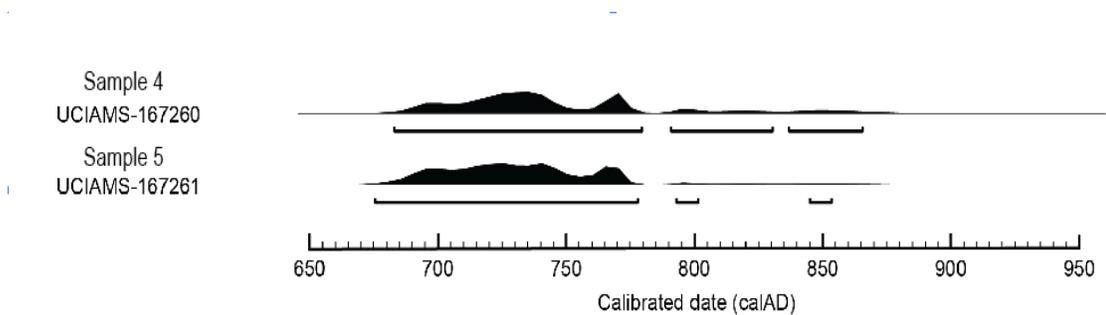


Figure 6.2. Calibrated date range of Charcoal Samples HPC 5 and HPC6 from Actun Uayazba Kab, Belize.

Human Remains

As I previously indicated, bone samples from two separate burials were selected for AMS dating. Both samples were derived from rib fragments taken from Burial 97-1 and Burial 98-3. These burials were located in Alcove 1 of Entrance Chamber A, adjacent to the flowstone with the largest concentration of rock art. Results of the AMS analysis yielded calibrated 2-sigma dates of (Beta 367724; AD 10-130) for Burial 97-1,

and (Beta 367725) AD 240-390 for Burial 98-3. Together, the dates suggest that use of the site for burial purposes began relatively early, occurring sometime between the Protoclassic (0–AD 300) and Early Classic (AD 300–600) periods. Interestingly, these dates are coeval with the earliest pottery recovered at the site, while the dates from charcoal in the Handprint Chamber coincide with the Late Classic ceramics in the cave. The Radiocarbon dates thus cover the entire period of cave use.

Relative Dating Results

Ceramic Chronologies

During the 1997 field investigations by the WBRCP, a thorough surface collection of all the artifact material present was conducted prior to excavations (Helmke 1998). Subsequent excavations in Entrances I and II, and in the Histo Chamber, were placed over looted and unlooted contexts to assess damage done by the looters, and to retrieve cultural remains from undisturbed contexts (Helmke and Awe 1998).

Two thousand four hundred and forty-seven (2,447) potsherds were collected by these investigations, 1675 from Entrance I; 403 from Entrance II; and 369 from the Histo Chamber. Analysis of the pottery assemblage identified the following ceramic types: Sierra Red, Aguacate Orange, Dos Arroyos Orange Polychrome, Fowlers Creek Orange-red, Garbutt Creek Red, Roaring Creek Red, and Cayo Unslipped (Griffith 1997). The Sierra Red and Aguacate Orange types are both included in the Late Preclassic, Barton Creek and Floral Park Ceramic Complexes (Table 6.1a and Table 6.1b) in the Belize River Valley (Gifford 1976:50-51), or in the Chicanel Complex at Uaxactun (Table 6.1.) in the Peten Province of Guatemala (Smith 1982). Dos Arroyos Orange Polychromes and Fowlers Creek Orange-red are both dated to the Early Classic, and fall within the

Hermitage Ceramic Complex (Gifford 1976:52). Garbutt Creek Red, Roaring Creek Red, and Cayo Unslipped are Late Classic in date, and belong to the Spanish Lookout Complex (600-800 AD). Interestingly, approximately 70 percent of the pottery recovered by the investigations dated to the Spanish Lookout Phase, suggesting more intensive use of the site during this period.

