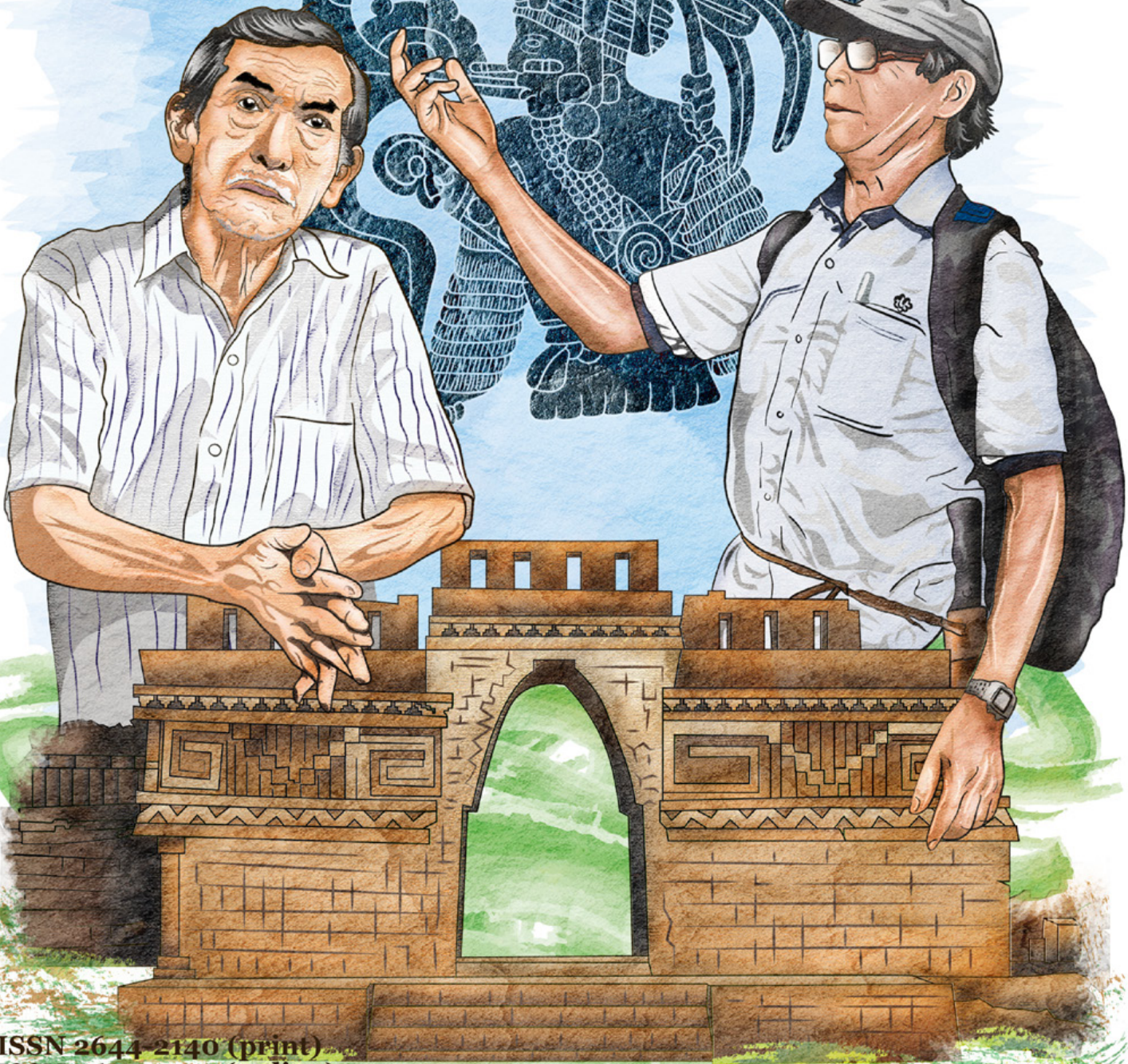


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The Editorial

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It has been a privilege to work with the 18 authors involved in the creation of this first issue of the third volume of *The Mayanist*. Building upon our virtual 10th Annual Maya at the Lago Conference (M@L), this issue rises to explore many dimensions of community-engaged anthropology in the Maya World. As our discipline slowly cuts its extractive roots, we anthropologists must endeavor to adapt our practices to truly collaborate with the people we study and the heritage communities of sites we excavate in our quest to generate knowledge. An innovative approach to the production of knowledge is what drives Patricia A. McAnany, Iván Batún Alpuche, and their Cenotes Project team. In close partnership with teachers and students, they are finding ways to simultaneously study human perceptions of cenotes, empower young Yucatec@s, and help preserve instrumental natural resources. This approach highlights how community-based participatory research (CBPR) in anthropology must also emphasize the return of results to communities through adequate channels. While we cannot achieve so much as a journal, we can certainly help circulate the results from these projects widely, freely, and in compelling fashion.

The Cenotes Project is led by InHerit, a nonprofit dedicated to Indigenous heritage and directed by Patricia McAnany, who received the lifetime achievement award at our 10th M@L. Her InHerit team and former students provide us with five excellent papers which, along with 3 more contributions, make this issue the biggest we've produced, with a total of three research reports and five articles. Another former student of Patricia McAnany now Assistant Professor at Kenyon College, Claire Novotny, has done a remarkable job as our guest editor (more from her below). We are also proud to have convinced our longtime friend and author, the *ajtz'ib* Walter Paz Joj, to illustrate the entire issue. And we remain fortunate to be able to rely on our dedicated layout maestro, Joel Skidmore, our prompt reviewers, and our copy editor, Jack Barry.

All the papers in this issue are written in English. But that doesn't mean we have given up on our

goal to increase the accessibility of scientific literature in Latin America—quite the opposite. In fact, we just published Spanish translations for three papers from the first issue of our second volume (Batún-Alpuche 2020; Cojti-Ren 2020; Palka et al. 2020). These recent translations are available on our renovated webpage, which now allows our readers to download every individual article. The Spanish versions of the articles span the exact same page-range as their English siblings, which simplifies citation of their content (by simply substituting the English for the Spanish title). We are committed to pursuing the translation of more of our English articles—an endeavor only possible thanks to our dedicated authors and to our amazing, previous guest editor Jocelyne Ponce. We sincerely hope current and future authors will continue to help us achieve this goal.

While, as a team, we are proud to contribute to the open-access dissemination of inspiring community-engaged research, we cannot ignore a sobering and distressing reality. The current pandemic, which will soon have stretched over four calendar years, is disproportionately impacting poorer nations, for a lack of a better term. This includes the countries that are home to the Maya. We are saddened by the tragic loss of research partners, friends, and families in Guatemala, Mexico, Belize, Honduras, and El Salvador. Our hearts remain with our many colleagues still facing incredible insecurity as Covid-19 suspends the lives of entire communities. The double impact of the health crisis and its cooption of the economy has seriously endangered the lives and livelihoods of the people we wish to resume working with. The future of community-engaged research must feature innovative ways to use our presence, influence, and funds to contribute meaningfully to communities that will all have suffered from these cruel years. We must seek to develop our projects from the grounds-up with our community partners, in concert with Indigenous scholars, and with objectives of sustainability and mutual success.

From our Guest Editor

I am grateful and honored to be the guest editor of this issue of *The Mayanist*. I am especially excited to introduce an edition that grew out of the 2021 Maya at the Lago conference honoring my doctoral advisor, Patricia A. McAnany. Through these papers we can see the impact that she has made on the field of Maya archaeology through her collaborations with multiple partners, students, NGOs, and colleagues.

The term “Mayanist” comes out of a late 19th century way of referring to the study (mostly philological) of ancient civilizations (i.e., Egyptologist, Assyriologist). To be frank, it has never felt like a comfortable designation, or a professional identity that I felt proud to claim. While it remains an accurate description of our field in terms of identifying the culture that we study, it conveys a sense of distance between researcher and subject. The descendant community of Maya people are dynamic, diverse, political people who are eager to play a more purposeful role in the production of knowledge about the past.

What does a Mayanist of the 21st century look like? Can we reclaim this title? I think that the papers collected here exemplify the ways in which our field is starting to transform. We see here the move away from the traditional, unidirectional, colonialist gaze epitomized by the term “Mayanist” towards an archaeology of inclusivity and engagement. Mayanists are no longer antiquarians or collectors but people who are self-aware about their positionality in relation to Indigenous people.

Dylan J. Clark, Diane L. Slocum, and Nancy Strickland Fields start their article, “Interweaving Knowledge and Foregrounding Local Interests: Reflections on Building Collaborative Partnerships with Indigenous Communities” with a helpful overview of anthropological thinking related to engagement. They situate InHerit in its intellectual context and discuss two of their recent efforts—the *Cultural Heritage, Ecology, and Conservation of Yucatec Cenotes* and the *Amplifying Native Voices in North Carolina History* projects. Both illustrate elemental principles of CBPR, namely the centering of Indigenous voices and concerns and the continuous dialogue necessary among collaborators working towards a common goal. One notable outcome shared by both projects was that local educators were interested in teaching about archaeological heritage but lacked the resources and accessible information to do so. Closing this information gap became a goal of each project; indeed, making archaeological knowledge accessible is a hallmark of InHerit programs since their inception.

Kristin Landry Montes, Patricia A. McAnany, and Iván Bátun Alpuche expand on the results of the Yucatán Cenotes Project in their piece, “Decolonizing the Classroom and Centering the Biocultural Heritage of Cenotes in Yucatán, México”. The authors braid together environmental conservation and cultural heritage to convey “the interconnectivity of people and place”. The project collaborated with middle school students and their teachers to conduct CBPR on local perceptions of cenotes. A focus of this article are insights garnered from survey responses collected from students and teachers at the beginning and end of the project. The initial surveys were crucial in shaping the content and aims of the project and the final surveys gave a sense of the challenges faced, especially by teachers. A strong message was the desire for knowledge about cenotes and archaeological heritage presented in a local, Indigenous manner instead of one suffused with settler colonialism.

I want to highlight the importance of InHerit’s assessment of their community-based projects throughout the Maya region (see McAnany 2016). Though community archaeology is gaining ground in the Maya area, examples of evaluating the processes of collaboration are few. It is difficult to overstate how crucial it is to hear from local and Indigenous voices about their perceptions of archaeological heritage and the challenges they face in accessing knowledge. Landry Montes and the InHerit team are setting important standards for other projects in the region.

Engagement across learning institutions is also a strength of community-based efforts, as illustrated by Rubén Morales Forte and his collaborators on the *Maya Scripta* project. In their paper, “The Maya Scripta Project: Museum, University, and Community-Engaged Scholarship in

Dolores, Petén, Guatemala”, the authors outline their community-engaged approach to effectively disseminate epigraphic information to museum patrons and local students. The *Maya Scripta* project aims to make Maya epigraphy accessible to descendant communities and other interested people through an open-access, online database. Working along three axes—local museum, school, and marketing—the project was able to increase visitors to the museum through marketing and increase local understanding of Maya epigraphy through targeted workshops with students. The project’s assessment of their outcomes provides another example of the importance of feedback in shaping future engagements with the community.

Community-engaged projects are sometimes critiqued for being overly preoccupied with the political present and thus not maintaining scientific neutrality. Maia Dedrick challenges this critique in her article, “Community-Engaged Archaeology and the Question of Rigor”. Dedrick closely examines the different motivations that archaeologists may have for joining the field, proposing different “veins” of motivation for practicing archaeology. She argues that it serves us well when we are aware of why we find the past alluring. This point is supported by the convincing example of Sylvanus G. Morley, an early archaeologist working among Yucatec Maya laborers whose heritage he was excavating. Dedrick shows that Morley was simultaneously exploiting Maya history and their labor while affecting their treatment as laborers by describing their perceived work effort to government agencies. Morley’s reports shaped U.S. government policy and other researchers’ attitudes about contemporary Maya people during the 20th century. It is a clear example of how one’s positionality and motivations for conducting research bleed into the way that knowledge about the past is produced.

Brent K. S. Woodfill also explores positionality in his article, “Examining Blind Spots and Assumptions Impeding Community Archaeology in the Maya World”. Starting with his own “blind spots and assumptions”, Woodfill challenges underlying ideas about local Maya communities that may impede archaeological collaborations. He addresses the formation of national parks as locales of environmental preservation and the concomitant characterization of contemporary Maya people as trespassers on a pristine landscape. His analysis draws on his decades of experience working and collaborating with descendant communities in the Northern Transversal Strip in central Guatemala. Woodfill challenges archaeologists to decolonize our discipline by advocating for descendant communities, their land rights, and economic freedom.

Resisting development is a theme in C. Mathews Samson and Alisha Kendrick-Pradhan’s article, “Persisting Worldviews and Conflicted Development along the Ruta Maya”. Samson and Kendrick-Pradhan focus on the resistance of Indigenous Maya communities to development agendas from governments that erode Maya political and economic autonomy and worldview. It is important to consider Maya identity as tied to place and environment and how that sparks motivation for activism against transnational development projects. The authors review two examples, resistance to the *Tren Maya* project in the Yucatán peninsula and *Proyecto Chico Mendes* from highland

Guatemala. Activists in Yucatán and Guatemala share a commitment to sustaining local environmental resources through Indigenous ecological practices conjoined with activism to defend their ancestral relationship with the landscape.

Engaging with archaeological landscapes through the eyes of local people is a theme that runs through several papers. In his paper, “Documenting the Brigades: Oral History of Local Archaeology Experts in the Puuc Region, Yucatán, México”, Tomás Gallareta Cervera relays preliminary insights from an ongoing oral history project in collaboration with local laborers from the Puuc region. For Gallareta Cervera, analyzing Indigenous perceptions of the historical landscape of Yucatán expands and enriches our understanding of the archaeological record by embedding interpretations within the historical context of the region. Gallareta Cervera uses oral history as a method of listening to the voices of two groups of people: the Puuc Angels (*La Brigada Volante*), stewards of archaeological sites throughout the peninsula, and the Yucatán-based masonry crew that reconstructs sites through the Maya region (*La Brigada de Restauración*). The interviews challenge our notions of “expert” in archaeology by showing how these men’s sustained engagement with archaeological resources through their labor makes them experts of the Puuc landscape in the past and the present.

Harri Kettunen and Marc Zender’s paper, “The ‘Month Signs’ in Diego de Landa’s *Relacion de las cosas de Yucatán*” uses Kettunen’s recent transillumination photographs of the original document to make new interpretations about the month signs. The authors argue that these versions of the month names recorded in the colonial-era *Relacion* are similar to names recorded hundreds of years earlier on monuments. The authors argue that instead of interpreting these inconsistencies as incorrect, they should be seen as a bridge between southern lowland spellings and those of the north. The differences observed are patterned and may suggest bilingualism of a northern scribe.

At the beginning of this section I asked what a Mayanist of the 21st century might look like. I think that this collection of papers helps us envision an answer. Many of these authors share the goal of challenging established hierarchies in our discipline by centering the voices of Indigenous community members. Applying CBPR methodologies is clearly one way forward towards reshaping the way that archaeological knowledge is produced. Oral history and ethnography are methods that foreground the expertise and activism of Maya people. Scrutinizing our positionality as researchers provides a starting point for decolonizing and building a more just and inclusive discipline. A 21st century Mayanist does not maintain a false sense of neutrality or distance between expert and subject but stands on an even field, aware of the social and political forces that carried them there, ready to listen.

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Interweaving Knowledge and Foregrounding Local Interests: Reflections on Building Collaborative Partnerships with Indigenous Communities

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The past three decades have ushered in a paradigm shift in the field of archaeology toward increasingly collaborative, participatory, and multivocal approaches developed through synergistic partnerships with descendant communities that foreground the impacts and relevance of archaeology and cultural heritage preservation in the present, as well as the deep connections between local places and shared identity. Community-engaged archaeology projects are both global and local in the sense that they contribute to broader efforts to decolonize the research process and elevate the voices of underrepresented communities in conservation and public interpretation of cultural resources, while the path collaboration takes varies considerably depending on local context and relationships between stakeholders. For over a decade, InHerit: Indigenous Heritage Passed to Present, a program founded by archaeologist Patricia A. McAnany, has developed and supported several collaborative projects that combine anthropological research, cultural heritage education, and conservation. Through recent InHerit partnerships with communities in Yucatán, Mexico and North Carolina, we see that some of the most profound opportunities (and challenges) grow out of two essential components of community-engaged projects: interweaving different epistemologies and knowledge systems in pursuit of shared objectives and integrating local interests directly into research design and implementation.

Keywords: community archaeology, cultural heritage, public education, traditional knowledge, community-based participatory research (CBPR)



As several of our colleagues in this issue of *The Mayanist* show, the archaeological past is deeply rooted in communities and landscapes, and the steady transformation in anthropological archaeology toward community collaboration continues to be essential to move the field in a direction that is more ethical, applicable, and sustainable. In 2006, Patricia McAnany and students co-founded the Maya Area Cultural Heritage Initiative (MACHI), which later grew into *InHerit: Indigenous Heritage Passed to Present* and its non-profit partner the Alliance for Heritage Conservation (See <https://in-herit.org/en/>). Today InHerit is based out of the Research Laboratories of Archaeology at the University of North Carolina at Chapel Hill. Over the past 15 years, InHerit has co-directed or supported 25 projects through partnerships with 57 Indigenous communities in Mexico, Guatemala, Belize, Honduras, and the U.S.

The three co-authors have been involved in designing and facilitating InHerit collaborations during the past four years in Mexico and North Carolina. In this article, we discuss fundamental principles that have guided our efforts to develop community-engaged archaeology and cultural heritage education projects, as well as challenges and opportunities that have come to the fore as we operationalize these ideas. We believe that partnering with descendant communities requires at least two essential components: (1) interweaving distinct epistemologies, or knowledge systems, in pursuit of shared objectives and (2) integrating community interests into research design, as well as implementation. Doing collaborative research in archaeology, history, or any social science is no easy task—it is a process of relationship building, negotiation, reflection, and re-positioning of roles that necessitates time and flexibility to develop trust and respond to shifting priorities (McAnany and Rowe 2015:7). As the ethics and practice of archaeology have changed over the past three decades, opening doors to increasing engagement with Indigenous and other concerned communities, community-participatory approaches are, in turn, reshaping the study of the past and the process of knowledge production and exchange.



Prioritizing Community Engagement

Beginning in the late 1980s, postmodern and postcolonial critiques in the social sciences and humanities encouraged archaeologists to reflect on their position within the interpretive process and relationships with descendant communities, as well how the past could be used, for better or worse, in the sociopolitical present (Clark and Anderson 2015:2; Hodder 1999; Shanks and Hodder 1995; Watkins 2009; Zimmerman 2003). This aided multivocality and served as a springboard for further development of critical heritage studies, public archaeology, and museum studies, which exposed the colonialist underpinnings of the field and the great divide between Indigenous people and non-Native scholars who studied their cultures and histories (Fixico 2003; Lowenthal 1985; Merriman 1991; Zimmerman 1997). InHerit’s Executive Director, Patricia McAnany, and former Program Director, Sarah Rowe (2015:4) have also traced the collaborative turn in American Archaeology, in part, to the passage of the pivotal Native American Graves Protection and Repatriation Act (NAGPRA) in the U.S. in 1990. After a tremendous, long-running effort by

Indigenous peoples to advocate for the right to control—or at least be consulted about—the disposition and treatment of human remains and associated cultural resources of their ancestors in archaeology and museums, new spaces opened for community engagement and co-management in archaeological research (Derry and Malloy 2003; Pyburn 2003).

By the turn of the 21st century, professional organizations, as well as scientific and cultural institutions like the United Nations (e.g., 2007 Declaration on the Rights of Indigenous Peoples) and the Advisory Council on Historic Preservation, were redefining their ethical principles and steering the field toward inclusivity and accountability. Within this, of course, there is great variability in how researchers approach engagement with communities most affected by research, from consultation on one end of the spectrum to fully Indigenous archaeology (Colwell-Chanthaphonh and Ferguson 2008).

McAnany (2016:55; see also McAnany and Rowe 2015) has discussed archaeology's transition from a discipline operating through a "dyadic relationship" between archaeologists and the material culture (things/places) of past cultures to one recognizing the "triadic relationship" among archaeologists, local/descendant communities, and places/things. The latter recognizes the "past cannot be conserved by the expert knowledge of archaeologists alone," but relies on collaboration with multiple "constituencies" who may not be experts, but are intimately connected with the remains of the past and whose actions will ultimately be instrumental in protecting these cultural resources (McAnany and Rowe 2015:5). In Latin America, the relationship between the archaeological past and its various related constituencies is magnified by the importance of cultural tourism as a means of economic development and the evolving role of the Indigenous past in heritage ideologies (Clark and Anderson 2015:3).

It is in the context of this change in anthropology/archaeology that InHerit was created as a program focused on cultivating synergistic partnerships with Indigenous communities that bring Native voices, experiences, and interests to the foreground in knowledge production, as well as conservation and interpretation of sites, material culture, and sacred landscapes. InHerit projects are always linked to cultural heritage, or people's complicated and multi-layered understanding of their connection to places, practices, and things that are grounded in the deep past and passed down from ancestors (Hutson et al. 2014:8; McAnany 2020:321). Attention is trained on how collaboration can make our work not only applicable to positive social change, but also more "effective" in expanding our understanding of the past and mobilizing new knowledge, as well as contributing to processes of decolonization (Stahl 2020:38).

InHerit projects apply techniques from community-based participatory research (CBPR) to go beyond the framework of consultation with Indigenous communities to collaboration, which requires building more robust partnerships for knowledge production and exchange. Participatory research involves a shift in emphasis toward the *process* over the product, or the perceived value of the information generated and disseminated (McAnany 2020:323; Stahl 2020:38). Bringing multiple voices and epistemologies, or ways of knowing, into project design is beneficial because it expands explanatory spaces and the possibilities for accessing and interpreting information when the co-creators engage with different worldviews and positions in relation to cultural resources (Stahl 2020:39). Learning from each other about the different ways the past is experienced and valued is necessary to align the interests each partner brings to its study and interpretation.

Interweaving Knowledge and Interests

One of the scholars whose work resonates strongly with InHerit's mission is Anishinaabe archaeologist Sonya Atalay. While there are a wide variety of useful concepts related to bridging Native and non-Native knowledge systems that have been discussed before, we embrace Atalay's (2012:27) concept of "braided knowledge" (cf. Colwell-Chanthaphonh and Ferguson 2010; Silliman 2008; Nicholas and Markey 2015; Zimmerman 1997). Based on traditional teachings, this idea suggests that community-based projects necessitate multiple forms of braiding, or interweaving, of distinct ways of knowing and strands of data from diverse stakeholders, including descendent communities and researchers from academic spaces.

There can be multiple points of convergence, as well as tension, between archaeological epistemologies and Indigenous traditional knowledge systems (Colwell-Chanthaphonh and Ferguson 2010:326; Nicholas and Markey 2015:287). This is sometimes framed as "western science" versus either "religion" or "oral tradition"—but these are false dichotomies, in addition to being an inaccurate characterization of the nature of archaeological reasoning (Nicholas 2018). Different epistemologies are not necessarily diametrically opposed. In fact, the perception of opposition tends to be the result of settler colonialism and the unequal power structures and social relations borne out of it, rather than any inherent incommensurability. The braided knowledge concept draws on the potential synergy of Indigenous and western sciences, focusing on how the frameworks each employ and the data they generate enhance each other (Atalay 2020:6). Still, any community's ways of knowing and experiential relationship with the subject of study may be radically different than those of the non-local researchers, and a big challenge lies in finding points of intersection and congruence.