PERIOD	TIME	BARTON RAMIE	UAXACTUN	TIKAL	CEIBAL	ACTUN UAYAZBA KAB		
POLYSAULTS I C	1400	NEW TOWN						
	LATE							1300
	EARLY							1200
CLASSIC	900		3	CABAN				
	TERMINAL		---	EZNAB				
	LATE	SPANISH LOOKOUT	2	TEPU	IMIX	GARBUTT CREEK RED ROARING CREEK RED CAYO UNSLIPPED		
		TIGER RUN	1	---	IK			
	EARLY		3	late facet	---	FOWLER ORANGE CREEK ORANGE		
		HERMITAGE	2	TZAKOL	MANIK	DOS ARROYOS ORANGE POLYCHROME		
			1	---	early facet			
		300						
	PROTO CLASSIC	200	FLORAL PARK		CIMI	2	XATE	AGUACATE ORANGE
		100			CAUAC	1	---	
PRECLASSIC	B.C	MOUNT HOPE	CHICANEL					
	LATE	BARTON CREEK		CHUEN	3	---		
					2	CANUTSE	SIERRA RED	
		300			1	---		
	MIDDLE	400		MAMON	TZEC	3	---	
		500				2	ESCOBA	
		600	late facet			1	---	
		700	early facet					
		JENNY CREEK	MAMON Early Facet		EB	3	---	
		800				2	REAL	
	900				1	---		
	1000							

Table 6.2a. Ceramic complex of AUK compared to Tikal (Willey et al. 1967), Uaxactun (Smith 1982), and Seibal (Sabloff and Willey 1982 and Inomata et al. 2015).

Regional Ceramic Chronologies and Intersite Dating (sequences based on diagnostic ceramics)

Dates	Phases	Uayazba Kab	Baking Pot	Cahal Pech				
AD 1100	Early Postclassic		New Town	?				
AD 1000				-----				
AD 900	Late Classic 3 2 1			LF Spanish Lookout	Sacbalam			
AD 800					Paloverde			
AD 700				Tiger Run	Mills			
AD 600				Early Classic		Hermitage	Gadsen	
AD 500	Ahcabnal							
AD 400	Term. Formative						Floral Park	Madrugada
AD 300				LF				
AD 200	Late Formative			Mount Hope	Xakal			
AD 100							Barton Creek	EF
BC / AD								Umbral
100 BC								
200 BC								
300 BC								

Table by Christophe Helmke for WBRCP 2001.
Based on data obtained by the BVAR, MMTAP, TUPP and WBRCP Projects.

Table 6.2b. Regional Ceramic Chronologies and Intersite Dating (After Helmke 2001).

Surface Sites in close Proximity to Actun Uayazba Kab

Cahal Uitz Na, Pooks Hill, and Tipan Chen Uitz are the three nearest sites to Actun Uayazba Kab that have been investigated. Located approximately 500 meters to the east, Cahal Uitz Na is by far the nearest surface site to Actun Uayazba Kab (Figure 6.2.) (Awe and Helmke 2007). Cahal Uitz Na's epicenter is comprised of several pyramidal temples, palatial and administrative range structures, a ball court, and it has a series of 10 limestone and slate monuments (Awe and Helmke 2007:30). One of the slate monuments has a crude petroglyphic face carved on it (Awe and Helmke 2007) that is similar to several of the simple faces recorded on the flowstone at the entrance of Actun Uayazba Kab. Investigations at Cahal Uitz Na, and analysis of cultural remains from that site, indicate that the center fluoresced during the Late Classic Period (Awe and Helmke 2007: 31).

Pook's Hill is located approximately 5 kilometers north and downriver from Actun Uayazba Kab. The site was investigated in the 1990's by the WBRCP and incorporated in the dissertation research of Christophe Helmke (2009). As Helmke (2009) argued in his dissertation, discoveries made at Pook's Hill offer a perspective on changing ritual practices and social transformations in the Roaring Creek Valley. This in turn provides insights on activities occurring in cave sites in the area (Helmke 2006). Like Cahal Uitz Na, research at Pook's Hill revealed that the site flourished throughout the Late Classic, and that it was abandoned by 950 AD (Awe and Helmke 2007; Helmke 2009; Helmke et al. 2004).

Tipan Chen Uitz is a recently discovered site that lies approximately 5 km northeast of Actun Uayazba Kab (Andres et al. 2010). Archaeological investigations by

the Caves Branch Archaeological Survey (CBAS) Project indicate that Tipan likely represents the largest center in this region. The site core contains several large temple pyramids, a palace acropolis, a ball court, plus a number of carved and inscribed monuments. Investigations by CBAS also indicate that, like Cahal Uitz Na, Tipan Chen Uitz reached its maximum size and apogee during the Late Classic Period.

Proximate Cave Sites without Rock Art

Actun Nak Beh is located 500 meters east across the Roaring Creek from Actun Uayazba Kab. An ancient Maya causeway actually connects the entrance of Actun Nak Beh to the ballcourt at Cahal Uitz Na. Although there was evidence of considerable looting at Actun Nak Beh, ceramics recovered from the site by the WBRCF indicate that the cave was utilized from the end of the Late Preclassic to the Late Classic period. Like Cahal Uitz Na and Actun Uayazba Kab, the period of most intensive use at the cave dated to the Late Classic (700- 900 AD) period (Mirro et al. 1998)

Footprint Cave is located in the Caves Branch River Valley, approximately 10 km to the south east of Actun Uayazba Kab (Graham et al. 1980). Analysis of its ceramic assemblage indicates that the cave usage dates from the Early Classic to the Terminal Classic (200-950 AD), even though Graham et al. (1980) suggested that a few vessels found in the cave may date to the Terminal Classic/ Early Postclassic Period (850-1000 AD). The latter is corroborated by a recent study by Hogarth et al. (2014) which now indicates that several ceramic types previously dated to the Early Postclassic actually fall within the Terminal Classic period.

Proximate Cave Sites with Rock Art

In our effort to determine the temporal range of the rock art in Actun Uayazba Kab, we created a database of the seventeen rock art sites in Belize with evidence of petroglyphs and/or pictographs. This database was subsequently used to conduct a near neighbor analysis of the rock art, and to establish a local chronological sequence based on shared characteristics of the art. Relative dates derived from ceramic assemblages were also compared with the chronology of the rock art to determine the temporal breadth of cave use in the region.

Cave Sites with Pictographs

Actun Yaxteel Ahau (Cave of the Ceiba Tree Lord) is located at the base of a hill, which borders the eastern side of the Roaring Creek, approximately 2 km north of Actun Uayazba Kab (Awe and Helmke 2007; Mirro and Awe 1998; and Mirro et al. 1998). Two examples of rock art from Yaxteel Ahau, a pictograph and a petroglyph, were only recently discovered and have yet to be published (Awe pers. comm. 2015). A small “stick person” painted in black represents the pictograph, and the petroglyph is represented by a hieroglyph carved into flowstone. Both were recorded in one of the upper chambers of the cave. Analysis of the cultural remains in the cave indicate initial usage of the site at the start of the Early Classic, and intensification of ritual activity during the Terminal Classic Period (Awe and Helmke 2007)

Painted Cave and the “Unnamed” Cave are both located in the Sibun River Valley, some 40 km to the east of Uayazba Kab (Awe pers. comm. 2015). As indicated above, the “Unnamed” Cave has a single pictograph painted on a speleothem near to the entrance of the cave. The pictograph is painted in black and represented by a line that spirals outward in a concentric pattern. The art in Painted Cave is considerably more diverse

and complex. It includes simple geometric designs, an image of a jaguar, and several glyphs or pseudoglyphs. The cave also contains several complete and fragmented ceramic vessels, all dating to the Late Classic Period.

Actun Dzib is located in the southern Toledo District of Belize, more than 100 km south of Actun Uayazba Kab. The site contains about seventy-five pictographs (Stone 1995). The pigment used to execute the drawings consists of a dark substance that is possibly clay or charcoal. The corpus is divided into three panels and possibly contains one of the most important collection of schematic cave art in the Maya area. The ceramic collection from Actun Dzib points to use during the Early and Late Classic periods (Gary Rex Walters pers. Comm, 1990 cited in Stone 1995).

Roberto's Cave, located near Laguna Village in the Toledo District, is a small cave with six rudimentary paintings on the passage walls. Unfortunately, the pictographs have succumbed to natural erosional processes from dripping water (Stone 1995), thus it is difficult to determine the morphology of the figures. The ceramic collection from Roberto's Cave dates predominantly to the Late Classic Period (Gary Rex Walters pers. Comm, 1990 cited in Stone 1995).