A community-based participatory approach brings Indigenous community members' voices into the process early, at the level of research design, from decisions about what research questions to pursue to the methodological approaches and kinds of evidence used. Community objectives and those of academic partners may or may not be aligned, and non-Native archaeologists and other specialists must be prepared to relinquish authority over what topics are addressed, what data are accessed, and the methods employed to achieve mutually beneficial outcomes. As Atalay (2012:184) explains, working together on a plan of action creates opportunities in the form of transcultural spaces for open discussion and critical reflection. This places knowledge systems into "productive dialogue" where they can co-exist (Stahl 2020:38), allowing for a bidirectional rather than unidirectional exchange, where one way of understanding and relating to the past is privileged (McAnany 2016:132). Knowledge that is co-produced is more effectively applied to addressing the social issues most important to communities. Archaeologists who learn the methods and practices of Indigenous science (e.g., traditional ecological knowledge, storywork, etc.) are better prepared for tasks such as sharing information with the public, promoting science literacy, and applying archaeological knowledge to challenges like global climate change (Atalay 2020:8).

Sometimes the priorities of Indigenous communities lie elsewhere, or archaeology may only relate to certain community concerns. In CBPR projects, local communities' objectives carry at least as much weight as that of the researchers, so the research goals or methods of archaeologists and historians may take a backseat in community-driven initiatives. While braiding knowledge always has potential to generate novel hypotheses about how humans lived in the past, of equal

significance are what we learn about the cultural meaning of the past in the present and implications for knowledge sharing and conservation.

Recent InHerit projects, have only been tangentially related to archaeology compared with other community-engaged endeavors that are built around archaeological fieldwork, like the Proyecto Arqueológico Colaborativo del Oriente de Yucatán (PACOY; see Dedrick 2021). For example, the two InHerit projects discussed below are centered on cultural heritage education and involve partnerships with schools and museums (<https://in-herit.org/en/newsletters-archive/>). Archaeology certainly plays roles in these initiatives, but traditional archaeological practices of survey and excavation do not.

This trend of working with teachers and developing education programs may result from our backgrounds in higher education and believing that experiential education can lead to cultural empowerment for underrepresented groups (Freire 1970). It may also be because teachers in the communities we work with tend to gravitate to projects that connect with young people and help them access transformative experiences and experiential content. Public education is also one of the places where the negative impacts of settler colonialism on Indigenous communities, including heritage distancing, is most evident.

Heritage distancing refers to the systematic separation or alienation of Native peoples from their cultural heritage due to barriers to accessing the tangible remains of the past (i.e., ancient sites, artifacts, sacred landscapes) and the intangible cultural traditions, shared identity, and information about their ancestors obtained through archaeological investigation (McAnany and Parks 2012:80). This can take many forms, depending on the specific historical context. In Mexico, for example, an ideological separation between the archaeological past and Indigenous present caused by centuries of colonialism followed by a reframing of heritage discourse in terms of a unifying national narrative of racial and ethnic identity obscures significant cultural diversity. Many people who speak Indigenous languages do not self-identify as descendants of the people who built the ancient sites spread across their homeland (McAnany 2016:71), and this has ramifications for cultural resource preservation, intellectual property rights, and economic development. In the U.S. and Latin America, traditional knowledge systems and local history are often left out of school curricula, and in some communities, there are growing calls to reconnect with sacred places and traditions as cultural heritage. In education-centered projects, collaborators are focused on mobilizing knowledge and helping people access it to overcome historical erasure and trauma, which is central to the braided knowledge approach in community-based archaeology (Atalay 2020:11), as well as applied anthropology.



Reflections on Recent InHerit Collaborations

Two recent InHerit projects exemplify how we attempt to operationalize the approaches outlined above and the challenges and complexities that shape the process. The *Cultural Heritage, Ecology, and Conservation of Yucatec Cenotes* project is a collaborative environmental conservation and education initiative with nine Yucatec Maya communities in eastern Yucatán, Mexico. Beginning in 2018, the project was funded by the National Geographic Society and co-directed by

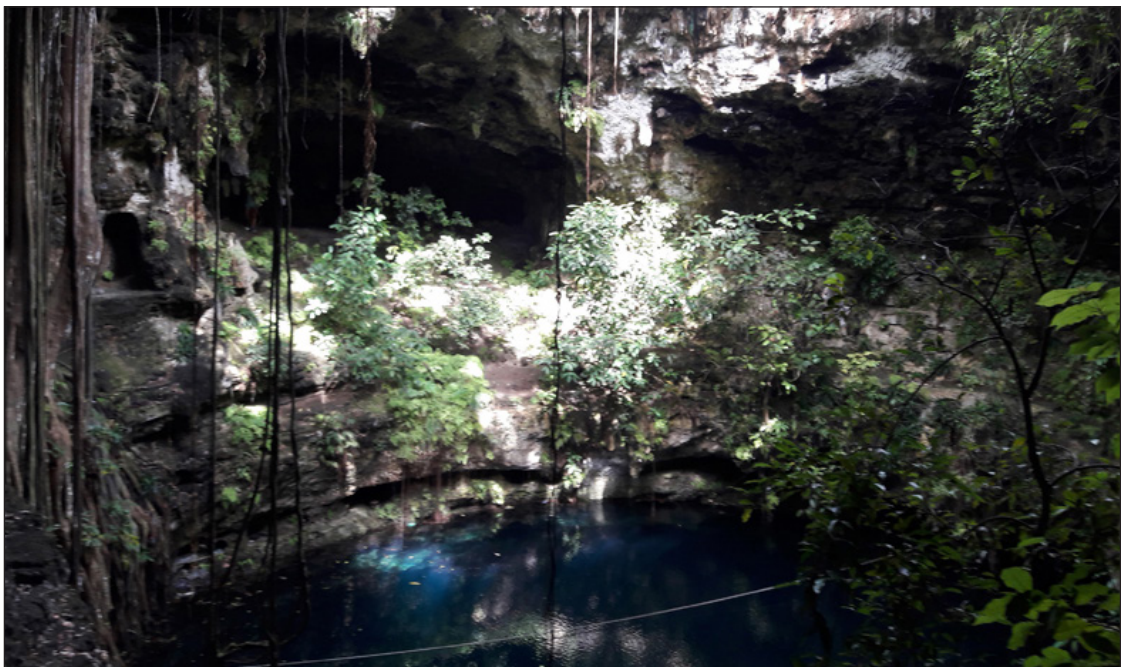


Figure 1. Prof. Raúl Jacinto Carvajal Díaz and Dylan Clark visit the community cenote in the town of Tixhualactun, Yucatán at the street level (top) and inside the sinkhole (bottom). Photos by Dylan Clark.

Patricia McAnany (UNC-Chapel Hill) and Maya archaeologist Iván Batún Alpuche (Universidad de Oriente), along with collaborators from the U.S. and Mexico. While there is not space here to fully describe the multiple components of this project, you can read more about it in Landry Montes et al. (2020 and 2021).

The project centers on *cenotes*, the Spanish term derived from *ts'ono'ot* in Yucatec Mayan, which are limestone solution sinkholes ubiquitous in the karst environment of the Yucatán Peninsula (Figure 1). Cenotes provide a source of water, and fertile soils build up in and around them. It is not surprising that cenotes have been integral to the cultural and religious life of Maya communities for millennia, and most towns were built near them (Hernández and Vail 2013). Today, cenotes remain experienced by many as sacred centers of communication between humans and supernatural forces, often through offerings or ceremonies (Figure 2). They are also developed for ecological and cultural tourism, a source of crucial income in the region.

Unfortunately, cenotes and the great aquifer they connect to face significant ecological threats from industrial farming, waste contamination, unsustainable tourism and development, and climate change. While there is considerable appreciation for and local knowledge about cenotes within Maya communities, people's ancestral connection to these critical biocultural resources is also declining as they lose access to many through privatization, while others are neglected and polluted (López Maldonado and Berkes 2017). Even though cenotes do contain impressive archaeological and paleontological sites, our project was not designed around archaeological fieldwork. Rather, our objective was to mobilize the energy and excitement of Yucatec Maya students between the ages of 11 and 14 and their secondary school teachers to learn more about community cenotes and become active advocates for their conservation. Partnering with the communities and secondary schools (equivalents of grades 6-8 in the U.S.), as well as college students at the Universidad de Oriente (UNO) and UNC-Chapel Hill, we designed educator workshops and experiential learning activities that could be integrated into the public school curricula (Batún Alpuche et al. 2021). The workshops and curriculum materials were built around three broad themes, each explored through the lens of cenotes: Oral History and Folklore, Science and Safety, and Archaeology and Cultural Patrimony.

From previous community-based education projects, we learned the importance of bringing teachers into conversation early in the process because they understand best how the tools and resources we bring can be most effectively deployed with students. Workshop themes coalesced through our conversations with the teachers and a sample of Maya students from five participating schools who worked with us at the beginning of the project as part of a CBPR assessment technique called photovoice. In the photovoice process, students filled out questionnaires and took their own photographs of local cenotes, sharing them together in a series of small group discussions (Figure 3). This provided us with an ethnographic window into the ways community members of this age group perceived cenotes and what their major interests and concerns were *before* any curriculum materials or activities were introduced by teachers.

We learned that many students had a strong interest in the oral tradition and storytelling about cenotes in their towns. From our perspective as archaeologists and historians, we originally saw oral history as a secondary, offshoot exercise that could augment the students' main exploration of the Postclassic Maya codices and ancient depictions of cenotes and related symbolism. Through the



Figure 2. View from within the *rejollada* (dry cenote) at the maw of the cave in the community of Tahcabo, Yucatán. Photo by Dylan Clark.

photovoice activity, the Yucatec Maya students shifted the spotlight to stories they learned that explain, for example, how cenotes came to be or what sacred plants grow around them that traditional healers, or *jmeen*, frequently collect and use. This shift in emphasis helped us integrate, or braid in, Indigenous knowledge at the design stage of the project, and we changed our program accordingly by making “Oral History and Folklore” a primary workshop theme. The photovoice activities also served to bridge generations within the communities, as students were motivated to speak with elders about diverse explanations for the natural characteristics of cenotes and how people relate to them today, compared to the past (Figure 4). We started working with local teachers to develop basic training for students in the techniques of recording and curating oral histories. Through this analytical re-centering, we gained further insight into how local people relate to their past and the importance of storytelling in Mesoamerica—what Atalay (2020:11) refers to as “storywork”—in conserving and transmitting cultural traditions. It is not necessarily continuity from the distant past that is valued, as much as connecting with the recent past and elders, and this provides multiple entry points through which we as archaeologists can learn to share knowledge and mobilize an

appreciation for scientific inquiry more effectively.

Among the challenges of community-engaged work is building in sufficient time to adjust based on collaborators' needs. For example, we originally formed an advisory board with teachers and administrators from the schools and the college students from UNO to shape the direction of project activities and content, but we found that formal board meetings at the local university or in the schools were not effective in eliciting participation and the kind of authority-sharing we sought. Instead, informal meetings over coffee and snacks with fewer teachers who, through self-selection, formed a core group created better settings for interweaving the methods we could bring as researchers with the teachers' pedagogy and goals. Our Co-director, Iván Batún Alpuche, and Project Facilitator, Khristin Landry Montes, were also both living near the communities and could meet regularly and manage Whatsapp and Facebook groups with teachers, schools, and students to build relationships and foster essential communication.

Another obstacle to community-based collaborations and braiding knowledge with Maya communities stems from the entrenched social hierarchy and power asymmetries that are the legacy of colonialism. We see this most clearly when we try to share control over the direction and implementation of project activities. In Yucatán there is still a powerful social class and racial hierarchy with complex historical roots that can undercut our partners' ability to express concerns with the direction of a project, even when critical feedback is regularly sought and incorporated. Our advisory board, for example, was open to all collaborators who we encouraged to participate, but few community members expressed concerns about the educational materials and programming we produced, even with regular communication that their



Figure 3. Students with Prof. Daniela Garrido Durán from the Héctor Victoria Aguilar Secondary School in Yalcobá Yucatán taking photos at their community cenote for a photovoice session. Photo by Patricia McAnany.



Figure 4. Cenaida María Ay Pech and Monserrat Karina Tun May conduct a recorded oral history with local *jmeen* (shaman) Don Marcial in their community of Xocen, Yucatán. Photo by Khristin Landry Montes.

voices were essential for shaping the program. Whether among foreign or local researchers, it can be difficult for community members to advise or question the perceived expertise of people that hold advanced degrees or work for an academic institution or government agency. This raises questions about how participating partners can effectively break down asymmetrical positioning built on entrenched historical and social hierarchies when outside researchers unintentionally maintain this through our status as “scientists” or “experts.” We must always be attentive to whether our approaches to collaboration do empower people from historically marginalized communities. Later, when the core group of teacher-advisors in the Yucatec Cenotes project did emerge and embrace a power-sharing role, questions also arose about whether and in what ways these individuals could represent the interests and perspectives of the larger community. Ultimately, these issues may not be resolved and require delicate and creative weaving, in, under, and through colonialist power structures to make collaborations not only successful, but sustainable.

While most of InHerit’s projects over the past 15 years have taken place in Mesoamerica, two recent initiatives were developed with descendant communities in our home state of North Carolina. One of these, called *Amplifying Native Voices in North Carolina History*, is a project currently underway which grew out of a partnership with the Museum of the Southeast American

Indian (MSAI) at the University of North Carolina-Pembroke (UNCP). The mission of the MSAI is to educate the public about the history, culture, art, and contemporary issues of American Indians of the Southeast with special emphasis on the Native American communities of Robeson County. While there is a deep historical connection between the museum and the Lumbee Tribe of North Carolina whose traditional homeland includes Robeson and neighboring counties, the MSAI conducts scholarly research and collects and conserves material culture related to many Native American cultures (Figure 5). Funded by the Z. Smith Reynolds Foundation and North Carolina Humanities Council, this project also focuses on public education and cultural heritage, where the archaeological past plays a significant role, but is not the central pivot-point for the co-production of knowledge or interpretative content.

What is today North Carolina has a large and diverse American Indian population that includes one federally recognized tribal nation and eight state-recognized tribes. The Lumbee people are a state-recognized tribe with over 55,000 enrolled members. With few exceptions, Native American experiences and histories continue to be largely excluded in education, media, politics, and cultural institutions. In the U.S., the kind of heritage distancing discussed above often takes the form of erasure, where Native American experiences and contributions to local communities are systematically excluded from historical narratives and heritage discourse. For American Indian tribes, a



Figure 5. Exhibit hall in the Museum of the Southeast American Indian at the University of North Carolina-Pembroke, Pembroke, NC. Photo by Dylan Clark.



Figure 6. Collaborators planning the “Amplifying Native Voices” project visit the archaeological collections with Dr. R.P. Stephen Davis at the Research Labs of Archaeology at UNC-Chapel Hill in March 2020. Photo by Nancy Fields.

fundamental aspect of sovereignty is recognition that “we are still here,” even when communities have relocated beyond ancestral homelands.

The goal of the InHerit-MSAI project is to provide teachers with access to effective, off-the-shelf experiential learning resources, museum-based programming, and training to help them better incorporate Indigenous cultures, voices, and traditional knowledge into their classes. Like the Yucatec Cenotes project, the methods and topics were selected to address the interests and needs that came to the foreground in a series of listening sessions that MSAI staff conducted with teachers who make up one of the main constituent communities we engage. From these sessions, it was clear that public school teachers have significant interest in incorporating Native American history and cultural heritage into their curriculum, but they lack access to information and resources that have been vetted by specialists, especially Native peoples. It was also noted that one of the significant information gaps for teachers and students is the period from European contact through the Indian Removal Act of 1830. Training opportunities designed to meet these needs include field trips to historical sites and archaeological curation facilities with researchers and curators, as well as a summer teaching institute comprised of a series of educator workshops at the museum in Pembroke, scheduled for 2022 (Figure 6).

As part of capacity-building activities, a cohort of Native and non-Native teachers are working with curators and archaeologists to make curriculum materials applicable to state standards and useful for North Carolina schools. The teachers form an important occupational community, contributing to project design through participation. This form of knowledge co-production is essential for CBPR. Again, the goal is to break down the traditional power structure in which “experts” from academic spaces deliver knowledge into the hands of the “non-expert” community. Instead, working shoulder-to-shoulder, the collaborators open transcultural spaces where continuous dialogue is possible and cultural and interpretive differences can be explored and negotiated (Zimmerman 1997:55). A challenge with early-stage collaboration is that all components of the project are not determined in advance, and flexibility must be built in to shift gears as we work through the process of braiding together the various ideas, needs, and methods—still within the institutional framework of universities and grant funding agencies.

Collaborative cultural heritage projects require continuous reflexivity, and one key issue with the InHerit-MSAI project that continues to be discussed by our partners is the extent to which we will rely on artifacts in the design of educational tools and interpretive content. As archaeologists and museum curators, we find object-based teaching is a useful tool, and educators have expressed interest in working with artifacts. At the same time, our on-going dialogue has highlighted the need for us to re-think the discourse around artifacts to align it better with how Lumbee people relate to their past. Beyond the obvious concern for how objects from funerary or religious contexts are displayed and replicated, archaeology produces narratives about people in the past through material culture that is typed and categorized. From a Lumbee perspective, this produces a kind of rupture, or disconnect, between contemporary people and their past that runs counter to a worldview where the relationship between people and ancestors is continuous, and the artifacts they make and use do not precede or stand in as proxies for people. The material traces of history do not map directly onto traditional knowledge or cultural heritage, which are both situated in the present and equally important components.

Through the collaborative process, teachers and researchers are working out how to position people *first* in the story, as active agents, and from there bring in select artifacts. By interweaving these complex concerns and differing approaches, it may be that archaeology and collections remain significant, but are moved to the background, while other aspects of Indigenous cultures and experiences come to the foreground in creating historical and interpretive narratives that amplify Native voices. The dialogue around these sensitive subjects is not only part of our collaborative planning process but should also be integrated into the curriculum resources we produce to inspire on-going conversations in and beyond classrooms.

Among the benefits we all gain from this project is the disruption of historical erasure and a step toward healing from historical trauma by bringing Indigenous voices and epistemologies into public education and turning the spotlight toward the priorities of underrepresented Native communities. Participating archaeologists and museum professionals are challenged to think beyond objects and relinquish some authority over the interpretation of material culture. This creates opportunities for us to improve research by learning how to apply Indigenous practices, like storywork, and advance cultural resource conservation through collaborative and creative mitigation strategies, which are just as important in archaeological practice as testing hypotheses about past human behavior.

Discussion

We believe the continued growth of community-based participatory research in anthropological archaeology and other social sciences and humanities represents an encouraging change in the study of the past from one that is results-driven to one that focuses on bridging the interests and perspectives of Indigenous communities and other stakeholders with those of the researchers (both Native and non-Native). Shifting the emphasis to the process of collaborative research and how knowledge can be co-produced creates new possibilities for reading the archaeological record and understanding its relevance for people in the present, making our work more effective in the long-term (McAnany 2020:324; Stahl 2020:39). The attention to multivocality and the intentionality of community members and researchers working together to select the strands—data, methods, epistemologies, and interests—that are woven together in Atalay’s “braided knowledge” approach resonates strongly with what we hope to accomplish through the *InHerit* program and our recent collaborations in Yucatán and with the MSAI. As we attempt to put into practice these ideas and incorporate community interests and knowledge systems into project design, obstacles do arise, and there are times when we need to shift priorities, detangle the strands, and find new points of intersection to begin braiding again. In some cases, we must be prepared for archaeology to take a backseat in community-driven projects to accomplish broader goals and contribute to positive and meaningful change that benefits our community partners.

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Decolonizing the Classroom and Centering the Biocultural Heritage of Cenotes in Yucatán, Mexico

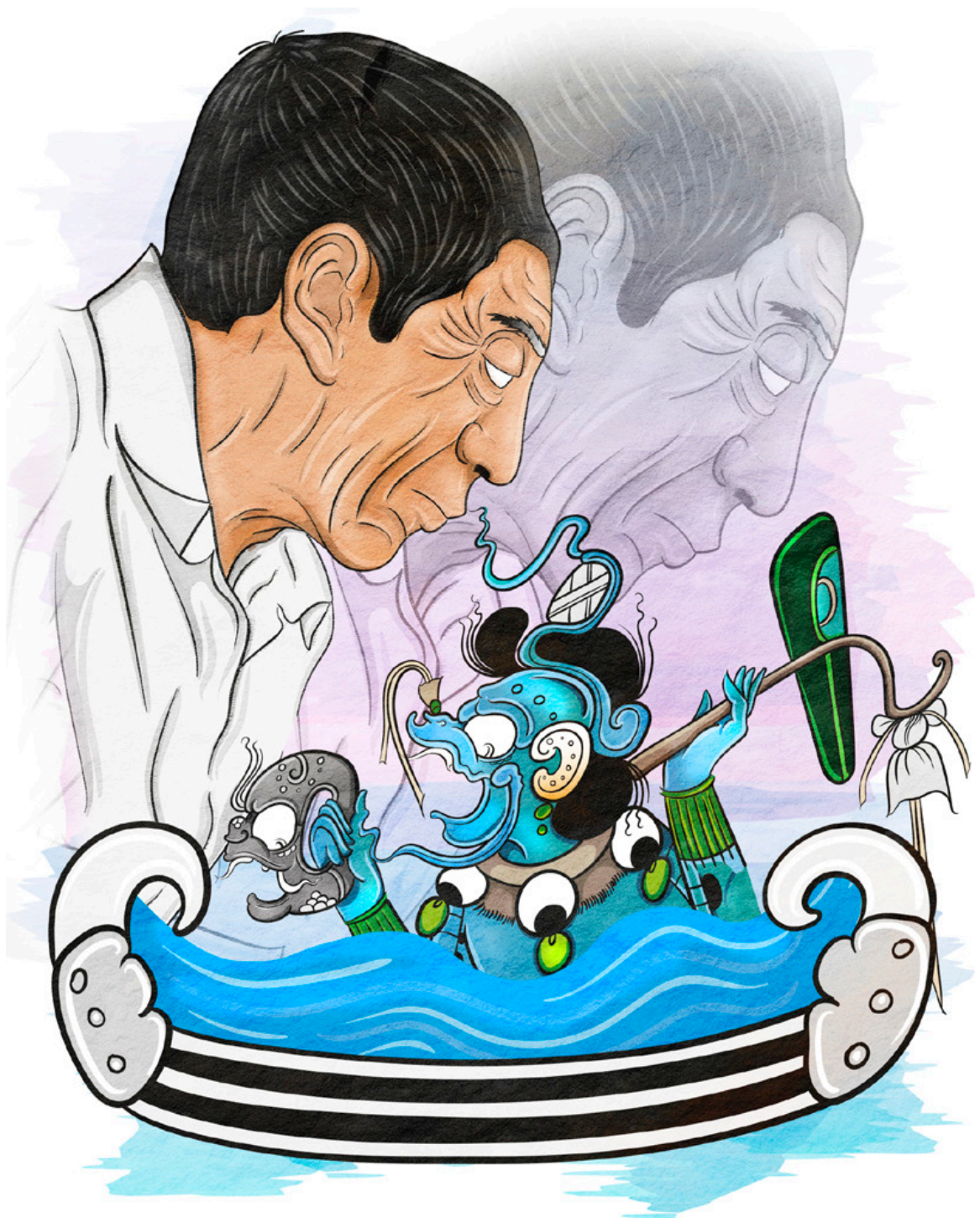
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Conservation of the biocultural heritage of Yucatec Maya cenotes (i.e., limestone solution sinkholes) is endangered by contamination, tourism, and neglect. A recent project entitled the Cultural Heritage, Ecology, and Conservation of Yucatec Cenotes sought to address the many threats to cenote conservation through an interactive educational program with middle-school students in nine small communities located on the eastern side of the state of Yucatán. Participant communities included Yalcobá, Ticuch, Cuncumul, Kaua, Xocén, Calotmul, Tixhualactún, Tahcabo, and Hunukú. Workshops with teachers and a pilot program with students emphasized the collaborative nature of learning and sought to introduce more experiential and active learning into and outside the classroom. Inspired by anthropologist Sonya Atalay's Anishinaabe concept of "Braiding Knowledge," wherein diverse Indigenous and non-Indigenous knowledge systems are incorporated and intertwined, the project was designed to integrate community knowledge about cenotes, highlight the perceptions of Maya youth, and support learning objectives desired by their teachers. In this article, results of surveys administered to students and teachers before and after the pilot project are presented and discussed. Significantly, survey responses articulate subjective, multivocal, and holistic understandings of place, mythic histories of cenotes, and potentialities of Indigenous futures.

Keywords: Yucatec Maya; Decolonizing the Classroom; Biocultural Heritage; Survey Assessment; Indigenous Futures



Thousands of cenotes dot the northern Yucatán Peninsula. These natural, water-bearing openings into the earth's karst surface come in various forms (Figure 1). Cenotes in Yucatán are connected via a subterranean freshwater aquifer system and they, along with the aquifer, are the only continual source of natural freshwater in the area except for seasonal rainfall (Beddows et al. 2007:33; López-Maldonado and Berkes 2017:10). Cenotes have long been highly valued landscape features to Maya communities in Yucatán (Figure 2). Archaeological investigations in and near cenotes, including the infamous dredging of the Sacred Cenote at the ancestral Maya city of Chichén Itzá by Edward Thompson (1904-1910), have demonstrated that cenotes indeed were places of offering. At the Sacred Cenote, jade beads and pendants, fine obsidian objects, pottery, gold masks featuring the rain god Cháak, and even human remains were among the offerings (Coggins 1984, 1992).



Despite their great importance to Maya biocultural heritage, cenotes in Maya communities are increasingly endangered by pollution and contamination. In this paper, we use the term *biocultural heritage* to 1) define spaces of environmental and social diversity; 2) envision the material expression of memory and its relationship with the cultural transformations of indigenous peoples; 3) and provide a central argument to encourage social participation in the preservation of heritage by promoting a scheme of co-responsibility (Boege 2008; Toledo and Barrera-Basolls 2008; and Cárdenas García 2016). Understanding the heritage of cenotes in this manner allows us to envision conservation of landscape as one that is about the interconnectivity of people and place, rather than considering environment as apart from human culture and distant from human memory. The following is a discussion of the biocultural importance of cenotes to Maya communities of Yucatán.

Maya Communities of Yucatán

Between June 2018 and December 2019, middle school students in Yucatán took part in a collaborative project supported by the National Geographic Society. Entitled *The Cultural Heritage, Ecology, and Conservation of Yucatec Cenotes*, the project was geared toward the conservation and ecology of these precious places and included the communities of Yalcobá, Ticuch, Cuncunul, Kaua, Xocén, Calotmul, Tixhualactún, Tahcabo, and Hunukú (Figure 4). The project also explicitly focused on the archaeology, oral and mythic histories, and overall biocultural patrimony of cenotes. The creation of a sustainable educational initiative was a long-term goal to be realized in the production of a teacher's guide (Batún Alpuche et al. 2021). The teacher's guide and the overall project were a collaborative effort led by a University of North Carolina-Chapel Hill program called *InHerit: Indigenous Heritage Passed to Present*, Universidad de Oriente (UNO) in Yucatán, and nine middle schools in Maya communities in eastern Yucatán.

The project aimed to involve Indigenous communities, and in particular Maya youth, as active collaborators in the development and implementation of project goals. Since the project would be based in classrooms, the design emphasized experiential learning and empowering students

as researchers to collect oral histories of cenotes within their communities as well as perform scientific tests on the quality of cenote water. These goals align with recent reforms to teaching standards within Mexico in which more attention to experiential education and local histories is recommended. Such efforts to decolonize the classroom (Furo 2018; Parker et al. 2017) move away from a top-down approach to education in which students are seen as empty vessels to be filled. As Tuck and Yang (2012) remind us, decolonization is not a metaphor. Rather, it is a sustained effort to reckon with the chaos and violence of European colonialism and to work towards a rebalancing of power in which the rights, authority, and knowledge of Indigenous peoples—particularly in respect to land and landscapes—are respected. By focusing on cenotes and highlighting local knowledge in collaboration with Maya students and their teachers, this initiative has worked in a decolonizing mode. Details follow in the sections below.

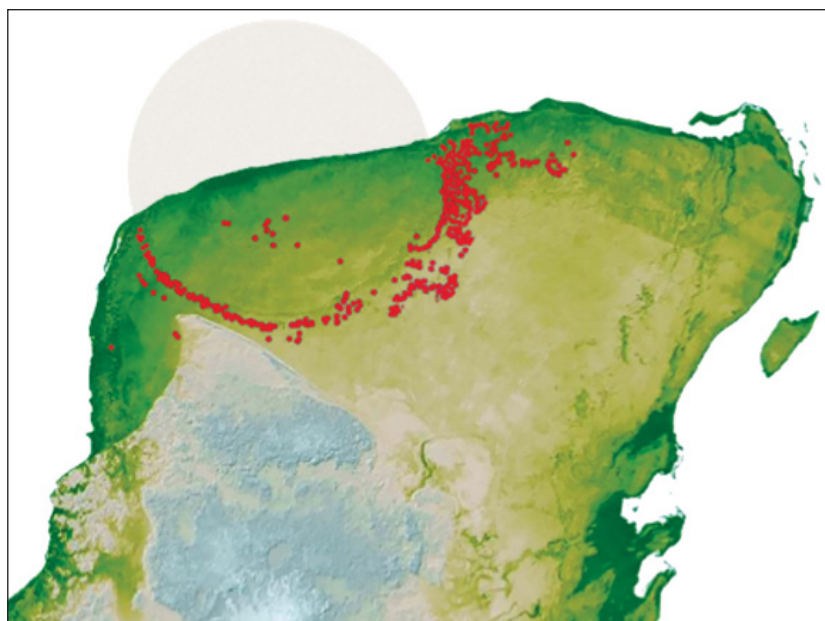


Figure 1. Map of the Yucatán Peninsula depicting cenote ring. Colored Shuttle Radar Topography Mission (STRM) elevation model from NASA (2000). Overlain are the sinkholes considered as part of the “Ring of Cenotes” (SEDUMA, 2017).

Phases of Project Implementation

The project was designed in five phases, which are briefly described here (see Landry Montes et al. 2020 for more details). Each phase was created through collaboration with InHerit project staff including Principal Investigator Patricia A. McAnany, Co-directors Adolfo Iván Batún Alpuche and Dylan Clark, Project Facilitator Khristin Landry-Montes, two UNC Global Investigator undergraduates, nine Student Ambassadors from the Universidad de Oriente (UNO), teachers and students from the nine Yucatán community middle schools, and additional content area specialists from both Mexico and the U.S. The project phases are individually outlined below:

Phase 1. Pre-project assessment using a question-based survey and a methodology called “Photovoice” (see Clark et al., this volume) to establish and understand students’ existing knowledge of community cenotes;

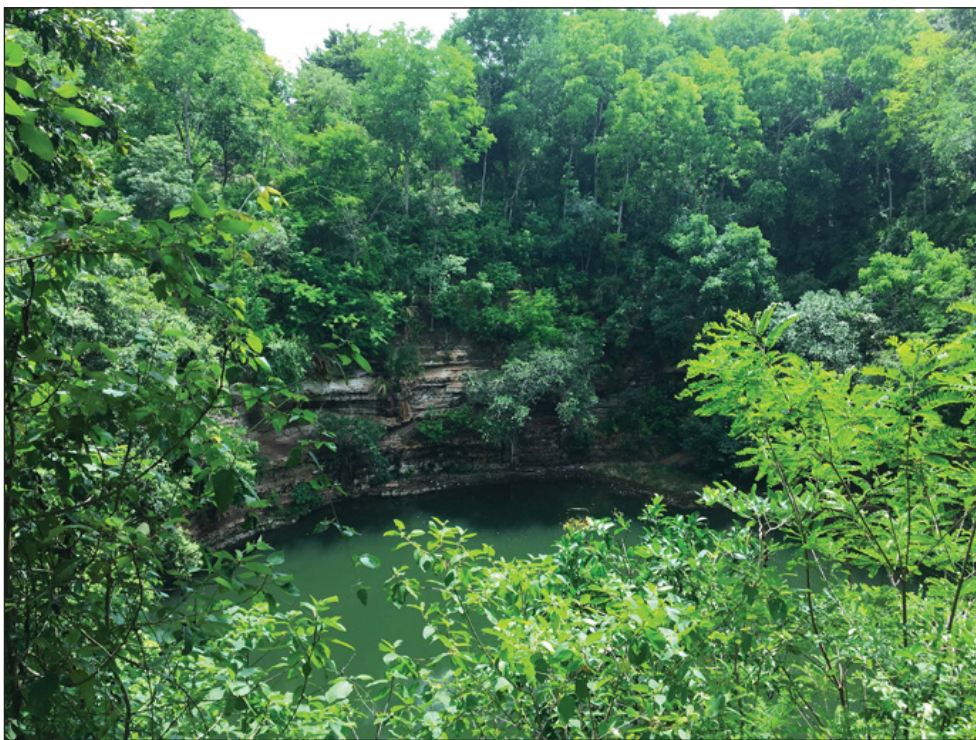


Figure 2. Cenote Yaax Ek, Kaua, Yucatán. Photo by staff of Cultural Heritage, Ecology, and Conservation of Yucatec Cenotes Project (CHECYC), 2018.

Phase 2. Workshops in which teachers, project members, and subject experts gathered to discuss cenote-focused themes and create activities to be used in the classroom;

Phase 3. Implementation in which thematically planned activities were undertaken in the classroom and on short field trips to local cenotes;

Phase 4. Post-project assessment involving additional surveys to evaluate student learning and what students wished to know more about, and what teachers had gained from the pilot curriculum; and finally,

Phase 5. Planning and writing a curriculum-oriented workbook for teachers. The workbook contains background information, teaching modules, and activity ideas related to a cenotes-focused curriculum.

Each project phase was grounded in community-based participatory research methods (CBPR) as part of our decolonizing practice. According to Sonya Atalay (2012:3), “a central tenet of CBPR is to value information and ways of knowing contributed from diverse knowledge systems.” CBPR also requires that “scholars and community members develop equitable partnerships [...] that are community driven and address the concerns that matter to members of descendant and local groups” (Atalay 2012:3). One of our most dynamic experiences with CBPR was in the form of assessment tools (Phase 1 and 4), including both surveys and Photovoice. The surveys—provided to students before and after the project and to teachers after the workshop phase (Phase 2) and

at the conclusion of the pilot implementation phase (Phase 3)—form the basis of this paper. The student surveys provide a window onto student perceptions and insight on the community knowledge they brought to the table, as well as what they took away from the experience. Teacher surveys are more sobering and indicate challenging areas of growth to be addressed so that teachers will be more informed about the deep biocultural heritage of Yucatec cenotes.

Listening to Students and Teachers

Surveys were created by an advisory board consisting of Yucatec middle school teachers and school directors, the project’s principal investigator, project directors, project facilitator, UNC global investigators, and UNO student ambassadors. The preliminary questionnaire for students was developed to gauge their initial experience with cenotes in their communities before the project began its workshop and implementation phases. Preliminary surveys given to teachers, on the other hand, were completed only after teachers had a chance to engage with the workshops. Teacher surveys attempted to assess which of the workshop curricular foci and learning activities might be most beneficial to teachers in their classrooms. Following the implementation phase, both students and teachers were simultaneously given post-project surveys. For students, post-project surveys reflected what they had learned from the project, what they wanted to see continued, and to what degree they felt empowered to care for cenotes. For teachers, post-project surveys served primarily as a vehicle for understanding if and how they would implement cenote-related activities into

their classrooms. Post-project surveys were especially important in reflecting the degree to which cenote-focused curriculum could be sustainable. Both the survey and results from the second assessment tool, Photovoice (see Clark et al., this volume), were used to shape workshops, classroom activities, and the overall approach of the project.

Student response to the preliminary assessment tools allowed the advisory board to develop

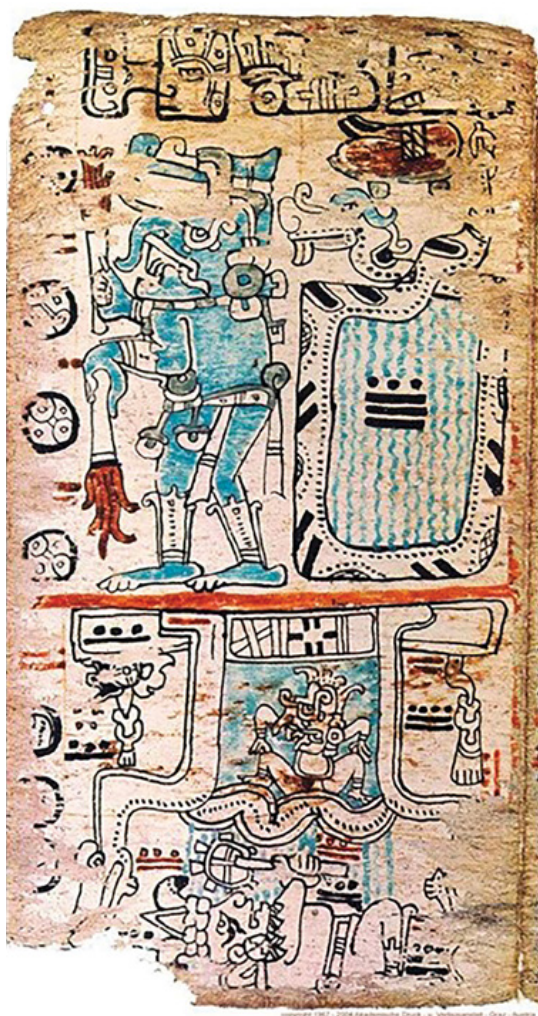


Figure 3. Almanac: 3a-6a Frame: 3 of the Madrid Codex depicting, in the top register, the rain god Chaák in front of what is likely a stylized cenote bounded by a snake. Original drawing by Villacorta C. and Villacorta (1976:234). Vail, Gabrielle, and Christine Hernández. 2018. The Maya Codices Database, Version 5.0. <http://mayacodices.org/frameDetail.asp?almNum=4&frameNum=3>

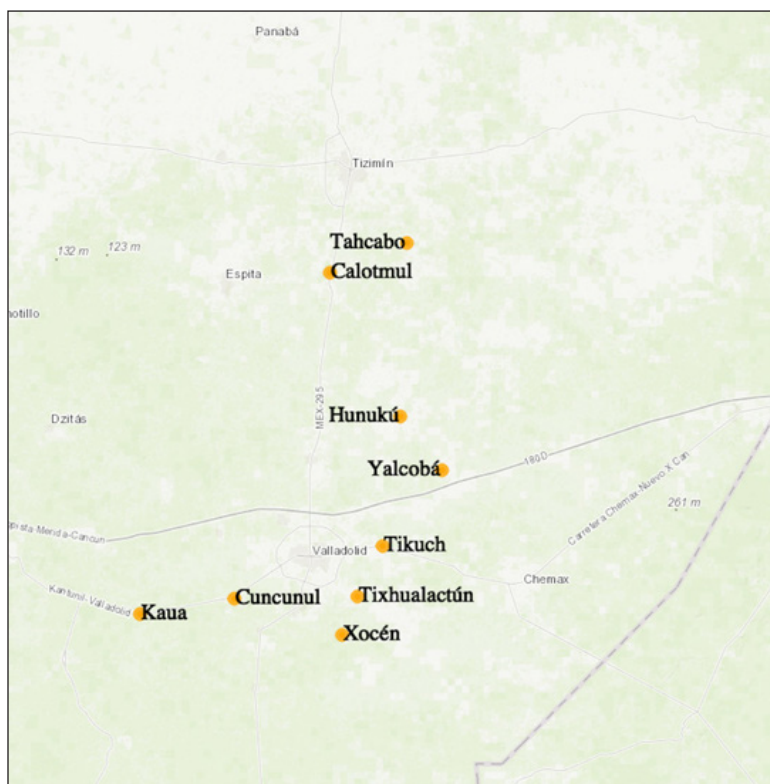


Figure 4. Map depicting the northern portion of the Yucatán Peninsula and the nine Maya communities involved in the CHECYC.
Image by David Rigby.

workshops and curricula that further clarified thematic areas in which students had expressed interest. These areas included *Oral History and Folklore*, *Science and Safety*, and *Archaeology and Biocultural Heritage*. Classroom activities were generated based upon these themes. For example, as part of *Oral History and Folklore*, the team introduced oral history backpacks that contained materials to support Yucatek Maya language learning. The backpacks were equipped to sustain storytelling as an art form with the goal of connecting traditional knowledge and language to conservation ethics, and youth to community elders. Physically, the backpacks included notebooks

and pens, voice recorders, and flashcards providing cenotes-focused vocabulary terms as well as flashcards with ideas for interview questions. Flashcards were written in both Yucatek Maya as well as Spanish. The workshop theme *Science and Safety* primarily involved discussions surrounding the geomorphology of cenotes, their function as a source of water, and their conservation. Activities generated from this workshop theme (which proved to be quite popular) included field trips to local cenotes where water quality testing and driving an underwater drone would be conducted. The last workshop theme, *Archaeology and Biocultural Heritage*, involved activities such as identifying the presence and function of cenotes in Maya codices—books of religion, ritual, and prophecy created by the ancestral Maya prior to European incursions (Figure 3). Specific workshop activities were complemented with a more general overview of codices as priceless and primary Indigenous sources reflecting conceptions of sacred landscape and cyclical time (Hernandez and Vail 2013). Workshop themes fed directly into the implementation of associated experiential education and activities in the classroom.

In hindsight, the preliminary student surveys proved vital to the development of both the workshops and the classroom activities. In a sense, students undertook activities that they themselves

had asked for and helped develop through their survey responses. Utilizing this interactive approach, both students and teachers helped shape the subsequent implementation phase. To better familiarize the reader with the overall content of the surveys and how they impacted the development of the project, preliminary and post-project survey questions are listed in Tables 1-4.

Survey Questions

Student Surveys. Students were provided with both preliminary and post-project surveys in their classrooms by the Project Facilitator and co-directors. Preliminary surveys (Table 1) contained ten multiple-choice questions and one short-answer prompt. All surveys were administered in Spanish; though English translations are provided here. Preliminary surveys were geared toward assessing what the students knew of the cenote/s in their own towns and how they knew this (4). Post-project surveys (Table 2) assessed what students had learned by taking part in the project and what they felt was most valuable. These surveys consisted of 10 short-answer questions. Teachers also undertook surveys at both the start and conclusion of the project. Preliminary surveys for teachers (Table 3) included 10 short-answer questions. Post-project surveys for teachers (Table 4) included 12 short-answer questions. Preliminary surveys were designed to gauge how teachers became involved in the project and what they initially felt was most important in terms of the relationship between cenote heritage and conservation and their students' education. Post-project surveys assessed what teachers felt was most valuable to future teaching and cenote-focused curriculum sustainability.



Responses of Students and Teachers

Project Facilitator Kristin Landry-Montes and a team of students from Cornell College (Maryellen Hinken, Armani Rogers, Ariana Ramirez, and Fredy Portillo) coded and analyzed the survey answers in the fall of 2020. Using Excel spreadsheets and Google forms, they systematically recorded the information and produced charts and graphs depicting trends in the answers (Figure 6). Survey results were shared and discussed with the project's Principal Investigator, Patricia A. McAnany and co-directors Drs. Adolfo Iván Batún Alpuche and Dylan Clark.

Responses of both students and teachers captured a number of important points. Post-project surveys given to students, for example, showed an overall preference among students for particular activities. The most popular was testing the quality of water in cenotes as part of the *Science and Safety* theme, employing testing kits donated by EarthEcho. Post-project surveys also showed that students were highly interested in learning about the representation of cenotes in ancestral Maya codices, which was taught as part of the *Archaeology and Biocultural Heritage* theme. Prior to this initiative, few students knew of the codices and the deep intellectual heritage of Maya book-making. In the classroom, students learned about the history of the codices and the importance of cenotes

Question	Answer Option	Answer Option	Answer Option	Answer Option
1. Do you live near a cenote, a cave, or a <i>rejollada</i> (dry sinkholes)?	Yes; Close to which one [which cenote]?	No	Not Sure	
2. Have you visited a cenote in your community?	Yes	No	Not Sure	
3. Do you know about cenotes and how they are formed?	Yes	No	Not Sure	
4. Do you know why cenotes were important to your Maya ancestors before the arrival of the Spaniards?	Yes	No	Not Sure	
5. Do you think you can help protect the cenotes in your community?	Yes	No	Not Sure	
6. Do you think cenotes are only important for tourism?	<i>Very much in agreement</i>	<i>In agreement</i>	<i>Not in agreement</i>	<i>Not sure</i>
7. Do you think the cenotes in your town are clean and free of pollution?	<i>Very much in agreement</i>	<i>In agreement</i>	<i>Not in agreement</i>	<i>Not sure</i>
8. Do you agree that the people in your town see cenotes as important?	<i>Very much in agreement</i>	<i>In agreement</i>	<i>Not in agreement</i>	<i>Not sure</i>
9. Do you think that people in your town think that cenotes are dangerous?	<i>Very much in agreement</i>	<i>In agreement</i>	<i>Not in agreement</i>	<i>Not sure</i>
10. Do you think more people should know more about cenotes and know how to protect them?	<i>Very much in agreement</i>	<i>In agreement</i>	<i>Not in agreement</i>	<i>Not sure</i>
11. Short answer/drawing. In the space below or on the back of this sheet, write in your own words, tell a story, write a poem, or draw a picture of what cenotes mean to you. (See Figure 5 for an example of a student response to this prompt.)				

Table 1. Preliminary student surveys.

Question	Answer Option
1. Which learning activity about cenotes did you like the most? Why?	Open-ended
2. What have you learned about how cenotes and rejolladas were formed that you did not know before?	Open-ended
3. Is it important to test water quality in cenotes? What can we learn?	Open-ended
4. What have you learned about how the ancient Maya used or thought about cenotes before the arrival of Spaniards in the 16 th century? And, how do we know?	Open-ended
5. What is the most interesting or fun fact that you have learned about cenotes from your studies this year?	Open-ended
6. What kinds of stories do elders in the community tell about cenotes?	Open-ended
7. How and why do people visit and use cenotes today? Is this similar or different than in the past?	Open-ended
8. Are there any aspects of cenotes that you wish to study or investigate more?	Open-ended
9. Do you believe cenotes should be protected? Why?	Open-ended
10. What are two ways in which we can all protect the cenotes in or near our communities?	Open-ended

Table 2. Post-project student surveys.

as elements of sacred landscapes, which are depicted within the folios of the Maya Madrid and Dresden codices. Students analyzed facsimiles of the codices to identify cenotes and related water deities (Figure 7). After this classroom activity, students created their own codices depicting their town's cenote and a patron deity from ancestral Maya times (Figure 8).