Bladen 2 Cave is also located in the Toledo District, along the Bladen branch of the Monkey River. The cave contains four pictographs executed with black pigment (Stone 1995). Two of the paintings feature deity heads. Another painting depicts an "ophidian supernatural" and the fourth illustrates a group of "obscure motifs" stacked vertically (Stone 1995). Bladen 2 cave is located equidistant between two sites, Quebrada de Oro and RHS, both of which have been dated between the Late Classic to Terminal Classic (600-900 A.D.) (Stone 1995).

Actun Chapt is located about 15 km from Actun Uayazba Kab, within the Macal River Valley in the western Cayo District of Belize. The site contains a pictograph represented by a face that was painted with black pigment on a small stalagmanite (Helmke et al. 2003). Ceramics from the cave indicate that the site was used from at least Late Preclassic times to the Terminal Classic Period, with most intensive usage during the Terminal Classic.

Caves Sites with Petroglyphs

Simple faces represent one of the most common forms of petroglyphic art reported in the Maya lowlands (Helmke and Awe 1998, 2001; Helmke et al. 2003; Stone 1995). They are typically found near the entrances to caves (Helmke et al. 2003 in the Yucatan Peninsula of Mexico, (Bonor 1987, 1989; Strecker 1984b, 1985; Stone 1995, Rissolo 2001c), in the Maya Mountains in the Petén Province of Guatemala, and in cave sites from around the Maya Mountains of western and southern Belize. Sites in the Petén include Jobonche (Brady 1999), Naj Tunich (Siffre 1993); Cueva Poxté (Siffre 1993); and Cobanerita Cave (Brady et al. 1997).

In Belize, Actun Tunichil Muknal, Petroglyph Cave (McNatt 1996); Te Tun Cave (Bonor and Martinez 1995); Pottery Cave (Bonor 2002); Jaguar Paw Cave (Jaime Awe pers. comm. 2015); Actun Halal (Griffith and Helmke 2000, Griffith and Morehard 2001); Actun Chapat (Griffith et al. 2003 and Dema et al. 2001); and Actun Chuplal (Dema et al. 2002) all contain examples of simple faces.

The entrance to Actun Tunichil Muknal (ATM) is located about 400 meters north of Actun Uayazba Kab. Investigations in Actun Tunichil Mucnal recently recorded one, maybe two, simple petroglyphic faces on the wall of the Main Entrance to the cave (Awe

pers. comm. 2015). Previous investigations (Awe et al. 2005; Gibbs 2000; Moyes 2005) also indicate that the cave was used for ritual purposes from Early Classic to Terminal Classic times (200-950 AD). The majority of the ceramics gathered from the Main Chamber of ATM, however, were temporally assigned to the Terminal Classic period (750-950 AD), a date supported by two AMS dates from charcoal collected in the Main Chamber of the site.

The petroglyphic art in Petroglyph Cave are represented by geometric forms and lines of pecked holes that were carved into and along the edge of a large rimstone (or travertine) dam (Reents-Budet and MacLeod 1989). Some of the figures may also represent pseudoglyphs, but poor preservation makes it hard to confirm this.

Investigations by Reents (1980, 1982) and by Reents-Budet and Macleod (1989) recorded ceramics that spans through the Classic period, but with a majority dating to the sixth through the ninth centuries A.D (Reents-Budet and MacLeod 1989).

Waterfall cave is located in the Caves Branch valley, about 6 km to the south east of Actun Uayazba Kab. The rock art corpus in this site is represented by two petroglyphs comprised of multiple concentric circles on the wall of the Dead Room (Reents-Budet and MacLeod 1989). The date range of the petroglyphs likely falls in the Classic period, based on the ceramic assemblage analyzed by Reents-Budet and MacLeod in 1989.

Pottery Cave is located about 7 km from Actun Uayazba Kab, in the Caves Branch River Valley. A three-dot face is carved in the left side of the entrance to the cave. Due to touristic activities, most of the archaeological material has been removed. Most of the limited diagnostic pottery still in the cave dates to the Early and Late Classic Periods (Bonor 2002).

Te Tun Cave, or “stone-tree cave”, is only a few meters from Pottery Cave. Near the entrance to the site, there is a stalagmite with a petroglyph in the form of a simple face. The face is depicted with three carved depressions representing the eyes and the mouth. Next to the petroglyph is a Quincunx symbol formed by five carved points (Bonor 2002). The majority of the diagnostic pottery in the cave dates to Late Classic period (Jaime Awe pers comm 2016).

Actun Halal, a rock shelter in the Macal River Valley, has six petroglyphs carved into a section of flowstone near the entrance to the shelter. The petroglyphs are in the form of simple faces. The ceramic assemblage from Actun Halal indicate that the site was used primarily during the Late Classic period (A.D. 700-900) (Griffith and Helmke 2000).

Actun Chapat is located about 1 km to the northeast of Actun Halal and has a single petroglyph on one of the walls of Entrance 2. The petroglyph is a simple face with two eyes and a horizontal mouth. Ceramics recovered in Actun Chapat reflect a long period of utilization extending from the Middle Preclassic to the end of the Classic period, but with most intensive use during the Late Classic (Griffith et al. 2003)

Actun Chuplal, also in close proximity to Actun Halal, has a petroglyphic face carved into the cave wall. The petroglyph is comprised of two depressions forming the eyes and a triangular depression representing a nose or mouth (Dema et al. 2001). Numerous bichrome and polychrome sherds found in Actun Chuplal are diagnostic of the Early and Late Classic periods, suggesting a date within those time frames for the petroglyph.

Discussion

A total of six charcoal samples, three from surface deposits and three from charcoal smudges on the walls of the Handprint Chamber in Actun Uayazba Kab, were submitted for Radiometric dating by Accelerator Mass Spectrometry (AMS). During processing, four of the samples proved to be inadequate, thus only two of the charcoal samples were eventually processed and dated. Both of these samples yielded dates that fell solidly within the Late Classic Period, suggesting that the Handprints, schematic drawing, and smudges were likely produced at this time.

In contrast to the dates derived from the charcoal samples from the Handprint Chamber, AMS dating of human bone from two burials excavated in the Entrance Chamber yielded dates that fall at the end of the Late Preclassic period, and in the first half of the Early Classic period.

Our analysis of the ceramics recovered from both surface collections and excavations in Entrance I, Entrance II and the Histo Chamber identified ceramic types that are diagnostic of the Late Preclassic, Early Classic and Late/Terminal Classic Periods in western Belize. Interestingly, frequency analysis of the diagnostic pottery suggests that approximately two thirds of the assemblage falls with the Late/Terminal Classic Period. This strongly suggests that the latter time frame represents the period of most intensive use of the cave. It is therefore stands to reason that the petroglyphs and pictographs from Actun Uayazba Kab likely date to this period as well.

In 1998 (see Helmke and Awe 1998), and in 2015, we conducted an inter-site comparison of simple petroglyphic faces from 31 cave sites in the Maya area where this type of cave art has been found. Some of these sites include Actun Tunichil Muknal

(Jaime Awe pers. comm. 2015), Jaguar Paw Cave (Jaime Awe pers. comm. 2015), an unnamed cave in the Caves Branch Area (McNatt 1995), Te Tun Cave (Bonor and Klemm 1995), Gruta de Jobonche (Brady n.d.; VanKirk and VanKirk 1996, Siffre 1993), Cueva Poxte (Siffre 1993), Cueva Juteria (Siffre 1993) Naj Tunich (Siffre 1993), an unspecified cave in the Toledo District (McNatt 1996), Cueva de Las Pinturas in the Peten (Brady et al. 1997b), Calketo'k Cave in the Yucatan (Bonor 1989), and Xcosmil (Stone 1995, Strecker 1985). While this list is not complete, it does provide a database that brings together several sites where identical petroglyphic faces have been found.

Subsequent to Helmke's and Awe's research, Brady (n.d. 7-10) further expanded the list by adding at least 19 more cave sites with petroglyphic faces. These sites include a cave near Copan (Honduras), the Rio Candelaria cave system (Alta Verapaz, Guatemala), Cueva de los Andasolos (in Chiapas, Mexico), Jovelte, Corosal (in Peten, Guatemala), Cueva de la Cabeza (Petén), a cave near Benque Viejo, Belize, Rio Frio Cave E (Belize), and the Yucatecan cave sites of Actun Spukil, Actun Ceh, Cueva Xcatil, Tanchah, Cuevas Mis, Cueva Petroglifos, Ehbis Cave, Cahum Cave, and Xetish Cave.