Beyond clarifying student preferences for activities, answers on both preliminary and post-project student surveys provided opportunities for students to relate oral histories that had been transmitted between generations in their towns. Some stories were specific to a town and were frequently recounted. For example, students from Xocén collected oral histories related to the Caste War of Yucatán (1847-1901), a Maya-led insurgency against the land-owning population of primarily European descent (Farriss 1984; Restall 1997; Rugeley 2001). Students related learning from elders that, during this time, dry chambers of cenotes were used as hiding places for insurgents and also to store weapons.

Other oral histories collected by students presented Maya cosmology and the mytho-historical accounts of how local cenotes formed. In the town of Kaua, for instance, students told of a meteorite

Question	Answer Option
1. How did you first become aware of the Cultural Heritage, Ecology, and Conservation of Yucatec Cenotes project?	Open-ended
2. Did you attend any of the workshops for this project at UNO? If so, which workshop(s) did you attend?	Open-ended
3. Did you attend any advisory board meetings for this project?	Open-ended
4. Before this project, did you teach about cenotes in your classes? Within what subjects or curricular themes is the topic of cenotes usually taught?	Open-ended
5. What do you think are the most urgent environmental issues facing your students and Yucatán today?	Open-ended
6. How do you think we can best harness the energy of 11-14 year-old students towards conservation and ecology?	Open-ended
7. What do you think most motivates your students?	Open-ended
8. Which of the workshop themes are you incorporating into your classes this year?	Open-ended
9. What connections do you see between different subjects and cenotes that you are already teaching? Is it possible to connect them? How will you do it?	Open-ended
10. What do you believe is the most important role that cenotes play in your students' lives and communities today?	Open-ended

Table 3. Preliminary teacher surveys.

that fell to the earth and created a giant, water-filled hole. Following this event, a green star also crashed in the same place and turned the cenote green. Today, it is called Yaax Ek (Green Star), reflecting a story handed down through generations. One student from Kaua recounts the event as follows:

“To me, the cenotes signify something important. We consider them part of our heritage. One of the stories in our town is about a local cenote. People say that there was a meteorite that fell here in Kaua. It made a deep hole and was filled in with water quickly. Then, a star also fell from the sky and turned the water green. That is how the cenote here was formed. For us, cenotes are a part of our heritage because our ancestors left them and we consider them a treasure. We appreciate them a lot.” (translated from Spanish by Maryellen Hinken)

Examples of oral histories shared between towns also appeared in both preliminary and post-project surveys. A recurring theme is that of cenotes being used by the ancestral Maya to sacrifice female virgins. Although not widely documented archaeologically, the story comes from legends of human sacrifice surrounding the Great Cenote at Chichén Itzá. Significantly, skeletal evidence retrieved from the Cenote of Sacrifice points to the sacrifice of young males, not females (see Coggins 1984; Price et al. 2019). Regardless, the story of female virgins sacrificed to appease rain deities remains popular amongst students and was explicit in their survey answers. Students recounted this story both textually and through drawings (Figure 9). The persistence of this account

Question	Answer Option
1. Of the cenote-related activities that you implemented with your students, what was the most effective activity?	Open-ended
2. What was the least effective activity or the one that was the most difficult to implement?	Open-ended
3. What was the most practical activity for you and your students? Were the same activities more practical and more effective?	Open-ended
4. What activities or topics seemed like favorites for your students? Why do you think that was so?	Open-ended
5. Have you been able to incorporate an oral history project into your classes during this academic year? If so, how did you link oral history to cenotes?	Open-ended
6. Do you think water quality testing and monitoring activities help students learn science?	Open-ended
7. Do you think that a concentrated study of cenotes with experiential activities will motivate the conservation of cenotes in the future?	Open-ended
8. Will you continue to teach about cenotes in the future? If so, what activities or themes related to cenotes will you repeat with your new students?	Open-ended
9. What other activities and topics have you thought about that can be related to cenotes and that could be implemented in your classes?	Open-ended
10. After implementing various activities about cenotes with your students, what activities do you think should be included in the workbook of activities that we will produce through this collaboration?	Open-ended
11. Of the resources that are available online and through organizations like InHerit and EarthEcho (a collaborator on this project), which ones will you use in the future? Do you feel that you have adequate information to access these materials for future use?	Open-ended
12. Do you feel like you can easily access the educational resources we have created for this project?	Open-ended

Table 4. Post-project teacher surveys.

indicates that communities and schools in Yucatán do not have access to current bio-archaeological evidence published in professional journals. Additionally, perhaps, this alludes to a tendency among academics to focus primarily on communicating findings within their own academic networks. Beyond themes of sacrifice, mythic narratives were also widely shared among communities and related the presence of giant turtles and the serpent, *Tzucan*. These creatures were said to surface at certain calendrical times. Other narratives mentioned a mysterious female spirit, the Xtabay, that emerges from the cenotes at night to lure drunken men to their death in the watery abyss below.

On both the preliminary and post-project surveys, student responses to questions reflected what was important to students in terms of cenote science and conservation. Questions 9 and 10 from the post-project survey asked if cenotes should be protected and, if so, how students themselves, might go about initiating and undertaking that protection. These questions were particularly important in clarifying the agency that Maya youth felt they did or did not have in terms of environmental

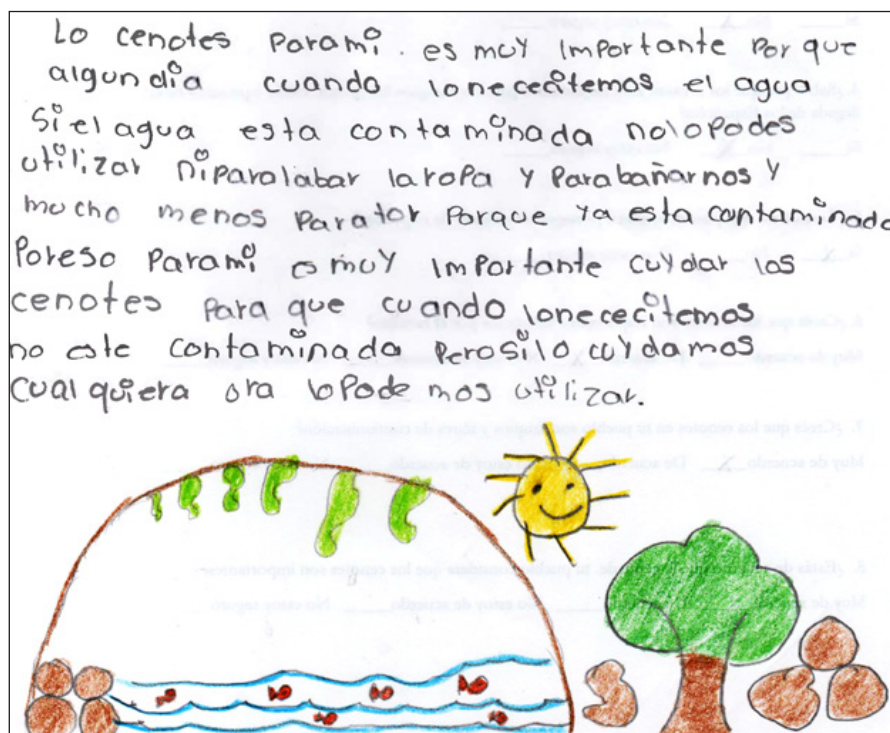


Figure 5. Written and drawn response from a student in Tahcabo, Yucatán to question 11 on the preliminary student survey.

conservation. These questions, along with Question 11 from the students' preliminary survey, provided dynamic, creative, and most-importantly, Indigenous student-driven perspectives on the importance of understanding and conserving cenotes in their communities. Many students cited the need to conserve cenotes because they were a main source of natural fresh water used for a variety of things. There also was a deep sense that these landscape features needed to be protected for future generations. A student from Tahcabo wrote the following:

“To me the cenotes are very important because when we need water, if the water is contaminated, you cannot use it to wash and bathe. That is why it is very important to take care of cenotes so when we need them, they are not contaminated. If we take care of them, we can use them now and in the future and other generations will be able to use them too.” (translated from Spanish by Ariana Ramirez)

When students were asked what more they would like to learn about cenotes, the majority responded that they wanted to know more about how cenotes formed, what was at the bottom of them, and their history in reference to the ancestral Maya. Students frequently mentioned that their knowledge of cenotes (prior to this project) came primarily from their grandparents or other elders in the community (rather than from classroom learning). This is reflective of the point that

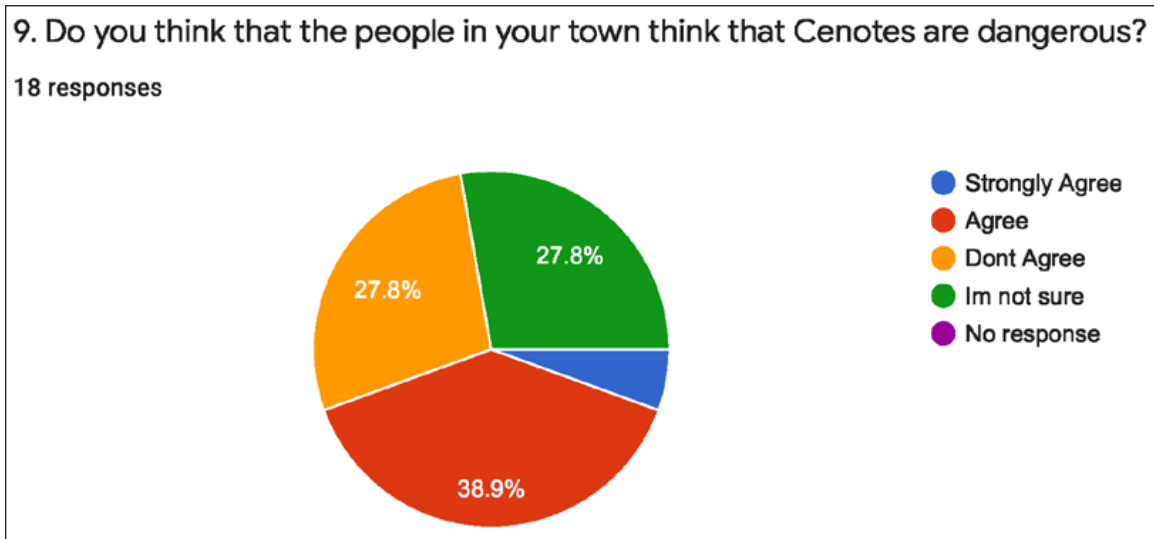


Figure 6. Chart generated from the Google Form depicting student data from Kaua, Yucatán.

for the Yucatec Maya, the landscape in which they live has traditionally had a *moral ecology*. As José Martínez-Reyes has beautiful said, the Yucatec landscape is, “the place where they [the Maya] feel “at home in the world,” where they are situated in an everyday engagement with their environment. It is also where their history, identity, spiritual beliefs, communion with other species, and ultimately their survival are rooted” (Martínez-Reyes 2016: 4). However, the students’ original responses indicate that *classroom* learning is not connected in any meaningful way to their local environment or to Indigenous or community histories (described above), which contributes to students’ feeling of alienation from formal education.

Divergent perspectives emerged when we compare student responses with those of their teachers. The divergence relates specifically to the long-term sustainability of the cenote curriculum in these nine communities and throughout Yucatán. In student answers on both preliminary and post-project surveys, learning about and making codices was a favorite activity and one that students were eager to see implemented in future classroom activities. However, teachers mentioned the activities related to the codices were among those they were *least* likely to implement, primarily because they did not feel equipped to lead classes on this topic. Lack of familiarity with Maya codices among teachers highlights the compelling need for better teacher training on the intellectual heritage of Maya literacy and bookmaking.

Another issue that accentuates the challenges of sustaining curriculum on/about cenotes concerns the rapid rotation of teachers from school to school. Unlike the U.S. system, K-12 teachers in Yucatán are frequently rotated (based on need) to other schools. A high teacher turnover rate creates issues with developing and sustaining a cenotes-focused curriculum. Yet, once teachers have access to cenotes-focused curriculum and training, the mobility of teachers could provide an opportunity for this curriculum to circulate widely throughout Yucatán. Broad dissemination of



Figure 7. Students from Ticuch, Yucatán analyze a facsimile of the Dresden Codex and identify cenote landscape features and deities associated with them. Photo by staff of CHECYC, 2018.

2000 paper copies of the teacher workbook—*Ciencia y Saberes de Cenotes Yucatecos* (Batún Alpuche et al. 2020)—to middle schools throughout the State of Yucatán will begin this year (2021). The book also is available as a free download from in-herit.org (select Resources for Teachers under the Resources tab). Such availability, hopefully, will augment the acceptance and utilization of cenotes curriculum.

The Take Away

The biocultural heritage of the cenotes in northern Yucatán is part of the region's highly significant local patrimony and ecology, but unfortunately this heritage has not been part of school curriculum long-term. Introducing and emphasizing these powerful and influential landscape features (Dedrick et al. 2021) into school curriculum can reduce student feelings of alienation and empower students to participate in conserving Indigenous knowledge about cenotes. As students actively braid together scientific knowledge of cenotes measured by water-quality testing and underwater drone observation with mythic and oral histories—both of which work towards sustaining the ecological health of cenotes—the tyranny of Western knowledge is mitigated.

Admittedly, decolonizing curriculum in this manner presents opportunities as well as challenges. Young students who are curious and energetic— while simultaneously part of rich Indigenous community knowledge systems— are very powerful. They have tremendous capacity to create change. As E. N. Anderson (2014) tells us, people must be emotionally involved in environments in order to save them. They must wish to learn specific information related to that environment, including how to think about long-term management. There must also be an interest in valuing and incorporating diverse problem-solving ideas. Lastly, there must be a realization that ‘we are all in this together’—that people are not

divorced from being in a relationship with landscape and environmental ecosystems. We feel Indigenous youth are uniquely situated to embody and act on these principals.

Increased access to educational materials related to Maya biocultural heritage opens the door to increased sustainability and ultimately preservation of a rich, Indigenous heritage. Student interest in water-quality testing, collecting oral histories, and creating codices demonstrates how efforts to decolonize the classroom and enrich student learning through experiential activities may set in motion dreams and futures that are not conceivable otherwise. Through opportunities for enhanced agency, students expressed their desire for a fresh pedagogy divorced from that of settler colonialism (following McAnany 2020; Veracini 2011). Not coincidentally, influential Indigenous scholars such as Eve Tuck have pursued a career in education precisely because of the role played by schools and universities in reproducing structures of inequality created by settler colonialism. How else could it be possible that middle-school students in Yucatán had never seen a facsimile of the codices created by their ancestors? How else could it be that teachers are not trained to teach Yucatec students about the tradition of literacy that existed among their ancestors

or about the tremendous significance of cenotes to Yucatec biocultural heritage? This last aspect points to the challenges yet facing decolonization efforts. We, as anthropologists and archaeologists (with access to university libraries, expert colleagues only an email or phone call away, and high-speed Internet) were particularly interested in creating curriculum related to the Maya codices. However, time and time again, community teachers mentioned that they were hesitant to teach a unit on the codices in future classes. They simply didn't feel they had the resources or training at hand to truly understand the complex history and content the codices embody.

Though the teachers' admission reflects one of many ways in which colonization ruptures a

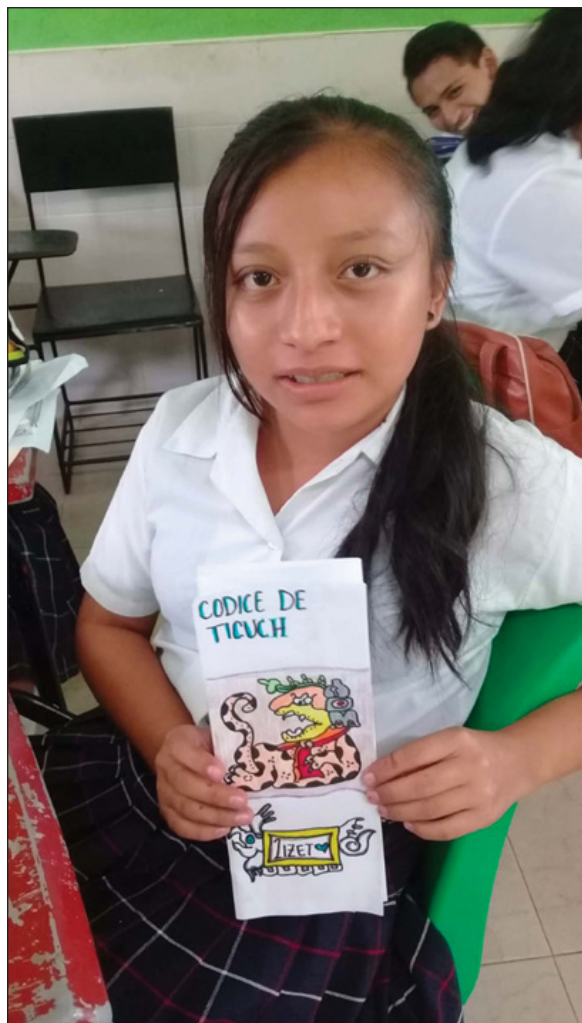


Figure 8. Alondra Lizhet Mazum, a student from Ticuch creates her own version of an ancestral Maya codex. Photo by staff of CHECYC, 2018.

relationship with land, biocultural features, and heritage, we remain hopeful and convinced that classrooms can yet be contexts for decolonization—places where fissures can be mended and new futures forged. It's also important to remember that classrooms can, and should, extend beyond traditional educational systems and even the four, physical walls of the classroom itself. Cenotes and their caves can be classrooms themselves, with much to teach us. In closing, we believe the Cultural Heritage, Ecology, and Conservation of Yucatec Cenotes initiative has been one effort to move beyond the rupture.

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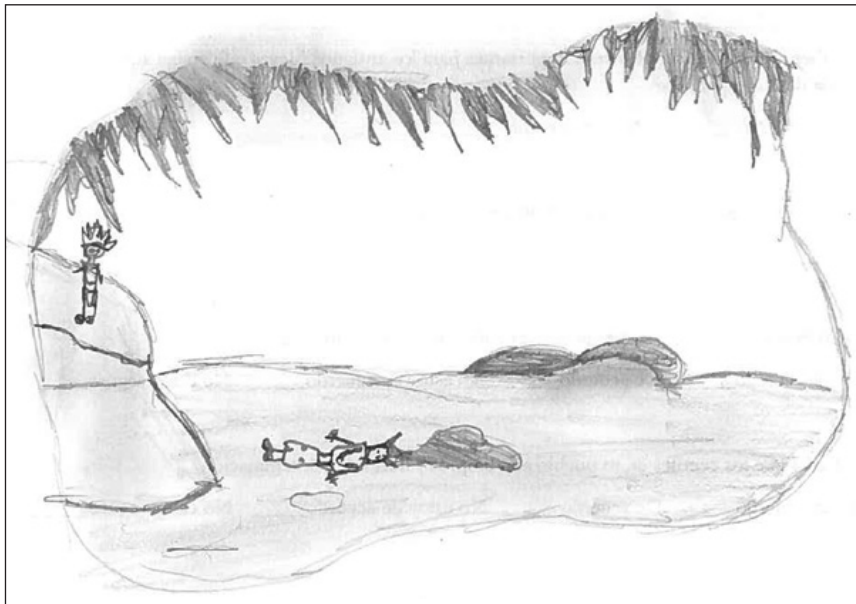


Figure 9. A drawn response to question 11 on the preliminary student surveys from Cuncunul, Yucatán. The drawing shows a sacrificed female within a cenote.

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The *Maya Scripta* Project: Museum, University, and Community-Engaged Scholarship in Dolores, Petén, Guatemala

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This paper focuses on the collaborative project between Maya Scripta, a public outreach epigraphic project from the Center for Archaeological and Anthropological Research of the Universidad del Valle de Guatemala and the Regional Museum of Southeastern Petén, or Museo Juan Pedro Laporte Molina. We demonstrate how, as a project with shared research agendas, we employed a community-engaged approach to achieve our goals. During this several months-long endeavor, we achieved our three objectives: (1) to increase the number of visitors received by the museum; (2) make the visit experience a more enriching one through interactive technologies and enlarged displays, and; (3) to evaluate and improve the perceptions local students had of ancient and modern Maya people through guided workshops. More people visited the museum compared to previous years while both enjoying and learning from the museum exhibit. The workshops also proved to reduce negative ideas the students held about the ancient and modern-day Maya.

Keywords: Public archaeology, Community-engaged archaeology, Maya epigraphy, Guatemala, Museum studies.



Introduction and Background

The popularity and importance of Community-Engaged Scholarship (CES) is currently increasing among academics. Yet, the definition of CES can vary and its relevance and degree of professionalism are sometime questioned (see Dedrick 2021). This paper argues for the validity and importance of the CES approach. We showcase this validity and importance by describing the alliance between the *Maya Scripta* initiative and the Regional Museum of Southeastern Petén, Juan Pedro Laporte Molina (MRSEP) in a collaborative project running since early 2019. We start by describing each of the parties involved and their respective background. We then provide a brief discussion of what CES is and is not, followed by a description of the path we took while completing our project. Finally, we discuss our results which exemplify how CES can successfully and simultaneously achieve the goals of both academics and their community partners.

The Development of the Maya Scripta Database

The study of the ancient Maya in Guatemala, both archaeological and epigraphic, has been directed mainly by foreigners. As a result, most relevant and updated publications on the ancient Maya are written in English and published abroad, making them hard to access for most Guatemalans. Even when available in Spanish, technical language tends to alienate non-academics. Additionally, the systematic exclusion of indigenous-related contexts from the national curriculum since the mid-1800s prevents the public from learning about the Maya.



Assessments of this situation and proposals to alleviate it abound (Arredondo 2018; Barrientos and Arredondo 2017; Ivic de Monterroso 2013; McAnany 2020; Morales Forte 2020; Rivas et al. 2014; Rubin and Ivic de Monterroso 2017; Vela 2009). In 2014, students and faculty from the Department of Archaeology at *Universidad del Valle de Guatemala* (UVG) launched an initiative aiming to take a step forward in sharing knowledge derived from ancient Maya inscriptions. This epigraphic information has been regularly kept within academic circles. Consequently, people such as children, young students, aficionados, and tour guides struggle to access the historical record of the Maya (Morales Forte 2018).

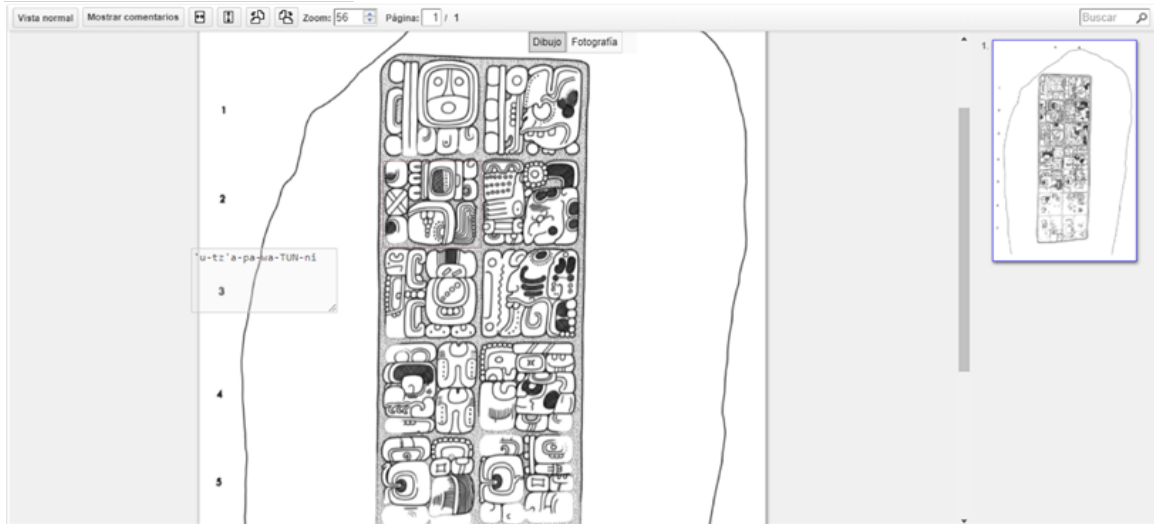
Recognizing this problem, we created *Maya Scripta* (<https://tinyurl.com/mayascripta>), an open-access online database through which all can access a growing number of Maya hieroglyphic texts. For each text, the webpage includes a photograph, a drawing, general data, the reading of the text, its translation into Spanish, and its chronological information (Figure 1). These data fields appeal to both the public and experts. A school pupil can use simple and accurate information, while a professional epigrapher can go through its content for academic research.

The MRSEP and its Role in the Community of Dolores

The Regional Museum of Southeastern Petén stemmed from the robust and fruitful archaeological work of the *Atlas Arqueológico de Guatemala* in the region, where more than 400 archaeological sites have been reported. A temporary exhibit in 1996 with pieces recovered by the

Maya Scripta » Ixtutz » IXZ-ST-4

IXZ-ST-4



Transliteración:	
Ubicación	Transliteración
A1	12 - 'AJAW
B1	8 - TE' - PAX - xi - la
A2	'u - tz'a - pa - wa - TUN - ni
B2	'u - CHOK - ko - wa - ch'a - ji
A3	'a - ya - YAX - ja - la
B3	BAK - ¿?
A4	'u - CHAN - na - bo - bo
B4	K'UH - lu - 5 - KAB - 'AJAW - wa
A5	yi - 'ILA? - ji - K'UH - KUK - 'AJAW
B5	yi - 'ILA - ¿? - 8 - 20 - ki - 'AJAW - TAAK
A6	4 - HAAB - ¿? - 'u - [ti] - [ya] - 2 - 'AJAW - 8 - K'AN - 'a - si - ya
B6	1 - 'UHT? - 12 - 'AJAW - 8 - PAAX - xi
A7	'u - ti - ya - K'UK - HA' - 'a
B7	'OCH - K'IN - ni - ¿? - ¿? - bi

Transcripción: Lajcha' 'Ajaw waxak-te' Paaxil 'u-tz'apa[']w tuun 'u-choko'w ch'aa' 'Aj Yaxjal Baak ... 'u-chan Bohb K'uhul Ho' Kab 'ajaw y-laa'j k'uhul Kuk[u'L]/Mut[u'l] 'ajaw y-la... waxak winik 'ajawtaak chan haab[iiy] 'uhtiiy cha' 'Ajaw [waxak K'anasiy] 'i-uhti lajcha' 'Ajaw waxak Paax' uhtiiy K'uk[ul] Ha' ochk'in...b.

Traducción: En el día 12 Ajaw, 8º de Pax dedicó la estela y esparció copal 'Aj Yaxjal Baak ..., el dueño de Bohb, el rey divino de Ho Kab, lo vio el rey divino de Aguateca, lo vieron 28 reyes, 4 años desde que había sucedido en el día 2 Ajaw, 8º de K'ayab, y después sucedió en el día 12 Ajaw, 8º de Pax, tuvo lugar en K'uk[ul] Ha', en el oeste de ...b.

Figure 1. Ixtutz Stela 4 as seen on the Maya Scripta platform.

Atlas was well received by the Dolores community, which prompted the proposal to build a local museum. Administrative processes to establish the museum began in 1998 and the Ministry of Culture of Guatemala, with support from the *Cooperación Internacional Española*, inaugurated



Figure 2. Children participating in *La pedida de la Ixpasa'a pa mi calavera*. Photo by Walter Hoil.

the museum in 2005 (Corzo 2007). Five years later, in a posthumous homage to the founder of the *Atlas*, it received the name *Juan Pedro Laporte Molina*. Since then, the museum seeks to guarantee the participation of the people and schools of Dolores in educational, social, and cultural activities focused on the protection and conservancy of cultural heritage (Hoil Heredia 2008).

Some of the principal activities coordinated by the museum include guided tours for national and international tourists, along with talks and workshops for students from local communities. One of the most popular cultural activities is *La pedida de la Ixpasa'a pa mi calavera* (i.e., Requesting Ixpasa'a for my skull). This tradition was brought to Petén by families from Southern Mexico who immigrated there in the second half of the 19th century, during the Caste War of Yucatan (Hoil Heredia 2009). Celebrated every year on November 2nd, commemorating the *Día de Los Muertos*, local kids make a skull (*calavera*) out of grapefruit or gourd and put a lit candle inside. Afterwards, they parade around the town requesting sweet maize atole, called *Atol de Ixpasa'a*. By the end of the night, there is a contest to pick the best *calavera*, based on its originality and creativity (Figure 2). In sum, the museum proudly displays archaeological artifacts and ancient Maya heritage, while also actively engaging in contemporary programs promoting local participation, engaging in non-formal education, and strengthening the surrounding communities.

Community-Engaged Scholarship: Concepts and Definitions

Conceptions of Community-engaged Scholarship (CES) vary across disciplines with no apparent agreement (CES is also known as Community-Based Participatory Research; see Atalay 2012). The Hannover Research (2018) mentions at least two approaches, the Imagining America Model and the Michigan State University Model. Additionally, in our professional experience, both in Guatemala and the USA, what anybody understands as CES depends heavily on their discipline, interests, and location (for a deeper discussion see: Beaulieu et al. 2018; Bebel 2017; Bhattacharyya and Murji 2013; Boyer 1996; Brown et al. 2003; Jay 2010; Jiménez Izarraraz 2015). Before committing to CES, it is important to differentiate between three often equated approaches: Community Service (CS), Public Scholarship (PS), and CES. They are all important but have different objectives worth mentioning.

Community Service is the enrollment of any person in a system, institution, or elsewhere to support a specific community and address its needs. Community service is a laudable endeavor not requiring the use of specific scholarly skills and abilities. In contrast, PS and CES demand



Figure 3. Replacing old billboards with new ones. Photos by Francisco Pérez and Rubén Morales Forte.



Figure 4. Stelae drawings incorporated in the exhibition.
Photos by Francisco Pérez and Rubén Morales Forte.



specific academic abilities and characteristics. Public Scholarship (Almansa Sánchez 2013; Jay 2010; Merriman 2004; Svanberg 2013) consists of sharing the knowledge produced or obtained through scholarly work in a public-friendly way (i.e., accessible to those whose income is not professionally linked to the concerned discipline; Jiménez Izarraraz 2015). Examples of PS include interpretative trails, newspapers and magazine publications, media blogs, and documentaries. What sets CES apart from PS in the fields of archaeology and epigraphy is going beyond adapting our work to fit the public's interests and including residents of the local towns or villages, who comprise the community, in the research process from its conception. The questions to be answered and the path to be taken are not just presented by scholars for the approval of the people in the local community but built in conjunction, creating and working in a dynamic where both voices carry equal weight (Bebelle 2017; Jay 2010; McAnany 2016; Nicholas et al. 2008). Crucial to the CES approach are seeking common grounds that benefit both parties: sustainable and long-lasting results for the local community and data for advancing scientific research need to be included as goals.

Designing the *Maya Scripta* and MRSEP Community-Engaged Project

Our first step in launching a community-engaged project between *Maya Scripta* and MRSEP was to hold a meeting about the possibility of joining efforts. We discussed what *Maya Scripta* was and our interest in implementing the platform to benefit and enhance the museum. At that time, the main needs for the museum were to increase the number of visitors and to diversify their audience. The museum is seldom visited by anyone outside of the broader Dolores area. Thus, publicity for the museum became a crucial element of the project. Further meetings and phone calls allowed

the *Maya Scripta* team and the MRSEP personnel to determine the three objectives of the project: (1) increase the number of visitors and diversify their demographics, (2) improve the visitor's experience through updates to the exhibitions, and (3) foster local knowledge about the Maya while improving visitors' perceptions of the ancient and contemporary Maya. Three work axes were identified to achieve these goals: marketing, exhibition, and education.

Marketing

Our marketing strategy first led us to replace two old billboards on the highway with new ones to attract the attention of travelers passing by Dolores on their trips (Figure 3). To ensure high quality, they were created by a professional designer and printed on high-quality material. One of the main reasons preventing people from visiting the museum is their ignorance of its existence. To address this deficiency, we invited the media to cover our work. Two newspapers publicized our work in several notes. *Nuestro Diario Norte*, which covers news from Alta Verapaz, Izabal, and Petén, presented three notes about the project. Around the same time, a national newspaper, *Prensa Libre*, devoted four pages of its Sunday magazine, *Revista D* (<https://tinyurl.com/RevistaD>), on October 20th, 2019, to the *Maya Scripta*



Figure 5. One of two tablets installed in the exhibit. Photo by Rubén Morales Forte.



Figure 6. Workshops with high (left) and elementary (right) schools. Photos by Francisco Pérez.



Figure 7. Guides from MRSEP familiarizing with the Maya Scripta software. Photo by Francisco Pérez.

project and our alliance with the MRSEP. Internal museum records show that these strategies brought many more people to visit the museum (Morales Forte 2020).

Exhibition

As part of our strategy to improve the exhibition, we added three large stela drawings on aluminum plates (Figure 4). These showcase three of the region's most prominent monuments. The first, Ixkun Stela 1, is the largest stela in Petén and probably the most famous stela in Southeastern Petén. The second, Sacul Stela 1, located at the remote archaeological site of Sacul, was looted in the 1970s. While the monument is now missing its upper third, good pictures were taken before its looting

and Nicholas Carter, then at the Corpus of Maya Hieroglyphic Inscriptions at the Peabody Museum of Harvard University, was able to redraw the stela based on Ian Graham's pictures. Carter kindly shared that drawing with us to include it in the museum exhibit. The third, Ixtutz Stela 4, is a beautiful monument on display in the National Museum in Guatemala City, over 400 km away from its original location. While most people from Dolores have seen the nearby Ixkun Stela 1, few locals have seen Ixtutz Stela 4 in the capital city or visited Sacul to see its Stela 1. Including these salient monuments in the exhibit brings people closer to the monuments and can motivate them to visit more archaeological sites to see the original pieces. To assess how people perceived the exhibit, we created a "visit experience survey" available to any museum visitors willing to answer it. After seven months, we analyzed our data, which is presented below. Additionally, interactive technologies were implemented through two Samsung Galaxy Tablets with which visitors can learn the content of the texts from the monuments in the exhibition and from several other archaeological sites, thus expanding their knowledge of Maya inscriptions through the *Maya Scripta* online platform (Figure 5).

A very important part of committing to a full community-engaged methodology was to keep as much of the production as possible at a local level. This meant buying all supplies in the Dolores area

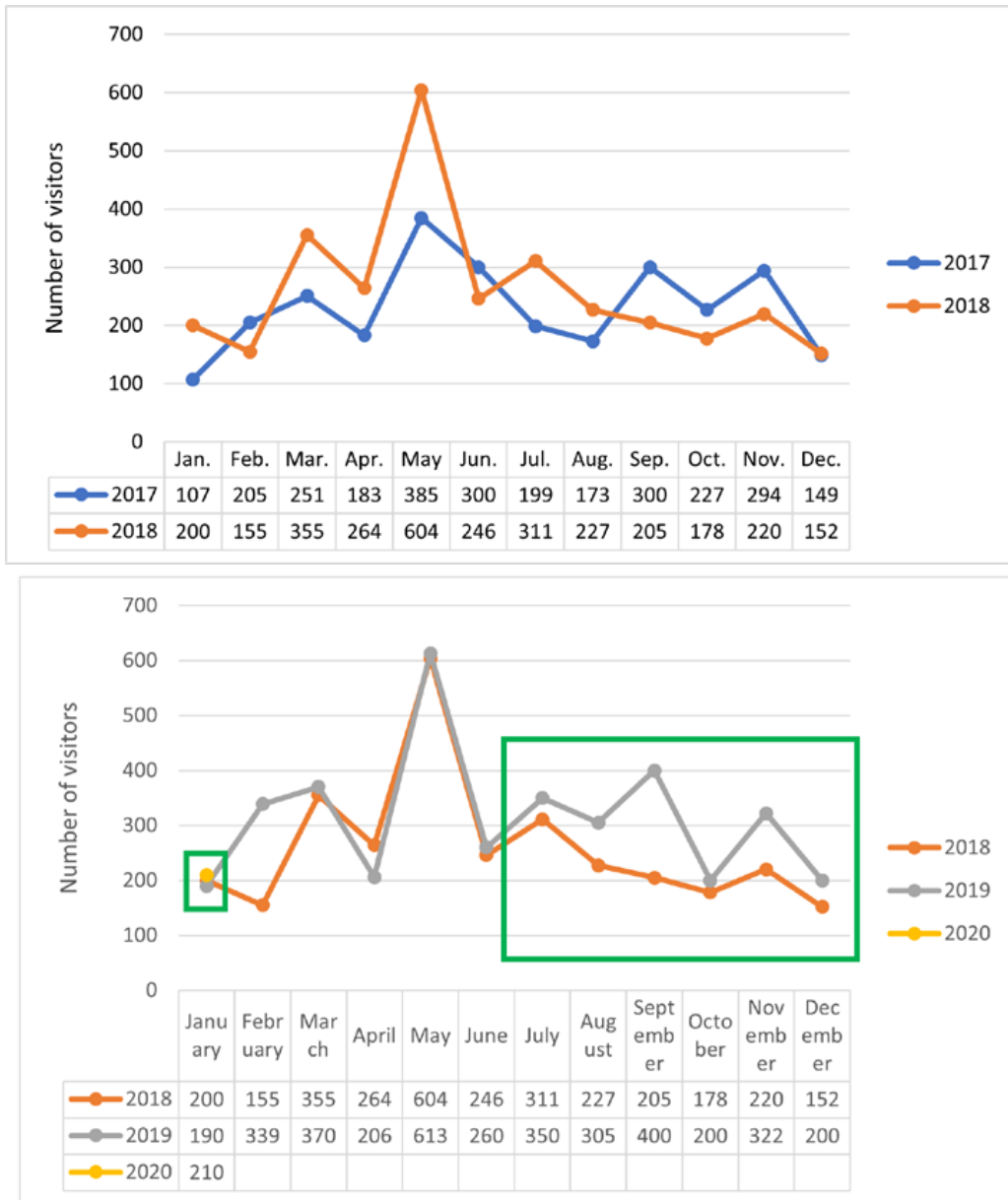


Figure 8. Comparison of the number of visitors: 2017- 2018 and 2018-2019.

instead of bringing them from Guatemala City, even when local prices were higher. For this reason, the iron plates over which the billboards were installed and the wooden cabinets for tablet displays were made by Dolores-based blacksmiths and carpenters. The same holds true for the printouts reproduced in the local bookstore used in the educational phase. The projector and equipment used for lectures and the museum presentations were also purchased locally.

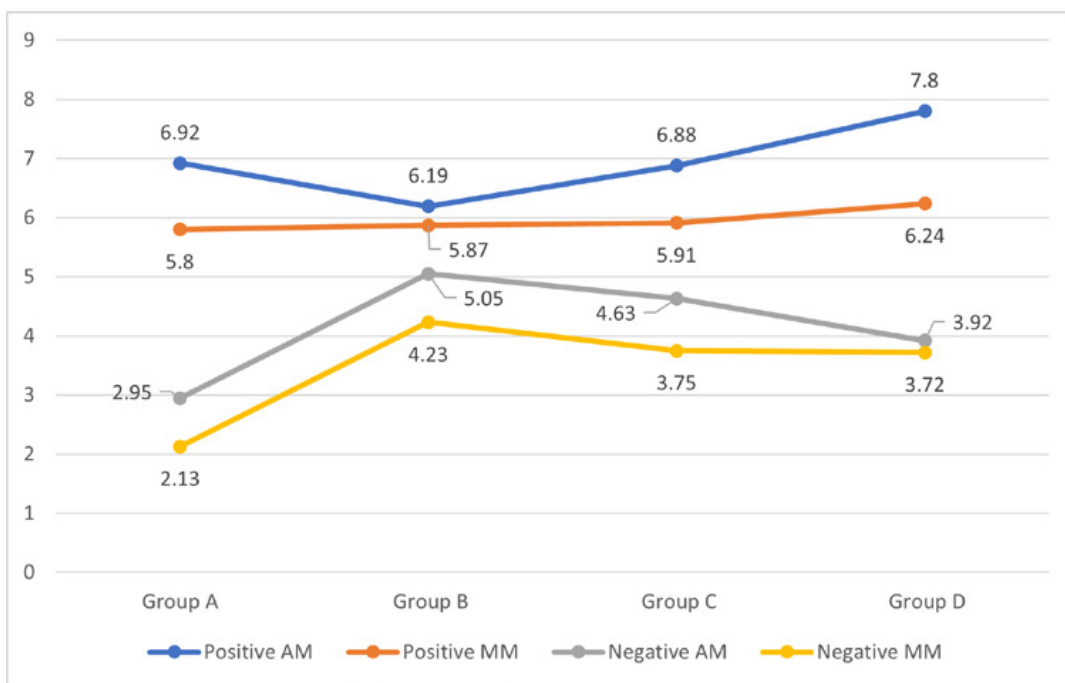


Figure 9. Change in the perception students have about ancient and modern Maya according to workshops attended.

Education

The educational axis of our project featured nine workshops on Maya culture offered to the local community. Two workshops were aimed at 5th and 6th graders from two different schools, while seven more were created for junior and senior high school students (Figure 6). Workshops for elementary and high schools covered general topics such as geography and chronology of the Maya area. Beginner workshops then focused on the reading order of Mayan hieroglyphic writing and details which could be interesting for a 12-year-old, like the names of the animals and calendrical elements. Meanwhile, the high school workshops were more specific, delving deeper in the writing system and engaging students with the stories contained in the monuments. Both groups participated in exercises, searching syllabograms and logograms from handouts to identify glyphs in the inscriptions and reconstructing the reading by themselves. Every workshop also highlighted elements showcasing continuity in cultural practices between the ancient and modern Maya, such as the calendar, weaving, language features, cosmivision, and foodways. Museum guides also received training on how to use *Maya Scripta* and include more regional epigraphic information in their tours (Figure 7). Guides valued and embraced these workshops since they allowed them to both learn how to operate the tablets and narrate the stories inscribed in the monuments – something visitors often ask about.

The nine workshops were spaced out during three different visits to Dolores. All the material was developed in collaboration between *Maya Scripta* and the museum personnel, relying on their knowledge and previous research. Investigations from the Atlas Arqueológico de Guatemala in Sacul and Ixkun (Laporte and Mejía 2005, 2006) were also key resources for preparing the workshops. The students attending the workshops were recruited by the MRSEP through invitations to local schools.

Evaluation of the Educational Axis

The evaluation of our educational axis focused on the high school groups, or 16 to 18-year-old students from the 11th and 12th grades of the *Bachillerato en Turismo* (High school diploma focused on tourism). We opted for this focus since these students could benefit the most from the workshop material and were most engaged in the museum activities. The assessment of the workshops' impact on elementary school students is beyond the scope of this study but will be evaluated in the future.

From August 2019 to February 2020, one high school group (D) received three workshops, one group (C) attended two, one (B) attended a single workshop, and one (A) attended none. After completing the number of workshops apportioned for each group, students answered a survey to measure their knowledge and perception of the Maya by ranking a series of positive and negative characteristics according to how representative they were of the ancient and modern Maya (a sample of this survey can be found in Morales Forte 2020:122). As a group progressed, we incorporated more elements into the workshops. By the end of the first workshop, students could read Ixtutz Stela 4. Moving into the second and third workshops we delved into the emergence and martial history of two allied cities in the ancient political landscape of Southeastern Petén, Sacul and Ixkun (Carter 2016; Laporte and Mejía 2005, 2006).



The learning and attitudinal results for each group were contrasted among the different groups. These comparisons provided a sense for the difference in students' knowledge and opinion about the ancient and modern Maya according to the number of workshops attended, while also reflecting the effectiveness of *Maya Scripta* as a learning tool and the workshops as teaching channels.

Results

Our three project objectives – improving the number of visitors, the visitors' experience, and the knowledge and perception about the ancient and modern Maya – were achieved. Installing the billboards and promoting the museum brought more visitors. Our joint efforts began in July of 2019 and, from that point forward, every month saw an unprecedented increase in visitor numbers in comparison to the same month of the previous year; something that had not occurred in the years preceding our project (i.e., between 2017 and 2018; Figure 8).

Median of Differences Between	P Value	Conclusion
2017 and 2018	0.255	Null hypothesis retained. No significant difference between the number of visitors from 2017 and 2018.
2018 and 2019	0.023	Null hypothesis rejected. There is a significant difference between the number of visitors from 2018 and 2019.

Table 1. Wilcoxon Signed Rank Test to compare the number of visitors from 2017 through 2019 with $\alpha = 0.5$.

Since the data on visitor numbers do not have a normal distribution, non-parametric tests were used in addition to the visual assessment of the graphics. The Wilcoxon Signed Rank Test for related samples indicates that there was no statistically significant difference between the number of visitors received in 2017 and 2018 for July through December. However, the test demonstrates that the difference is significant between 2018 and 2019, suggesting that our marketing strategy successfully attracted more visitors (Table 1).

The largest increase occurred in September and November 2019. This growth coincides with the installation of billboards on the highway, two of *Nuestro Diaro*'s reports in mid-August, and the publication of the *Revista D* article in late October. The billboards and *Nuestro Diario* attracted mainly regional people and passing travelers. Meanwhile, the nationally distributed *Revista D* likely brought attention to national tourists who tend to travel in November and December, when K-12 students are on vacation. The decrease in visitors in October can be explained by the fact that it is the final month of the Guatemalan school year, when institutions and students are busy with exams and closing assignments.

Over the span of six months (from August 2019 to February 2020), 92 visitors agreed to fill a survey to assess their experience. Amongst them, 57% claimed to have learned a lot at the museum, while 34% learned something, and 9% only learned a little. None said they learned nothing. Similarly, 51% responded that the *Maya Scripta* platform had contributed a lot to their learning process, 31% said it contributed somewhat, and 2% said it contributed a little. Among the 16% who mentioned it did not help at all, several visited the museum on days with a poor internet connection, complicating the access to the webpage. This was reported by the museum guides since the survey did not include a "N/A" option. Unfortunately, we cannot know for certain how many of those answers reflect connectivity issues and how many refer to discontent with the platform. These results corroborate the important educational role the museum plays for the visitors and how the incorporation of *Maya Scripta* contributes to this role by providing a deeper knowledge of the ancient Maya. Permanent connectivity is still a challenge but the chances of people visiting when

the network fails are slim, resulting in most visitors benefiting from the platform. To assess the situation, we have contemplated the possibility of developing a feature that enables to download the data from *Maya Scripta*. This would allow for the synchronization of material when connection is good and the possibility to access it when internet is poor or lost.