Analysis of this data indicate that the majority of simple petroglyphic faces are concentrated in Belize and the eastern Petén. The Yucatan has the second largest frequency distribution. In contrast, the eastern and western borders of the Maya area contain the lowest concentration of petroglyphic faces (Helmke and Awe 1998).

In Belize, the Caves Branch area, which is adjacent to the Roaring Creek Valley, displays the largest collection of petroglyphic faces that are most similar to those found in Actun Uayazba Kab. A nameless cave in the Caves Branch area (McNatt 1996) contains eight faces stacked in two vertical columns, one with six faces and another with two.

Actun Uayazba Kab's petroglyphs 18, 19, 20 display the same pattern of vertical stacking. Te Tun Cave (Bonor and Klemm 1995), also in the Caves Branch Valley, has faces represented by orbits and a mouth and are stacked one above the other. The faces from Jaguar Paw Cave, which lies east of Caves Branch Cave, also shares similarities with the face depicted on Petroglyph 21 in Actun Uayazba Kab. Parallels are also evident with three faces reported from the site of Jobonche. (Helmke and Awe 1998).

Faces from other sites with similar characteristics to Petroglyph 21 from Uayazba Kab, particularly in terms of elements used to represent the mouth and eyes, are present at Xcosmil (Yucatan) where both faces are painted and sculpted. Calketo'k, also in the Yucatan, has a petroglyphic face similar to Petroglyph 24 in Uayazba Kab, where both have long horizontal grooves that may represent a slit for the mouth.

Across the Roaring Creek, a face carved on Monument 3 at Cahal Uitz Na is executed in a similar style to that of the simple faces from Uayazba Kab. The Monument (Figure 6.3) has a distinct shape for a mouth and conical shaped orbits typical of the western Belize petroglyphic faces. In an effort to determine a date for Cahal Uitz Na's Monument 3, the WBRCP conducted a cursory search for associated artifacts in a looter's hole near the base of the monument during the 1997 field season. Unfortunately, no diagnostic ceramics were found in the looter's pit, therefore the monument had to be dated by comparisons with carved stelae reported from the Belize valley. A review of the latter data indicated that only a few carved stelae have been found in the Belize Valley. Three of these monuments date to the Late Preclassic Period (Cahal Pech, Blackman Eddy, Actuncan), one dates to the Early Classic (Pacbitun) and four to the Terminal Classic (Xunantunich, Tipan Chen Uitz). All other stelae reported in the area are plain or

uncarved and are associated with archaeological material dating the Late and Terminal Classic periods (Helmke and Awe 1998). In the case of Uayazba Kab and Cahal Uitz Na, Helmke and Awe (1998) argue that their proximity makes their contemporaneity almost unquestionable. The simple face carved on Monument 3 from Cahal Uitz Na is similar to petroglyphic faces from Actun Uayazba Kab and other cave sites in the region, plus the fact that most of these simple faces are found at sites occupied or used during the Late Classic, we can assume that they were both carved during a similar time span

In their review of investigations conducted at other caves in southern Belize, the Petén Province of Guatemala, and the Yucatan Peninsula of Mexico, Helmke and Awe (1998) noted that prehistoric use of these sites dated predominantly to the Classic period (Table 6.3. and 6.4). They further commented that “although the dating of the faces by comparison to other sites has been reduced to the Classic period, a few important comments can be made on the sequence or chronology of carving episodes at Actun Uayazba Kab” (Helmke and Awe 1998:19). Since there are some, albeit few, diagnostic ceramics that predate the Late Classic at Actun Uayazba Kab, and given that AMS dating of human remains from two burials yielded C14 dates which fall in the Terminal Preclassic-Early Classic phases, it is possible that some of the art in the cave could predate the Late Classic. It is also likely that the petroglyphs and sculptures were carved over a course of a few generations. In spite of this, however, the sheer volume of Late Classic pottery, and the two C14 dates from Charcoal in the Handprint Chamber, more strongly suggest that both types of art were executed during later use of the cave. Both the relative and absolute dates of cultural remains in Actun Uayazba Kab therefore

suggest that the bulk of the pictographs and petroglyphs were carved and painted toward the end of the Late Classic period. *Discussion*

Stylistic dating is based on the premise that rock art has stylistic characteristics that are temporally sensitive (Bednarik 1995a). In other words, style can be unique to a certain time or even place. The objective approach to dating Actun Uayazba Kab's rock art indicates that petroglyphic faces were common in western Belize, particularly during the Late to Terminal Classic period. As Table 6.3. and Table 6.4. illustrate, this pattern is also reflected at several caves in the Yucatan and Peten sub-regions of the Maya lowlands. Based on stylistic and comparative analysis, we can therefore conclude that the petroglyphs present in Actun Uayazba Kab most likely date to the Late Classic/Terminal Classic period.