The data from the educational section are only preliminary (Morales Forte 2020) and under revision for further publication (Morales Forte et al., in process). Yet, the trends suggest that the main impact of workshop participation was in debunking myths and misconceptions held by students about the Maya (Table 2). As students attended more workshops, their negative perceptions about the Maya decreased (Figure 9). Group A presented an exception. Without having attended any workshops, their scores on perception were high; something which may be explained by the demographic composition of each school cohorts and teachers (see Morales Forte 2020:78-79). The results show the importance of including cultural education in the classroom and continuing to support local museums, which participate in this endeavor daily.

Conclusion

The joint collaborative project of MRSEP and *Maya Scripta* exemplifies the value of CES. From the museum perspective, both the number of visitors and their enjoyment of the exhibition have improved. From the academic side, we were able to gather important data on the perspective students have on indigenous people and how to improve it. Directed workshops and public media, such as the *Maya Scripta* platform and the newspaper articles, proved to be powerful tools for bringing people closer to the cultural heritage of the region.

Previous outsider scholar participation in the museum has focused on studying its artifacts,

Perception	P Value	Conclusion
Positive characteristics of the Ancient Maya	0.762	Null hypothesis retained. No significant difference among groups regarding the positive perception of Ancient Maya.
Negative characteristics of the Ancient Maya	0.006	Null hypothesis rejected. There is a significant difference among groups regarding the negative perception of Ancient Maya.
Positive characteristics of the Modern Maya	0.784	Null hypothesis retained. No significant difference among groups regarding the positive perception of Modern Maya.
Negative characteristics of the Modern Maya	0.038	Null hypothesis rejected. There is a significant difference among groups regarding the negative perception of Modern Maya.

Table 2. Independent-Samples Kruskal Wallis Test to compare the difference in perceptions on the Maya across groups with $\alpha = 0.5$.

leaving the local community aside. In this case, with direct interaction between scholars and community members, local current and future guides were included, and found even more value in the cultural heritage with which they work. This engagement among universities, museum, and students yielded fruits, improving the museum and providing research data in the process. Having an open communication channel and shared agenda among all parties involved facilitated the process. We expect to expand upon this alliance in the future to keep having a positive impact on the Southeastern Petén community and participate in the MRSEP growth. Strategies include increasing exposure in social media and reaching broader areas of the tourism industry, as well as continuing to host participatory workshops. Future iterations also aim to replicate the perception study with a wider sample, ideally at a national level in Guatemala.

Through this case study centered in Dolores, we expect to motivate more academic endeavors to include public and community-engaged approaches in their plans. We hope to have shown how the collaboration between academics and communities is not only ethical but productive, and in the best interest of everybody involved.

Acknowledgments

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Community-Engaged Archaeology and the Question of Rigor

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This paper seeks to define rigor within an expanded concept of science that is compatible with community-engaged archaeology. Much of the harm that archaeological research has caused for disenfranchised communities over the past century and more relates to archaeologists' hidden imperialist and colonialist agendas. These motivations in turn shaped archaeological knowledge production, cast inaccurately as scientific and thus neutral. For that reason, this paper begins with a discussion of researcher positionality and how that can intersect with various motivations. It provides an overview of the veins of motivation for archaeological research and identifies the commitments that community-engaged archaeology should center. Next, a concrete example demonstrates the relationship between accountability structures and research outcomes. Problematic and low-accountability representations of the past have implications for the present, and in particular for those who live near archaeological sites or are thought to relate to them in specific ways. In order to counter the effects of traditional archaeological practice in a responsible way, community-engaged archaeology can be seen as an interdependent science conducted with and for stakeholder communities with the objective of democratizing access to processes of data creation and interpretation. The rigor of such scientific activity can be demonstrated by its honesty and attention to researcher motivations, data interpretation, and the social context within which research takes place.

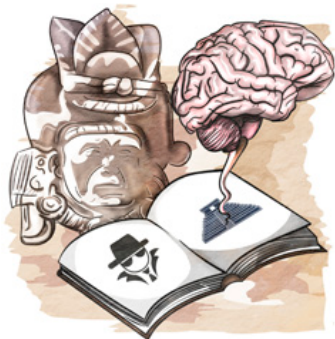
Keywords: interdependent science, researcher motivation, knowledge production, positionality, care



A perception exists among some archaeologists that community-engaged research projects relax their standards of methodological rigor in terms of disciplinary field and laboratory practices. On the other hand, archaeologists engaged in collaborative and participatory research *with* and *for* stakeholder communities indicate their continued commitment to rigor in both method and interpretation. Biological anthropologist Michael Blakey (1987) points out that the collection of precise laboratory measurements, often seen as a rigorous approach, easily lends itself to manipulation during the data interpretation phase of research, in support of problematic and erroneous prevailing social views. A more rigorous approach to scholarship is one in which those involved in research honestly share their biases, positionality, and motivations for study. With such assessments and the research goals in mind, precise measurements and identifications (of artifacts, soils, plant remains, etc.) can be made alongside other, more holistic methods of information gathering, and considered within an analytical framework less subject to hidden manipulation by dominant social groups. Finally, a rigorous approach to research involves understanding the social contexts in which it takes place.

Positionality

As a young person, I became interested in archaeology in part due to museum exhibits and books I read that described Maya archaeology, in particular, as the study of ancient cities hidden in the jungle, in the process of being discovered. However, in my undergraduate studies I came to



question the notions of “discovery” and also “abandonment,” recognizing them as problematic terms that divide people living in areas where archaeological research takes place from their ancestors and heritage places. I became aware of archaeology’s history of benefiting from such divisions, which have facilitated archaeologists’ claims of authority over sites. By the time I started graduate school as an advisee of Patricia A. McAnany, I wished instead to participate in archaeological research conducted with and for communities living near archaeological sites in order to repair such divides and organize for positive change.

The story of my burgeoning interest in archaeology is not unusual. Research by Laura Heath-Stout (2019) has demonstrated that white and middle-class (categories with which I self-identify) practicing archaeologists are commonly attracted to the field through childhood experiences with books and museum visits. Other practitioners she spoke with, especially those of color or from working-class backgrounds, became interested in the field at the college level due to professors that actively mentored them, connecting them to resources and opportunities. Heath-Stout’s work demonstrates that patterns exist in student motivations to pursue archaeology based on their positionality in relation to prevailing social structures. As Gabby Omoni Hartemann (2021:2) has argued, while referencing the work of Heath-Stout, as well as Maria Franklin and colleagues (2020), “archaeology is still globally a predominantly white and cisgender field of knowledge,” and more specifically, “a field that directly favors male, western, heterosexual, able-bodied, urban, middle-class people in its disciplinary mechanisms of knowledge production” (see also White and Draycott 2020 on this topic). Scott Hutson and co-authors (2020)

Vein of Motivation	Specific Examples
Imperialist, colonialist, nationalist	Gain control over land/people/artifacts/knowledge Interest in understanding or identifying with the “other”
Career advancement	Achieve professional status by exceeding expectations Maintain control over sites/artifacts/interpretations
Intelligence and espionage	Monitor foreign politics and defense Further objectives of the home country
Disciplinary and institutional	Produce highly regarded scholarship and students Contribute to understandings of past human behavior
Justice and sovereignty	Learn about and care for one’s own heritage Build capacity within one’s own community or nation
Solidarity and advocacy	Contribute to community efforts and discussions Facilitate archaeology for the benefit of another group
Public engagement and relevance	Search for past answers to contemporary problems “Make the world safe for human difference” (Benedict)
Personal enjoyment	Intellectual stimulation of problem solving and analysis Alignment of work with personal convictions

Table 1. Range of motivations for conducting archaeological research.

join their anthropological colleagues (Berry et al. 2017) in discussing how researcher positionality influences opportunities for meaningful collaboration. Tiffany Fryer (2020) has also written insightfully about researcher subjectivity and positionality in archaeological practice. In other venues she has pointed out that a new generation of students from diverse backgrounds are drawn to archaeology not because they think it’s cool, but because they are intrigued by what archaeology might be able to help accomplish for the communities with which they identify.

Motivation

Clearly, motivation can be closely linked to positionality. This section outlines the range of motivations for archaeological research (Table 1). These motivations are by no means exclusive. That is, many archaeologists are motivated by two or more of the veins listed in the table, and they may alternate in importance depending on the situation. As just discussed, a researcher’s social position influences their motivations and approach, a point further addressed by science studies and standpoint theorists (e.g., Blakey 1987; Collins 1990; Haraway 1999; Harding 1986; Smith 1990; Wylie 2003). In addition, each participant in a research team has their own mix of motivations, which interact variably over the course of archaeological research.

First on the list is the **imperialist, colonialist, and nationalist vein** of research motivation (e.g., Trigger 1984). This vein is listed first because it entailed some of the original, root motivations for archaeological research prior to, and continuing throughout, the professionalization of the discipline. Imperialist and colonialist motivations can entail a quest for access to and control over sites, artifacts, historical narratives, and at times the people and land located nearby. They can also involve a desire to document those categorized as the “other” (Spivak 1985). Nationalist research, on the other hand, can originate within centers of imperial power or outside of them, and in many cases, such as within the countries of Latin America, it involved a direct response against

imperialist research. Nonetheless, the nationalist motivation is grouped here with imperialist and colonialist motivations because all fall into a broader umbrella category of practitioners serving the interests of the nation-state.

For any designated field, there exists the motivation of **career advancement**, which in academia involves achieving “scientific competence *and* social authority” by exceeding expectations, demonstrating expertise, and gaining wider attention (Knorr 1977:670, building on Bourdieu 1975). In archaeology, reflexive consideration of how the discipline has been shaped by this “structure of rewards” that values specific products and social relations, within wider political contexts, became more prominent in the 1980s (Wobst and Keene 1983:81; Gero et al. 1983; Pinsky and Wylie 1989; Tilley 1989). Career advancement in archaeology at times corresponds with a desire to maintain control over or at least get credit for research conducted at a specific site or within a region, and related interpretations. In this way, the career advancement motivation in archaeology can intersect with the previous motivation listed in the table.

The **intelligence and espionage** vein may sound unlikely, but in fact many archaeologists in the Maya area and elsewhere throughout the 20th century pursued intelligence work alongside their archaeological endeavors (more on this below; Sullivan 1989). This motivation is grouped with the previous two because all three have historically intersected and fed into each other in significant ways based on national objectives, funding opportunities, and interpersonal as well as international power dynamics.

Archaeologists pursue **disciplinary and institutional** advancement. This significant and generally well-regarded motivation can entail striving to produce the highest quality scholarship, mentoring students, improving disciplinary practices, and making research outcomes persuasive, interesting, and relevant. It can also include accountability to colleagues. On disciplinary listservs for anthropology and archaeology, it is common to find practitioners arguing that these disciplines are meant to be scientific pursuits, and that the point of the science is to *understand humankind*. They may or may not reject other motivations. These are often scholars who are senior in the field, and who occupy dominant social positions (in relation to categories such as race, gender, sexual orientation, and/or socioeconomic status, among others). That is, they stand to gain through the continuity of current power structures both within and beyond academia. That being said, there are many other scholars motivated to shape the discipline in distinct ways that *they* think would strengthen it.

The next two veins are those that most concern community-engaged archaeology. They can be traced to more recent disciplinary developments and may come into conflict with the motivations previously listed. An archaeologist might be motivated by the goals of **justice and sovereignty**, as they learn about and care for their own heritage. For example, Rachel Engmann discusses her community-engaged research at Christiansborg Castle, in Ghana, as autoarchaeology, in a project called “Slavers in the Family: The Archaeology of the Slaver in Eighteenth Century Gold Coast” (Engmann 2019; Harrison and Schofield 2009). This term is being taken on by other scholars such as Alicia Odewale (2020) in her work in Tulsa. Another example of this would be Indigenous Archaeology as practiced primarily in North America. The next vein, related to **solidarity and advocacy**, involves the motivation to work with a community (with which a researcher may not personally identify) to serve their interests, usually alongside their own. This is a desire to learn

about the past in partnership with those positioned differently in society.

And finally, there is a motivation to ask questions whose answers could **serve the broader public**, by providing longer-term perspectives on topics such as climate change, sustainability, human diversity, and environmental justice (e.g., Dawdy 2009; Kintigh et al. 2014; Logan et al. 2019; Sabloff 2008; Schiffer 2017; Stahl 2020). Projects driven by this motivation may or may not engage communities explicitly; the emphasis of such research tends to be on the dissemination of results, but can also incorporate a collaborative approach. Of course, we also cannot discount the extent to which researchers are motivated by their own **convictions and beliefs** about the world, as well as their **enjoyment** of research and teaching experiences, and the opportunities for travel and lifelong learning that accompany them. Scholars with views that range the political spectrum engage in archaeological research, and their perspectives often shape the questions that they ask. Among the personal motivations to pursue anthropological and archaeological research include the need and desire to support oneself financially, and to do so in a fulfilling way.

Motivation for Community-Engaged Archaeology

In Latin American archaeology, residents of towns proximate to archaeological sites, descendant or not, conduct a great deal of the field and labwork that research requires. In many projects, people living near sites have been excluded from knowledge production and lack access to research results. In community-engaged research, such residents get involved in, and at times lead the design, implementation, interpretation, and presentation of research.

Community-engaged archaeology that collaborates with or is led by community members and works for a community's benefit is centered around **justice and sovereignty** and **solidarity and advocacy** as principal motivations. It can be helpful for practitioners engaging in such research to reflect regularly, both individually and as a group, on their motivations for community engagement and recalibrate as necessary. Other motivations can easily emerge and distract from original project goals, causing conflict between the parties involved. This occurs in particular because every member of a research team has a number of motivations for participating in the project beyond those shared by the wider group, and so each must at times suspend or downgrade their pursuit of personal objectives in order to support project success.

Researcher Motivation and Knowledge Production

Why should researcher motivation interest us, the producers and consumers of archaeological information? Transparency about motivation is crucial because motivation shapes knowledge production. If a researcher's motivation is obscured, the rigor of knowledge production may be unknowable or difficult to discern. This is because, as Blakey (1987) notes, measurements, even when accurate, mean nothing until they are interpreted by the researcher. In turn, the knowledge produced (whether pertaining to the past or the present) can influence how researched and related groups are perceived by broader publics and can shape the opportunities available to them. Because a concrete example would be helpful, I next provide a streamlined account of an instance of imperialist knowledge production to be described in more detail in a forthcoming publication co-authored with Patricia A. McAnany and Adolfo Iván Batún Alpuche (Dedrick et al. 2022).

Sylvanus G. Morley was a spy for the U.S. government during the early 20th century, conducting archaeological research in Yucatán and Central America while collecting intelligence throughout the region about potential German threats (Browman 2011). He was in Yucatán immediately after Salvador Alvarado's implementation of labor reforms resulting from the Mexican Revolution (1915-1918), which improved worker conditions and wages on henequen plantations (Joseph 1982:111). At this time, the U.S. was in dire need of henequen for binder twine, which was used in the harvest of wheat. The U.S.-based International Harvester Company controlled Yucatán's fiber supply indirectly, to the extent that it could dictate henequen prices (Joseph and Wells 1982:71). In addition to advocating for laborers, the Mexican reformers in Yucatán worked to break up International Harvester's monopoly, at times blocking U.S. vessels from entering the port of Progreso, near Mérida. Present in Mérida for this situation, Morley argued in his intelligence reports against the Mexican reforms, indicating that the move away from what many considered to be conditions of slavery was causing the laborers



to be lazy, leading them to work only a day or two per week (Harris and Sadler 2003:245-246).

Why mention all of this here? Morley's political views and his intelligence motivation warped his production of archaeological knowledge. Specifically, he naturalized the exploitation of Indigenous peoples through his published archaeological research. In the chapter of his book *The Ancient Maya* (1946) on agriculture, Morley contorted archaeological, ethnographic, and experimental evidence (including many quantitative measurements of yield and other variables) to argue that the average Maya farmer in Yucatán could support a family through just 48 days of agricultural labor per year. His imperialist calculations (which were included through the third edition of the book [1956] but removed from the fourth edition [1983]) depend on a number of indefensible assumptions, including that a family could survive on maize alone. Whether or not the measurements on which his argument was based were accurate and rigorous, Morley found himself motivated to ask the question: what is the bare minimum necessary for these farmers to survive?

Morley's motivation becomes clearer in his disturbing concluding statement: "With so much free time on his hands, the Maya Indian for the last two thousand years has been successively exploited—first by his own native rulers and priests; next by his Spanish conquerors, again both civil and religious; and more recently by private owners in the hemp fields of Yucatan" (Morley 1946:156). He acts as an apologist for those who would exploit the worker, even in his archaeological publications. Morley's motivations to conduct archaeology, which included imperialism and espionage, (mis)shaped the production of archaeological knowledge. That knowledge in turn has real-world implications for those Morley and others sought to characterize in their work.

Implications of Imperialist Knowledge Production

Avexnim Cojtí Ren (2006:14) wrote powerfully about the effects of representations of the Maya written by archaeologists, even when they are not as obviously imperialist as the views expressed by Morley; it is worth quoting her words at length:

“The distribution of historical information is usually aimed at a white, middle-class public, ignoring the fact that Maya people are getting more access to sources such as computerized media, literature, museum displays, and television documentaries in their home countries as well as in other countries around the world. Thus our representation becomes the description of ‘the other’ to Western society through our mysterious, exotic, ritualistic, and violent life, while Westerners affirm their own identity as a society with modernity, a culture with logic, real history, good moral values, and so on. In short, our past and present life is sensationalised and sold to Western consumers as a newly discovered property (Echo-Hawk 1997). The archaeological image of Maya constructed as the culture of the other affects how non-Indigenous populations, corporations, and government institutions perceive us and treat us, as well as how we perceive ourselves”.

Community-engaged archaeology can provide an important antidote to the harm traditional archaeological practice has caused for the people living near archaeological sites by representing their heritage in irresponsible, callous ways, to suit their own objectives. However, for this to be the case, community-engaged archaeologists must be reflexive, accountable, and honest in providing space for discussions and redress of such historical wrongdoings. This process will involve the creative reinvention of archaeological methods, pedagogy, analysis, and publication practices.

Rigor in Community-Engaged Archaeology

Finally, I turn to the question of what this all means for the evaluation of rigor in the study of archaeological sites. Recently, a well-respected scholar speaking at an online conference expressed concern that the move toward community-engaged archaeology had led archaeologists away from a rigorous approach to the laboratory analysis of artifacts and other data recovered from archaeological sites. While I contest the notion enthusiastically in this paper, I can appreciate that there are only so many hours in a day, such that if archaeologists spend more time in conversation with community members and redirect their primary attention to community-led pursuits, that may result in fewer hours measuring artifacts in the laboratory. However, it is possible to make time for and assign team members across diverse tasks; in fact, the greater number of people involved in a community-engaged project may compose a team with broader skills and talents for lab-based activities. As such, I do not think that constraints on time or training alone motivate such an argument. Instead, I believe that those with hard-won laboratory expertise are concerned that their skills and accomplishments will be undervalued within a community-engaged archaeology framework. Thus, they raise the issue of archaeology’s supposed loss of methodological rigor.

While many archaeologists use the term **rigor** as a concept they value, it usually goes undefined. For some, and probably for the scholar mentioned above, **methodological rigor** refers to a controlled, repeatable, and scientific approach to artifact identification and data analysis. In this model, rigorous methods are presided over by lab directors, or by what Sonya Atalay (2014) and Louise Fortmann (2008) have referred to as “credible knowers,” who train select apprentices. As Fortmann (2008:6) points out, “Credibility is frequently aligned with social power. In general, the powerful are designated as credible knowers and set the criteria for identifying who are other



Figure 1. Through participation in PACOY, the author had the opportunity to contribute to the development of the Tahcabo Community Museum, designed by project personnel (Patricia A. McAnany, Adolfo Iván Batún Alpuche, Sarah M. Rowe) in coordination with a committee of town residents, and funded by the Archaeological Institute of America. This photograph shows the author in conversation with a Tahcabo resident the evening of the museum’s inauguration on August 23, 2015. Photograph by Patricia A. McAnany.

can consider her term “interdependent science [...] done collaboratively by local people and professional scientists”. This concept is helpful because it allows for the fact that those who are not professional scientists also can make important empirical observations about the world around them, identify rigorous procedures for data evaluation, note the limitations of hegemonic approaches, and contribute meaningfully to received wisdom (Echo-Hawk 1997; Wylie 2015). For example,

credible knowers”. Unfortunately, science produced in this way has often been used to mask imperialism. For example, early anthropological researchers in North America gained most of their insights into cultural diversity through interactions with and information from Indigenous people (and often indirectly from women) who never got equal credit for their contributions—who “were positioned as ethnographic subjects, not as scholars; and as informants, not theorists” (Bruchac 2018:17). White scholars of the time, due to their social standing, became recognized authorities on cultures other than their own. Returning to the notion of replicable labwork, questions we should ask include: how were the items being measured attained? Why and how is this lab and its director empowered to collect and access such information? How will the data be shared? Are these measurements significant, for what, and according to what values? How else might meaningful data about the items be produced?

If rigor is tied to a scientific approach, then demonstrating the rigor of community archaeology may also entail redefining notions of science. Many scholars have worked on this. Returning to Fortmann (2008:1), we

Bautista and Zinck (2010) have demonstrated that Yucatec Maya farmers maintain a soil classification system that is in some respects more accurate than, though similar to, the World Reference Base for Soil Resources. In my own research, which took place as part of the Proyecto Arqueológico Colaborativo del Oriente de Yucatán (PACOY; co-directed by Patricia A. McAnany and Adolfo Iván Batún Alpuche; Batún Alpuche et al. 2017; McAnany et al. 2021; Figure 1), residents of the town of Tahcabo, Yucatán, reframed data interpretation in two important ways. First, through interviews with town residents about how they make cultivation decisions, they demonstrated the diversity of variables that contribute to what they choose to grow and the extent to which humans exist within webs of landscape relationships, all of which contribute to farming outcomes (making a theoretical intervention; Dedrick et al. 2020). Second, Tahcabo residents' consistent enthusiasm for the annual town fair in honor of the patron saint of San Bartolomé (Figure 2), and their staunch conviction that these events constitute heritage, made me realize that some of the patterns I had noted in the archaeological datasets likely reflect the historical nature of such practices (revealing an analytical oversight). These and many other examples demonstrate the significance of local, Indigenous, and descendant knowledge for advancing science and building a more just future (Douglass and Cooper 2020).



Figure 2. Image of the town saint, San Bartolomé, prepared for the procession during the Tahcabo fair in 2015. Photograph by Patricia A. McAnany.



Figure 3. Residents of Tahcabo have expressed concern about the rate at which young people in the community can speak Yucatec Mayan language. For one week each summer of 2016 and 2017, with the support of PACOY, teachers Lic. José Miguel Kanxoc Kumul, Lic. Alex Tuz Bacab, and Mtra. Lourdes Chan Caamal, graduates of the degree program in Maya Linguistics and Culture of the Universidad de Oriente in Valladolid, Yucatán, taught concurrent language workshops in Tahcabo for three levels of students. All three contributed their expertise to the project in other ways as well. Photographs by Amanda Brock.

In addition, the term “interdependent science” suggests mutual accountability. This takes us back to the motivations of archaeologists, each of which could be re-cast in terms of who archaeologists are accountable to. Returning to the Morley example, he was apparently accountable to the U.S. government and presumably his own scientific colleagues (who also, for the most part, hailed from the United States). He obviously did not see himself as accountable to the farmers he wrote about, and his work would have been more accurate if he had been. When one person in what could be called a controlled environment, or perhaps a low-accountability environment, is entrusted with research, it is less likely that their weaknesses and errors (of identification or interpretation) will be made apparent and resolved collaboratively. Both Fryer (2020) and Scott Hutson (2010) have written, in contrast, of relational archaeology that involves ethical engagement with stakeholders.