SITES	Middle Preclassic	Late Preclassic	Proto Classic	Early Classic	Late Classic	Terminal Classic	Post Classic
Actun Uayazba Kab				A	A	A	
Jaguar Paw Cave					?		
Cave in the Caves Branch area					?		
Cave in the Toledo district					?		
Te Tun Cave					?		
Cueva de las Pinturas	A	A	A	A	S		
Jobonche (a.k.a. Canchecan)				A	A		
Xcosmil					?		
Calketo'k					?		
Cahal Witz Na' (Monument 3)					S	S	
Talgua Village site (statue)	A						
Nim Li Punit (Stela #)					C		
Actun Dzib				A	A		
Naj Tunich (Drawing 55)			A	A	A S	A S	
Dzibichen (Drawing 21)							S
Cueva de la Chepa							S
	2	1	2	5	8	4	2

A = based on archaeological material
 S = based on style dating
 C = based on calendrical date

Table 6.3. Archaeological materials associated with petroglyphic faces. The tabulation shows the overlapping sequence of caves archaeological chronologies, to determine a style dating for the faces (after Helmke and Awe 1998).

Sites	No. of faces	Dist. from entrance	River Caves?	Associated with water?	Associated with burials?	Associated artifacts	Style dating	References
Cave Sites: Petroglyphs								
Actun Uayazba Kab	>10	<10 m	No	--	--	Early Classic to Late Classic		this volume
Petroglyph 21				Yes	Yes			
Petroglyph 28				Yes	No			
all other faces				No	No			
Jaguar Paw Cave	1							Jaime Awe pers. comm. 1998
Cave in the Caves Branch area	8	25 m	Yes	Yes	?			McNatt 1996: 89, Fig. 5
Te Tun Cave	5	0 m	No	Yes	No			Bonor 1995: 256-257, Fig. 3
Cueva de las Pinturas	3	20 m	No	No	No	Middle Preclassic to Early Classic		Brady et al. 1997: 92, Fig. 4
Jobonche (a.k.a. Canchecan)	4	ca. 30 m	No	No	Yes	Early Classic to Late Classic		Brady n.d.; VanKirk & VanKirk 1996: 50, 156-7
Cueva Poxté	5	< 18 m	No	?	?	?		Siffre 1993: 114-119 passim, 186
Juteria	2	10 m	No	?	?			Siffre 1993: 151-153
Naj Tunich (entrance)	1	37 m	No	No	?	Protoclassic to Terminal Classic		Siffre 1993: 181
Cave in the Toledo district	1	0 m	Yes	Yes	?			McNatt 1996: 89
Caiketo'k	1							Bonor 1989
Cave Sites: Paintings								
Actun Dzib	1	30 m	No	No	No	Early Classic to Late Classic		Stone 1995: 91-94, Fig. 4-98, p. 92; Walters 1988
Naj Tunich (Drawing 55)	1	ca. 640 m	No	No	No	Protoclassic to Terminal Classic		Stone 1995: Fig. 6-39, p. 148, 214, Fig. 8-55, p. 215
Xcosmil	5	< 30 m	?	?	?	Late Classic	Puuc	Stone 1995: 69; Strecker 1985
Dzibichen (Drawing 21)	1	22 m	No	Yes	No		Postclassic	Stone 1995: 79, 75, 76, Fig. 4-71e, p. 79, Fig. 4-68, p. 76
Cueva de la Chepa	1	?	?	?	?	?	Postclassic?	Stone 1995: 52, Fig. 4-10b, p. 51
Surface Sites: Carvings								
Cahal Witz Na' (Monument 3)	1	n.a.	n.a.	No	No		Terminal C.	this volume
Talgua Village site	1	n.a.	n.a.	No	No	Middle Preclassic (980 - 300 BC)		http://www.geology.utoledo.edu/research/latin-am/p-cmark
Nim Li Punit (Stela #)	1	n.a.	n.a.	No	No	Late Classic		MacLeod 1981

Table 6.4. Sites investigated with petroglyphic faces. The chart lists the number of faces in each cave and the chronological range associated with archaeological artifacts (after Helmke and Awe 1998).