Quetzil Castañeda (2014:81-82), Hale (2008), and others (e.g., Gero et al. 1983) also argue for the importance of understanding the sociological contexts of research to achieve a scientific and rigorous approach. Castañeda (2014:81) specifically indicates that an analysis of research contexts includes “what archaeology does and what it accomplishes in the lives of the persons and communities involved in archaeology on the ground”. As he says, “It would be better science to take account of the conditions that shape if not determine the production of knowledge” (Castañeda 2014:81). Community-engaged archaeology attends more carefully to these dynamics and the political environment in which research takes place than what we might call “conventional research”. To engage in archaeological practice that is helpful and interesting to particular communities, practitioners

must converse with those who form part of a given community about the strengths and challenges they face (Figures 3 and 4), as well as what they value and how they define their own identities as well as relevant terms such as heritage and community (e.g., Diserens Morgan and Leventhal 2020; Zimmermann et al. 2020). In this sense, too, community-engaged archaeology is more scientific. However, if the term rigor is not expansive enough to be relevant to a broader conception of science (i.e., as signifying the use of thoroughly examined data collection and interpretation practices), then it could be replaced with equally valuable notions of working carefully and well (e.g., Supernant et al. 2020).

Conclusion

The research that archaeologists conduct, especially that involving our own or others' heritage and culture, requires a great deal of care. If a researcher's motivations influence their studies and knowledge production, and one's positionality influences one's motivations, then

who does the research does matter. Archaeological research that follows the lead of those whose heritage is being described can at least mitigate against the worst abuses of imperialist knowledge production. Community-engaged research should center the motivations of justice, sovereignty, solidarity, and advocacy when designing research questions and determining the appropriate methods to answer them. As the interpretive stage of research is where things can truly go awry, techniques of collaborative analysis will ensure rigor and accountability.

With more people involved in research, it is easier to identify personnel and teammates with real dedication, talent, and developing skill in specialized research areas (Figure 5). A larger team



Figure 4. PACOY events feature traditional dance and music performances that promote use of the Yucatec Mayan language. In 2017, with the support of José Miguel Kanxoc Kumul, PACOY was able to host hip hop artist Pat Boy with DJ Rakalku, Verso Maya and Xi'imbal Bej to perform as part of the celebration event for the second anniversary of the Tahcabo Community Museum.

This event was well-received by audience members of all ages.
Event flier by Morgan Russell.



Figure 5. Excavation in progress at a colonial residential area in Tahcabo. One goal of the excavation strategy was to ensure that each team member had the opportunity to participate in all aspects of the work, including operating the total station and recording maps and field notes. Photograph by Patricia A. McAnany.

also requires a more standardized approach to data collection and analysis that supports scientific rigor, even when defined at its most rudimentary level (i.e., precise and replicable measurements). Just as important as increasing the accessibility of archaeological practice and method, however, is expanding the kinds of knowledge considered valid and thus the people subsumed within the category of “credible knowers”. Archaeologists must trust and share power with local experts who have a stake in how their communities and landscapes are represented. Once involved in the archaeological process, such knowledge producers should be credited in research products in more creative ways than has been accomplished so far.

Alongside this democratization of knowledge production, archaeologists will need to develop pedagogical tools to ensure that opportunities are widely available to learn various techniques deemed important for answering archaeological research questions. Well-equipped laboratories, comparative collections, and knowledge banks should exist in the places where research takes place, rather than being found primarily in historical centers of imperialist power.

Overall, archaeologists who strive for rigor can commit to evaluating and being transparent

about their positionality and motivations for research. They can learn from collaborators about the political and social environments in which research takes place and strive to understand disciplinary histories and contexts that continue to influence how data are produced and interpreted. Community-engaged archaeologists can take a more rigorous approach by learning from local experts who maintain knowledge that can contribute to or demonstrate the limitations of scientific understanding. By incorporating a larger number of people into research projects during the data acquisition stage and allowing them to participate in various aspects of the process, method standardization becomes necessary, and it is more likely that participants with specific talents and skills will enhance final outcomes. Including diverse constituents of communities in the data interpretation phase of research will discourage the production of archaeological narratives that serve to strengthen current social inequalities. While this approach requires expanded definitions of terms such as *science* and the *credible knower*, it will ensure a thorough vetting process of the knowledge produced and then consumed across contexts.

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Examining Blind Spots and Assumptions Impeding Community Archaeology in the Maya World

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Although I have been conducting community-based archaeological investigations in Guatemala for two decades, much of it has been hindered by underlying biases and blind spots that I only gradually became aware of. In this article, I directly confront three of these in the hope that they can inform others who might be laboring with a similar mindset. Specifically, I wish to address (1) the prevalent notion that contemporary Maya can be severed from their archaeological past and half-millennium of historic trauma; (2) the political origins of the national parks and nature preserves where most archaeologists work, and; (3) the fear that descendant communities will serve as significant impediments to conducting research if they are allowed to exert power over access to archaeological remains.

I draw primarily from my experiences along the Northern Transversal Strip in central Guatemala to examine each of these assumptions by: (1) stitching together the Maya past and present to highlight commonalities in their experience during the Postclassic and colonial period, the Guatemalan civil war, and the present day; (2) discussing the founding of major parks including their roles as part of a larger military strategy with U.S. support, and; (3) contrasting my experiences negotiating access to archaeological remains with descendant communities who are confronting a variety of environmental and economic crises. I also suggest several ways that archaeologists can use their knowledge and skillsets to collaborate with communities in order to address major concerns they might face. Fundamentally, when archaeologists side with corporations and politicians over local communities or refer to the Maya as outlaws, looters, and narcos who need to be removed from sensitive areas, we facilitate the weaponization of our discipline against the descendants of the very people we study.

Keywords: Community archaeology, Q'eqchi', corporations, parks, contemporary Maya production, positionality, care



My Mayanist Upbringing

Like many of my peers, my path to Maya archaeology had very little to do with an interest in the social, political, environmental, or economic issues faced by the contemporary Indigenous populations of Mesoamerica. After falling in love with Pompeii as a child, I dabbled in local archaeology in the Upper Midwest and dreamed of the Mediterranean. The anthropology department at my undergraduate institution was exclusively ethnographic, and I intentionally eschewed any methods classes there to avoid having to interact with living subjects, instead taking many of my major classes at a neighboring college with an archaeological component. It was in one of these classes, a month-long study abroad to the Yucatán, where I became enamored with the monumental ruins of the Maya world and decided to spend my life studying the Maya past.

My dissertation research focused on the ritual use of caves in Guatemala's Northern Transversal Strip (Figures 1 and 2), many of which were actively used by the contemporary Q'eqchi' Maya, whom



I employed as guides, excavators, assistants, cooks, and handymen while in the field. Just like Maler, Morley, de Charnay, and all of the trailblazing white men whose paths I followed, I understood these Maya communities only in terms of my research goals—as either facilitators or roadblocks on my way to what “really mattered”. I believed that I was engaging in scientific investigations of the human past, an endeavor that was, by its very nature, ethically neutral. Any obligations I did have were to the field and the Guatemalan government, and I worked hard to tick off those boxes (e.g., grant money, fieldwork applications, site reports, professional publications, and presentations). When Q'eqchi' villagers questioned my presence and motives, I simply pulled out the official contract with the federal

government I carried in my field bag—a thick, stapled stack of legal pages with words printed in a bold font bordered by an impressive number of stamps and signatures on each page. I could assure them that unlike other *gringos* who were stationed in this part of the country, I was not trying to save souls or extract resources, but simply wanted to study the past as a scholar and student.

The nagging worry that someone would confuse me for an oil man or a miner eventually turned into a realization that, from the Q'eqchi' perspective, **I really was no different**. My team came into the region; paid locals to dig up objects that were bagged, boxed, and shipped off; and then left after promising to return within a year. Archaeology is, in fact, an extractive industry, and while we monetize the resources we extract in more abstract ways than transnational corporations, the publications that result from our investigations are still the primary way we advance our careers.

My interest in community archaeology and finding ways to benefit neighboring and descendant communities came out of this realization. It became a central part of my research at Salinas de los Nueve Cerros, which was founded by invitation from community leaders in 2009. But even with the best of intentions, much of my community work was hobbled by a series of problematic assumptions and blind spots that I continue to work hard to identify and unpack. In this short article, I would like to shed some light on some of these handicaps with the hope that they can be of use to potential readers and, perhaps, move the conversation and models forward.

Assumption 1: The Conquest of the Maya World Is Long Over

My fascination with the Maya stemmed in no small part from the mystique of abandoned cities in the jungle, a romantic image that has fed public interest since at least the days of Stephens and Catherwood’s best-selling *Incidents of Travel* series (Stephens 1841, 1843). Much of the Guatemalan, Belizean, Honduran, and Mexican economy today is built upon carefully curated zones of dual archaeological and nature preserves that solidify that mystique. Documentaries and school curricula, similarly, still promote the “mystery of the Maya” (i.e., why they disappeared and where they went).

Going backwards in time to the conquest and colonial periods, the Maya lowlands were far from empty. Changing economic systems transformed the central and southern Maya lowlands from the

drivers of Classic market forces to the producers of in-demand commodities for export throughout Mesoamerica. Extant populations also moved around—the Ch’ol speakers who likely represented most of the central and southern lowlands population were displaced by Yukatek speakers from the north after the fall of the great cities, moving to the edges of the lowlands in eastern Chiapas and central Guatemala. But the Maya kingdoms that inherited that landscape, both Ch’ol (Lakandon, Akalaha, and Manche) and Yukatek (Itza, Kowoj, Kejach, and Mopan) were still formidable and populous states who were successful at resisting colonization over nearly two centuries of Spanish efforts (De Vos 1980, Feldman 2000, Jones 1998, Woodfill 2019, Lentz Under Review).

As each kingdom fell, the Spaniards and their Indigenous allies rounded up as many of their citizens as they could and moved them into areas where they could be more easily monitored and controlled. By the early 18th century, the Spanish mission to remove the Maya from the region was nearly complete, leaving the southern lowlands largely devoid of human settlements. When Stephens and Catherwood visited the area about 130 years later, the jungle had reclaimed many



Figure 1. Map of the Maya world with the primary towns, sites, and other constructed features discussed in this article. Map by the author based on a NASA terrain model.

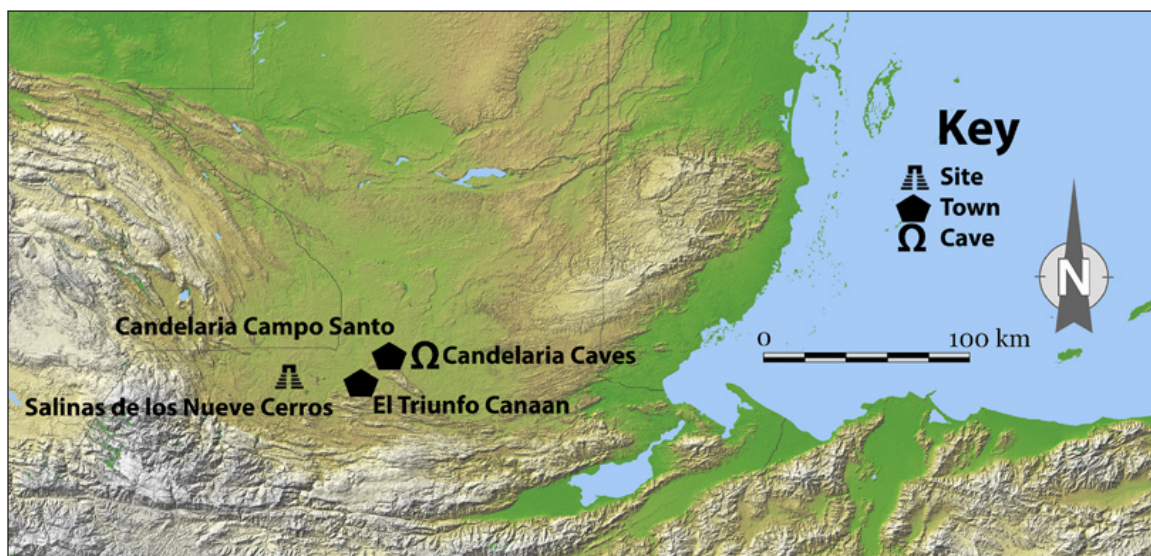


Figure 2. Map of the Northern Transversal Strip and adjacent regions showing the sites, caves, and communities discussed in this article. Map by the author based on a NASA terrain model.

of the cities and towns, allowing the myth of the Maya disappearance to trickle into the public consciousness (e.g., Eggert et al. 2012, Habel 1878, Le Plongeon 1902).

Colonization began anew in the 20th century with several driving forces. The spillover from German coffee plantations, the drive for chicle, the founding of archaeological projects, and the discovery of oil in the southern lowlands led to the establishment of corporate and scientific camps, often attracting low-wage employees, sex workers, cooks, and others to found adjacent settlements to provide in-demand services not officially sanctioned within the camp. Population pressures and awful working conditions in other parts of Mexico and Guatemala drew others to the region, who came alone or through organized settlement programs organized by national governments, the Catholic church, and other public and private organizations.

During the Guatemalan civil war, land was gifted to influential military officers and the national elite. Army bases, guerrilla encampments, and small communities composed of families escaping the violence proliferated in the “wild” spaces where the forest was still unbroken (Devine 2014, Falla 1992, Grandia 2012, King 1974, Manz 2005, Permanto 2015, Woodfill 2019, Ybarra 2017). Many of these same families are now struggling to fend off new incursions into their land by wealthy investors, governments, and national and transnational corporations who seek to exploit their land for mineral extraction, hydroelectricity, tourism, or valuable agricultural commodities. The conquest of the Maya world was not some singular event in the distant past but an ongoing process that is still happening today even if the *conquistadores* have abandoned both the sword and the cross as their primary tools.

Assumption 2: Parks and Nature Preserves Are Apolitical

It is in the late 20th century that most of Guatemala's national parks and biosphere reserves were established (Figure 4). While a few small parks were created around specific cultural or geographic features like Lake Lachua and Sierra de las Minas, most were large, sparsely occupied swaths of borderlands where guerrillas could camp and easily escape into Mexico if the army was close. The creation of the Maya Biosphere and many of its composite national parks in 1990 created a permanent justification for military presence in the region and prohibited the establishment of new settlements, both of which allowed the border to be tightly controlled. After the signing of the Guatemalan Peace Accords six years later, the rhetoric around forced relocation changed, although it continues to this day. Now, the military targets “invaders” and “*narcos*” in parks and preserves, as opposed to Cold War-era “Communists” and “guerrillas” and conquest period “barbarians”, “pagans”, or “rebels” (Falla 1992, Grandia 2012, Morán 2000 [1636], Ybarra 2017). Military patrols continue to burn fields and homes, round up everyone they can find, and forcibly remove them (Devine 2014, Peace Brigades International 2013, Woodfill 2019).

The conquest of the Maya and their severing from their lands and histories has continued unabated since the Spanish conquest, and the latest front is the environmental movement. Variations of the same history continue to play out for the Maya surrounding Salinas de los Nueve Cerros. After several horrible confrontations in the territory a few days to their north, the Akalaha ambushed a small group of Spanish priests and soldiers in 1555, so the military burned their lands, hanged their leaders, and forcibly removed the survivors from their homes. Echoes of this trauma reverberated

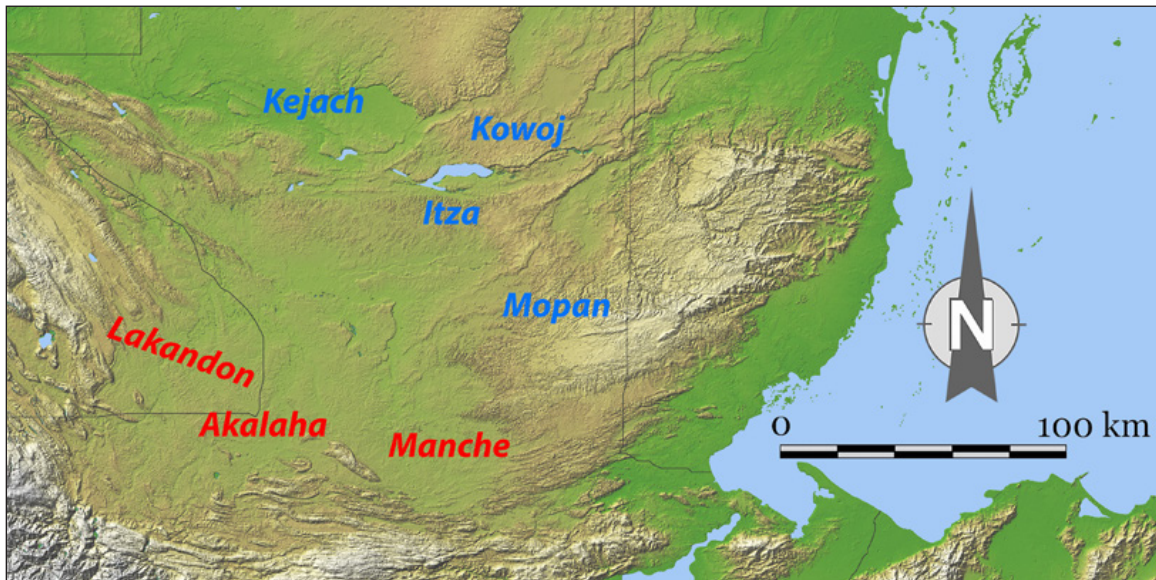


Figure 3. Primary languages in the southern lowlands on the eve of the Spanish conquest. Languages in red are in the Ch'ol family, languages in blue are Yukatek. Map by the author based on a NASA terrain model.

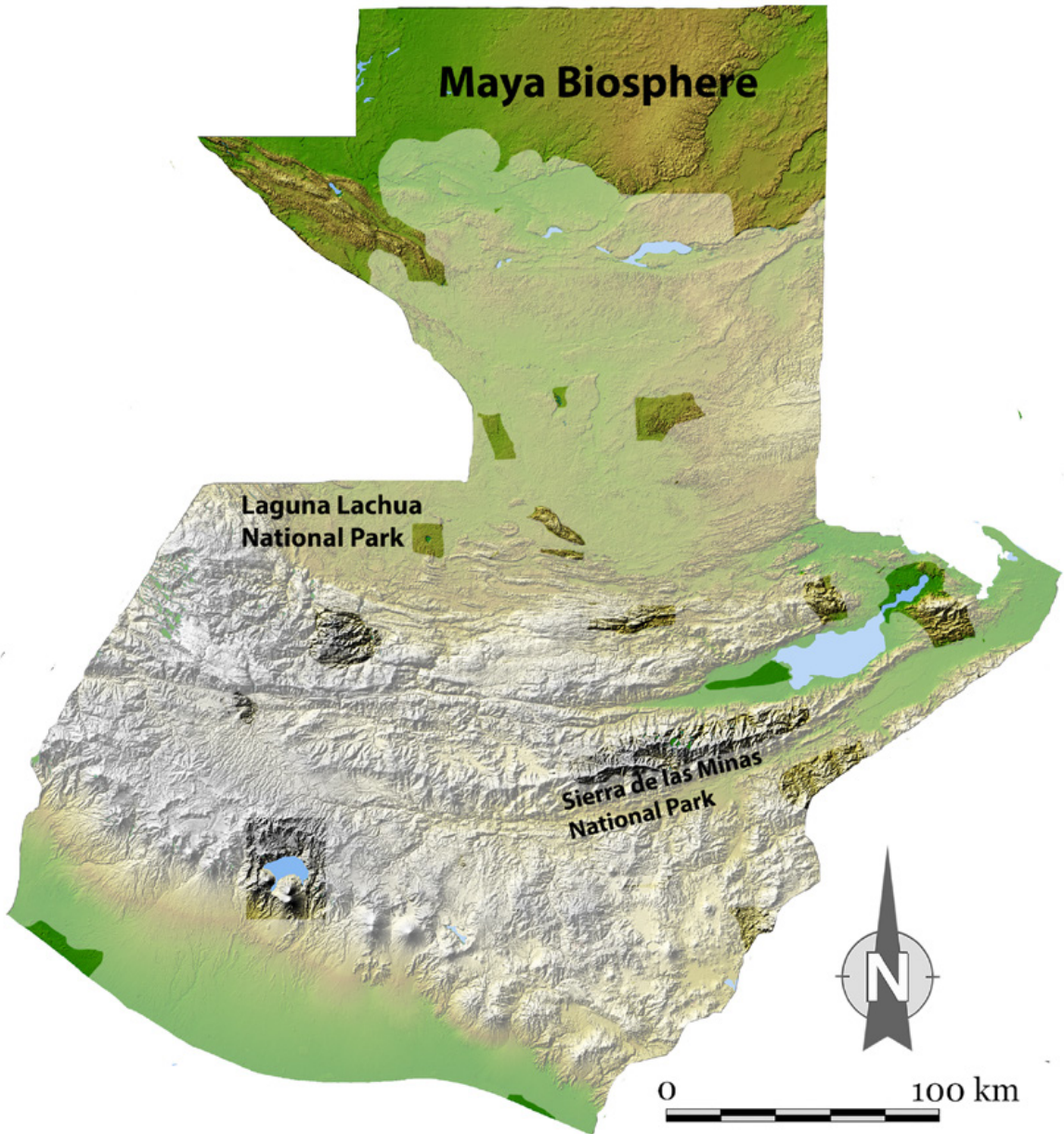


Figure 4. Primary national parks and nature preserves in Guatemala. Map by the author based on a NASA terrain model.

throughout the Spanish Empire, where reports of the martyrdom of one of the friars, Domingo de Vico, spread far and wide (e.g., Margíl de Jesús 1976 [1695], Remesal 1932 [1619], Salazar 2000 [1620], Tovilla 1960 [1635]). During the civil war, many of my older Q'eqchi' collaborators were conscripted into deputized *Patrullas Auto-Civiles* (civil auto patrols) and forced to participate in

burning “rebel” villages and rounding up survivors.

Today, the Q’eqchi’ are regularly cast as environmental villains who wreak havoc upon their landscapes, both in conversations by development specialists in the region and in academic publications (e.g., Atran and Medin 2008). The military took advantage of that reputation in 2012 when they burned the fields of three villages in the southern part of Lake Lachua National Park in an attempt to forcibly evict them, even though one was established before the park’s founding. At the same time that much of the environmentalist narrative is focused on the Indigenous threat, however, these villagers and their neighbors have to suffer through the headaches and nose bleeds caused by the sulfur dioxide that is leaking from the nearby oil wells and the massive fish die-offs caused by agricultural runoff from the African palm plantations that are spreading, largely unchecked, throughout the region.



While parks are protected from corporate takeover, they also typically become off-limits to the communities who are already living there and managing the environment. The creation of a park, then, does not involve finding and preserving pristine areas, but is in fact a “spatial colonization and spatial commodification” (Kurnick 2019) that severs people from their landscape. Local control cedes to new stakeholders representing national and at times even global governing bodies and concerns who often impose strict rules about what can be done and by whom within the park boundaries. Even when locals are still allowed to live or work within these newly minted parklands, there are often major restrictions and significant added costs (Kinnard 2014).