Chapter 7: Conclusion

Cave art has a relatively long history in lowland Maya civilization. The earliest cave paintings, dated by iconographic style and execution, appear at the end of the Preclassic period at sites like Loltun Cave in the Yucatan. For the Early Classic, a few more examples of cave art (for example at Naj Tunich Cave), were added to the lowland Maya corpus. By and far, however, Late Classic paintings represent the most prolific and widely distributed examples of cave art in the Maya area (Stone 1995). Our analysis of the cave art from Actun Uayazba Kab in western Belize, contributes to this growing corpus of rock art in the lowland Maya sub-region of Mesoamerica.

As this thesis has noted, Actun Uayazba Kab contains the most diverse types of rock art yet discovered in a single cave site in Belize. The art in the cave is represented by various types of petroglyphs and pictographs. The petroglyphs in Actun Uayazba Kab include abstract and geometric designs, zoomorphic images, footprints, simple faces, and a group of more complex faces that utilized the natural contours of flowstone to give them a seemingly sculpted characteristics. The pictographs at Actun Uayazba Kab include a set of four negative handprints, three triangles, and a few schematic drawings.

Besides documenting the corpus of rock art in the cave, the primary objective of this research was to determine when the Actun Uayazba Kab cave art was produced. To address this research question, we applied both relative and absolute dating techniques. Absolute methods applied Accelerator Mass Spectrometry (AMS) analysis of charcoal recovered in the Handprint Chamber of Actun Uayazba Kab. Relative dating techniques included stylistic analysis of cave art from sites in Belize, the Petén Province of Guatemala, and the Yucatan Peninsula of Mexico, as well as comparisons of diagnostic

ceramic types from Uayazba Kab with those from well-documented Belize River Valley sites.

The AMS dating of two charcoal samples from the Handprint Chamber yielded the following dates: Sample HPC5: 1245 BP \pm 20 or 685 – 780 A.D. (2 sigma), and Sample HPC6 1255 BP \pm 20 or 675 – 855 A.D (2 sigma). Both of these dates fall solidly within the Late Classic period, and suggest that a similar date can be assigned to the pictographs in the Handprint Chamber.

AMS dating of rib fragments from two burials, 97-1 and 98-3, produced calibrated 2-sigma dates of (Beta 367724) AD 100-130 and (Beta 367725) AD 240-390. Both burials were recovered in Alcove 1 of the Entrance Chamber and suggest the possibility that some of the cave art could have been executed just prior to the start of the Late Classic period.

Type-variety analysis of 2477 pottery sherds and several whole vessels discovered in Actun Uayazba Kab identified ceramic types diagnostic of the Late Preclassic, Early Classic and Late Classic/Terminal Classic periods. Approximately 70% of the assemblage, however, dated to the later time frame, suggesting that the cave art was statistically more likely to have been executed during this time than either during the Late Preclassic or Early Classic periods. Comparative analysis of the petroglyphs, particularly the simple faces, yielded similar results. This is true for petroglyphic faces from caves throughout western Belize, the Petén Province of Guatemala, and the Yucatan in Mexico.

An examination of the culture history of surface sites in close proximity to Actun Uayazba Kab also determined that all these sites predominantly dated to the Late Classic period. This is particularly true of the large regional centers of Cahal Uitz Na and Tipan Chen Uitz which are located 500 m and 6 km respectively from Uayazba Kab. Given these surface sites chronologies, we can therefore assume that the rock art in Actun

Uayazba Kab was most likely produced when these neighboring surface sites were flourishing.

As this thesis research has demonstrated, the dating of cave art is a challenging endeavor. This is compounded by the fact that some dating technologies are still under refinement; by the fact that we still do not have non-destructive methods to date rock art, and because some artistic styles and canons persisted for lengthy periods of time. In spite of these challenges, however, our study of the cave art from Actun Uazaba Kab serves to demonstrate that approaches incorporating both absolute and relative dating techniques can provide one of the most reliable methods for determining the temporal span of cave art in the Maya area.

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