Nowhere was the political nature of park creation more obvious to me than while working to help found the Candelaria Caves National Park, which began at the behest of a foreign hotelier in the area whose ultimate goal was removing the Q’eqchi’ villages who lived and farmed atop and around the caves he exploited for tourism. Although the villages predated the hotel, his connections to the military and high-ranking members of the Guatemalan government kept their residents in check during the period of the Guatemalan civil war. After the threat of disappearance and death diminished after the signing of the Peace Accords, however, community leaders began to demand a share in the planning and profits. As a result, the hotelier used extant connections to begin the process of creating a national park that he hoped would forcibly remove them from within the park boundaries and, thus, remove any potential competition or obligations. Ironically, when the Guatemalan government officials moved forward, their primary collaborators (USAID, the Cancuen Project, and Idaho State University) successfully convinced them to side instead with the local communities, who now co-manage the national park with the Ministry of Culture and Sports, sharing in the responsibilities, planning, protection, and profits (Woodfill 2013, 2019). This model has proved viable and successful, as the villagers have preserved and expanded the forested areas while protecting the fragile cave ecosystem and the archaeological remains within, all without the assistance of the military patrols used in other national parks. At the time, though, the political battle for the future of the system raged in public as much as it did behind closed doors in the capital, with articles, interviews, and editorials in national newspapers and television programs.



Figure 5. Palm plantation abutting the Northern Transversal Highway, with the foothills of the Guatemalan highlands in the background. Photo by the author.

Assumption 3: Descendant Communities Are an Obstacle to Access

I began working in archaeology in August 1990 as a 13-year-old volunteer for a non-profit in Minneapolis. I internalized the Processualist ideals of archaeology as a science that was devoted to codifying universal laws of human behavior in the past (e.g., Flannery 1973). I was sure that the Oneota and Woodland remains I helped to investigate provided datasets that allowed us to find these laws, and that, as scientists, we could expect unfettered access to the past.

Three months later, George H.W. Bush signed the Native American Graves Protection and Repatriation Act into law. While the primary motivation for its existence was to right some of the historic wrongs inflicted upon America's Indigenous population and give them some control over their ancestors and their ancestors' possessions, it also presented a real challenge to the notion that we had that unfettered access. This notion has been litigated and relitigated in the courts of law and public opinion, like the famous Kennewick Man controversy (Preston 2014) and the more recent outcry over Princeton University faculty using bones from child victims of the 1985 police bombing in West Philadelphia for online, undergraduate instruction (Flaherty 2021).

My first visit to the Smithsonian Institution was in the lead-up to the passing of NAGPRA, and while I do not remember any of the archaeological exhibits I was so excited to see, I do vividly remember the protesters and the conversations about human remains in the museum's basement that followed. While in college, I interned with Faith Bad Bear, the NAGPRA project manager at the Science Museum of Minnesota, and heard the horrifying stories behind the objects in the museum collection and saw the messy process of repatriation first-hand. Instead of being simply frustrated,

Faith thought of NAGPRA as a sort of Pandora’s Box—“you open it and a bunch of bodies fly out, but at the very bottom is a little bit of hope.” Hope in the possibility of moving through the centuries of exploitation and trauma to create collaborative partnerships and practices that bring together archaeologists and the people whose ancestors they study.

Most of the work to build that trust must be done by the scientists who want the information Indigenous peoples and their ancestors provide, though—in addition to our problematic history of acquiring Indigenous bodies and objects without permission (*e.g.*, Urry 1989), we are the ones whose livelihoods are based on researching them and their ancestors. Because we as archaeologists need to access the lands and history of people around the world in order to assure the survival of our discipline, we rightly fear losing that access through forces out of our control. Many of these fears have focused on descendant communities, a bogeyman who reemerged in Elizabeth Weiss and James Springer’s (2020, 2021) recent problematic book and paper at the Society for American

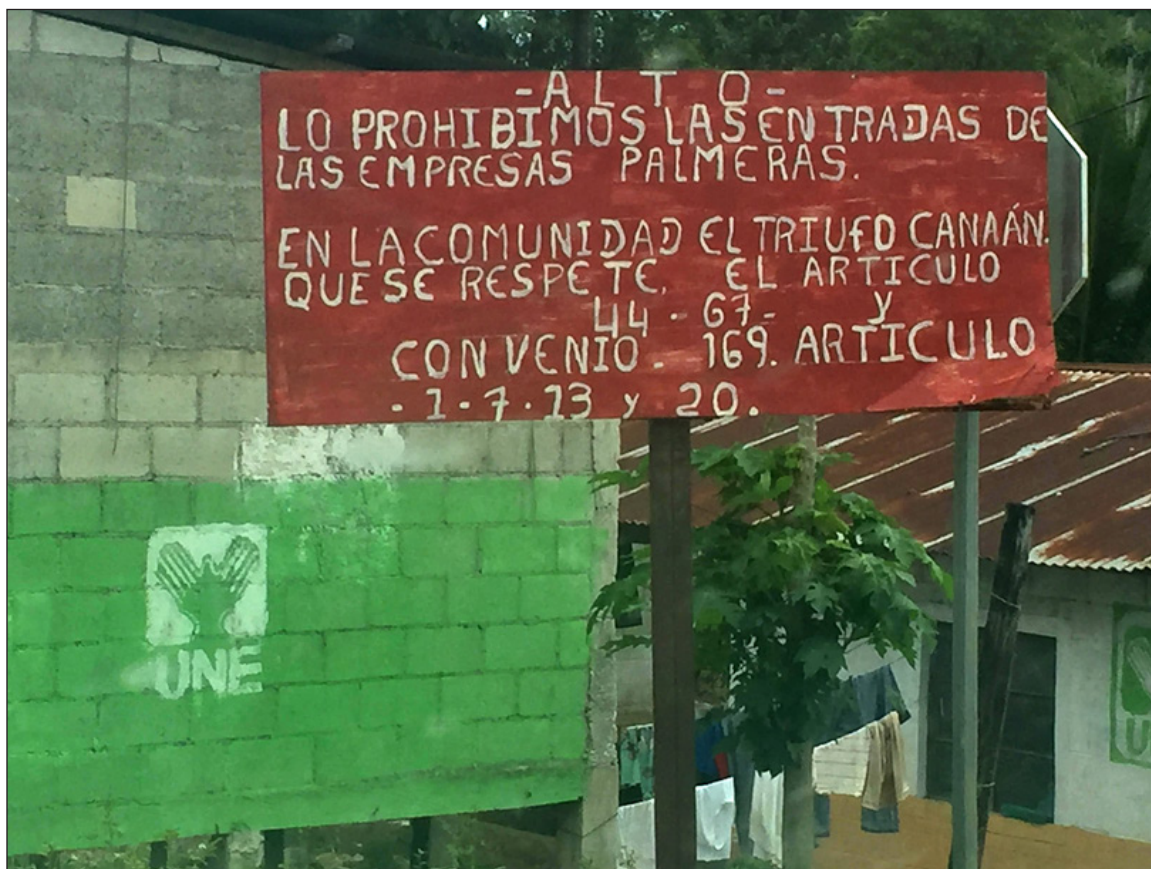


Figure 6. Sign posted in the village of El Triunfo Canaan, reading: “-STOP- WE PROHIBIT THE ENTRANCE OF PALM COMPANIES. IN THE COMMUNITY OF EL TRIUNFO CANAÁN, WE RESPECT ARTICLE 44-67 AND CONTRACT 169, ARTICLE 1-7-13 AND 20,” referring to legal standing for the prohibition. Photo by the author.

Archaeology meetings (Wade 2021).

However, such works are blind to much more catastrophic concerns. During the Guatemalan civil war and Peru's Shining Path revolution, the violence left much of the countryside off-limits to scientific investigation, just as much of Mesopotamia is still off-limits to American archaeologists after our two Gulf Wars. Urbanization, resource extraction, and infrastructure projects have partially or totally destroyed significant archaeological sites— e.g., Kaminaljuyu and Naranjo to the growth of Guatemala City, Los Encuentros to the Quixal hydroelectric dam, and La Venta to petroleum exploitation. In my own research experience, some Maya subsistence farmers have asked us not to pass through or dig in their agricultural fields, but enough of their neighbors are willing to work with us that we can conduct our proposed investigations with only slight modifications to our plans.

Corporate, private, and municipal entities have proven to be much more disruptive. Their landholdings are often much larger and can encompass entire sites and regions, and their land use practices are often much more extreme, involving mechanized modification of the landscape and crops that are far more damaging than corn. In my experience, they are as suspicious—if not more so—about our intentions and the long-term effects of our investigations than local landowners, and they are much harder to meet with to actually discuss plans and answer questions. Unlike villages, where residents are accustomed to calling impromptu meetings with only a few hours' notice when needed, the entities that hold large landholdings are complex bureaucracies that can hide behind lawyers, administrative assistants, and ambiguous legal wordings to indefinitely delay a meeting or the announcement of a decision.

Even when corporations and political entities have a desire to collaborate with archaeologists, the sheer scale of their landholdings tends to render them unaware of what is found within, whereas smallholders tend to know their terrains intimately. In fact, it is really a disservice to local Maya landowners and organizations who have allowed me to enter their property by saying that they gave my team permission to work there. Most of the archaeological contexts where I have conducted research were shown to me by local individuals who then invited me to investigate there; without their guidance, I would have been unaware of most of my research sites. These same families provided knowledge, labor, and companionship on top of their permission, all of which resulted in the data I string together in my publications, presentations, and classes. Truthfully, most of my career has only been made possible because locals who live, work, and intimately know their landscape became invested in it. I cannot say the same about corporations and municipalities.

Corporations vs. Communities in the Northern Transversal Strip

African palm production is one of the most disruptive of the new industries threatening the communities where I and many of my Mayanist colleagues work. African palm trees were introduced to the Pacific Coast of Guatemala in 1988, with the first palm plantations established in the Petén a few years later (Castañeda 2011, Grandia 2012, Escalón 2014). In 2010, there were over 76 km² of African palm in Guatemala alone—2% of the republic's arable land—which doubled in four

years (Alonso-Frajedas et al. 2010, CMI 2015). By 2019, Guatemala had become the second-highest producer of palm oil in Latin America with trees covering 165 km² and producing 900,000 tons of oil (Prensa Latina 2019; Figure 5). As they require wet tropical climates to propagate, their cultivation is limited to the hot lowlands and coastal regions of eastern Mesoamerica—the same areas with the densest Precolumbian populations. There, they present a very real threat to archaeological remains in addition to the livelihoods of subsistence farmers—the trees, which live an average of 25 years, have dense root systems that descend over half a meter into the earth and splay out in a 3-5 m radius (Plants for a Future, n.d.).

The explosion of palm plantations in Guatemala over the past 30 years is supported by international investments from Goldman-Sachs, the Carlyle Group, and others (Rubio Castañeda 2017:226), and fed by multiple practices of questionable ethics. Liza Grandia (2012:165) reported a forced acquisition of the entirety of the landholdings of a village in the municipality of Poptún, Petén. Landowners were offered a fifth of the price of their land and the holdouts (and their families) were threatened with violence. In the Northern Transversal Region, the village of Candelaria Campo Santo, one of the co-managers of the aforementioned Candelaria Caves National Park, initiated a series of roadblocks and protests in 2012 after an upriver palm plantation owned by Chiquibul, S.A., illegally seized 3 ha of community land and built an unauthorized road through it (Sam Chum 2012, Escalón 2014). The protests were ultimately unsuccessful, and as a result, the Candelaria Caves National Park is experiencing an environmental crisis caused by pesticides, fertilizers, and other untreated agricultural runoffs that drain into the river at the heart of the park's caves (Woodfill, pers. obs. 2017, 2019).

Increasingly, economic and climactic insecurity have driven more Maya to sell their land to foreign industries, even without the aggressive tactics described above. Along the Northern Transversal Strip, most of the communities were established during the Cold War with the assistance of the US government, who encouraged the use of individually parceled land in lieu of cooperative community holdings. This single decision, based on the desire to minimize potential Communist sympathies, has resulted in an ecological and economic crisis ripped from the pages of Rachel Carson's *Silent Spring* (1962). The extant parcels are in practice too small for the individual families who farm them to let sections rest after a few years of intensive corn cultivation, so they continue to farm increasingly exhausted soil with the aid of heavy fertilizer use. The ubiquity of corn throughout the Indigenous patches of the regional quilt has required the increased use of pesticides to combat the blossoming populations of fungi and insects that feed on maize. Both fertilizer and pesticides cut into already slim profit margins, and as pests and pathogens become more resistant to the agrochemicals the Maya spray on their crops, more and more powerful poisons must be used. Eventually, these chemicals damage the corn itself, so more and more farmers turn to "*maíz mejorado*" (i.e., genetically modified corn with a "suicide switch" that prevents them from replanting in future years). The lack of seed reserves combined with increasingly erratic weather patterns caused by global warming results in a precarious economic situation. This is worsened still by the general practice, as reported by my collaborators, of buying GMO corn seeds with a down payment backed

up by a land title that is held until they can pay off the remaining debt after harvest time.

Even if Maya farmers working and living atop Salinas de los Nueve Cerros are able to stay afloat through all of these problems, lending houses have become common ways for many to address short-term economic woes or to finance education or improvement projects. Villagers can get an instant loan by putting up their land title as collateral, but just one published rate sheet from a house in the nearby town of Playa Grande Ixcán has annual interest rates that in several plans top 80% (Fundación Genesis 2019). When farmers are unable to pay their debts, the landholdings are bundled and sold, often to corporations, leaving the former owners to fend for themselves and feeding the waves of migration into nature preserves and the few remaining available lands.

Some villages have taken more aggressive stances to resist displacement. After seeing the failure of Candelaria Campo Santo to remove the palm plantation from their land, the residents of El Triunfo Canaan, Chisec, Alta Verapaz, posted signs that explicitly barred palm plantation owners and workers from entering their land in 2016 (Figure 6). Others, like my colleague Ramiro Tox who recently succumbed to COVID-19, have resisted genetically modified corn in order to reduce their dependence on the global supply chain for their survival, although they note that every year their yields decline as the pollen from their neighbors' fields fertilizes their plants.

The displaced Indigenous populations, typically dismissed as “park invaders” or “*narcos*” by some journalists, politicians, and academics, are inextricably linked to the expansion of palm plantations into their lands through these and other mechanisms. And while the Maya—especially the Q'eqchi'—are painted as the bringers of environmental catastrophes, most of my work has supported grassroots environmental movements founded and led by rural Q'eqchi' villagers to create community-run parks and ecotourism facilities, preserving and regenerating the local biodiversity while protecting local livelihoods, often in the face of powerful external threats. Archaeology can be and at times has been a part of their toolkit, bringing attention to the area through publications, press, and the promise of visiting picturesque ruins and caves in a jungle setting. It can just as easily be a tool to continue to colonize, disrupt, marginalize, and displace, however, if the resulting tourism infrastructure is owned, managed, and staffed by external players who are more interested in extracting profits than investing in local initiatives.

Where Do We Go From Here?

Some villagers have looted, some villagers work with *narcos*, but the narcotics and antiquities trades are systemic problems that need to be addressed through significant legislation focused on their primary beneficiaries and markets instead of attacking their poorest and most marginalized participants. Especially in the wake of the public realization over the past few years that privileged individuals can and have weaponized the police against minorities, be they grilling or bird-watching, I believe we should involve armed forces in our scientific fieldwork as little as possible.

As discussed above, the driving forces behind looting, drug trafficking, and the establishment of new communities in protected areas are, at least in the corner of Guatemala where I work, poverty and powerlessness. I believe that, to address some of these problems at a local level, we should

endeavor to create sustainable income and increased freedom for community members instead of supporting the half-millennium of militarization in Maya lands.

Some of the ways we can work towards that end are well within our wheelhouse. We can work with federal agencies and funding sources to create new parks where we work, like what we were able to do in the Candelaria Caves, or we can modify existing ones that empower and bolster, rather than vilify, local communities. Simpler still, we can use the tools and skillsets at our disposal (e.g., Geographic Information Systems, fundraising, education) to support local initiatives and goals. For example, these are a few actions my team has taken or is currently planning: (1) Surveying property lines for communities in the process of acquiring their land, (2) Rebuilding ancient Maya *aguadas* for use by contemporary communities, (3) Using digital elevation models and hydrological modeling to determine the best places for establishing rice patties and other agricultural field types, and, (4) Helping establish legal foundations for the existence of a community by connecting the Precolumbian and contemporary populations in specific places.

From the local perspective, the most important thing Proyecto Salinas de los Nueve Cerros has done is simply provide a space for an applied anthropologist to work with community leaders towards goals they themselves identified. Between 2011 and the present, they have supported myriad successful initiatives, beginning with the creation of two local, Maya-led NGOs focused on accomplishing distinct goals. The resulting collaborations have rebuilt roads and bridges, brought clean water to multiple communities, resettled nearly 100 families, provided new sources of sustainable income, and improved local health and wellbeing in various ways (Woodfill 2013, Woodfill and Odum 2018, Woodfill and Rivas 2020).

Just as archaeology can be a tool for the continued onslaught against the Maya, it can be a tool for combatting poverty and powerlessness. Archaeologists have a choice. If we prioritize parks over people and paint the Maya as “invaders” in a pristine landscape, we become active members of the ongoing colonization of the Maya world. If we, with our institutional prestige and public platforms, continue to refer to the Maya as outlaws, looters, and *narcos* needing to be removed from sensitive areas to preserve their past because of their importance for “world heritage” without regards to local concerns, we are facilitating the weaponization of our discipline against the descendants of the people we study, just as the environmental movement has already been weaponized against them.

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Persisting Worldviews and Conflicted Development along the Ruta Maya

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How do Maya worldviews intersect with the cultural and environmental challenges facing Maya communities in contemporary Mesoamerica? Using an ethnographic approach, this paper focuses on how Maya activists and community leaders resist development projects perceived as encroaching on indigenous autonomy and placing stress on local community resources such as forests and water. Two cases, one involving resistance to the so-called Tren Maya (Maya Train) on the Yucatán Peninsula in Mexico and the other a community reforestation project in highland Guatemala, demonstrate how Maya ways of knowing challenge Western approaches to development and modernity. Concepts such as human environmental rights and the notion of “integral ecology” from Pope Francis’s Laudato Si’ are referenced as potential points of convergence with Maya agendas. Yet, this paper emphasizes Maya frameworks for preserving cultural identity and how these contrast with state-driven and entrepreneurial conservation and development models that impact indigenous lifeways throughout the region. Issues such as reforestation, resistance to megaprojects, reforestation, and the link between territory and cultural identity are discussed in light of the neglect of ancestral lifeways highlighted by activists.

Keywords: cultural activism, territory, Maya cosmovisión, ancestors, megaprojects



“With globalization of the economy, it is evident that indigenous resources such as land will be the focus of problems in the future. With the shift from a use-value economy to exchange-value capitalist production, the ancestors’ gifts of land and seeds are being abandoned in favor of foreign cash crops, thus distancing Jakalteq from their traditional way of life. Land has become a commodity, and it is more expensive to buy a house or a piece of land in Jacaltenango than in Quetzaltenango or Guatemala City. Even though the capitalist economy now prevails in Jacaltenango and surrounding municipios in the Guatemalan highlands, Jakalteq are also striving to revitalize traditional ways that will sustain them even in a modern world.” (Montejo 2004:255)

This paper is an effort to think across national boundaries in the consideration of Maya responses to development agendas in Mesoamerica. We have opted for a comparative focus in line with the volume *Pluralizing Ethnography: Comparison and Representation in Maya Cultures, Histories, and Identities* that grew out of a seminar at the School of American Research in 2000



(Watanabe and Fisher 2004a). The work sought to account for how Maya at the most recent turn of the century in both Mexico and Guatemala had “become prominent political actors in national and international arenas routinely challenging government policy makers and foreign scholars alike” (Watanabe and Fisher 2004b:5). More to the point, the editors of the volume were inspired by “activists who counter political challenges to Maya cultural authenticity by invoking Maya languages and cosmologies, memory and experience, practices and values, not as timeless survivals from their ancestors but as living proof of a history of creative cultural resilience in the spirit of those ancestors” (Watanabe and Fisher 2004b:5). At that moment, the most prominent activists (at

least internationally) were the Zapatistas in Mexico and Maya Movement intellectuals in Guatemala who were articulating a cultural activism that emphasized “*reivindicación* – recognition, as well as restitution” (Watanabe and Fisher 2004b:20). The comparative thrust of the volume asked readers to look across national borders in an effort to develop a pluralistic perspective in considering the contingent nature of Maya practices in the midst of change emanating at various scales of analysis, change we reference with terms like globalization or transnationalism.

Although written nearly two decades ago, the epigraph from the Jakalteq academic and writer Victor Montejo (2004), points toward the theme of this article: an explication of how residents of some Maya communities seek to respond to the social change rooted in the forces of globalization and the development agendas pushed by the national governments in the region, particularly in Mexico and Guatemala. This change is often marked by the dispossession of lands belonging to indigenous peoples and communities and by the alienation of people from persistent lifeways and cosmologies tied to *costumbre* (practices resulting from the overlay of Spanish colonial impositions on indigenous belief systems) and place in the Maya communities of Mesoamerica (MacKenzie 2016:61-64). Historically, these lifeways and knowledge systems were rooted in subsistence agriculture tied to maize cultivation. Montejo points to the tension that results when the commodification of land and production practices impinge upon local community life, frequently pushing people to migrate transnationally in order to seek better life opportunities in the U.S.A. The burden of this

essay is to provide the outlines of an ethnographic approach to contemporary human-environment relations in the Maya culture region and point to possibilities for the revitalization and renewal of lifeways that will be sustainable into the future.

In line with Montejo's thought, we seek to engage a pluralistic perspective by considering contemporary Maya activism in relation to environmental issues, specifically the interplay between Maya worldviews that motivate activism in the face of development agendas frequently marked as megaprojects and labeled as extractivist extensions of the colonialism tied to the Spanish invasion of 500 years ago. The lens might be considered a kind of advocacy or activist anthropology in some frameworks, although most days perhaps we should be content with the modest thought of a kind of ethnographic engagement that bears witness to Maya interpretations of their own reality and practices of resistance. Although less focused on particular projects than long-term archaeological research that actually seeks to respond to local community members in its design and implementation, reading the landscape of sociopolitical interaction is no less dependent upon contextualization than is reading the archaeological record. Archaeologists Aline Magnoni, Traci Ardren, and Scot Hutson (2007:373) favor "a relational approach to identity formation." Following the work of Tim Ingold, they emphasize the "perpetuation of indisputable cultural continuities that link ancient and contemporary Maya in the daily practices re-enacted in cultural meaningful landscapes and not in a genealogical ancestral connection." This approach provides space for heterogenous understandings of Maya identity and responses to social change—as opposed to the homogeneity implied in terms such as *Mundo Maya*. While the emphasis here is on resistance to what we might loosely refer to as the vagaries of globalization, it is true that many Maya have worked to accommodate so-called modernity into their production systems as well as their religious practices. One example among farmers from the Guatemalan highlands has been the adoption of non-traditional agricultural exports such as broccoli for the consumer market in the United States (Fischer and Benson 2006). Adaptation and accommodation have been major themes in Maya responses to colonial agendas since the beginning of the Spanish incursion. Making sense of these processes is a space for collaboration between anthropologists and community members in applying different forms of knowledge to immediate social problems such as education, health care, or the search for culturally appropriate development models.

Some contextualization is necessary to frame the two case studies addressed here. The first study centers on resistance to the Tren Maya project that is envisioned to extend from the Mexican states of Chiapas and Tabasco and throughout the Yucatán Peninsula, and the other is a local-level reforestation effort in a K'iche' Maya community in the Guatemalan highlands. Both cases foreground a language of resistance to development and development projects that takes its impetus from understandings of Maya identity and territorial attachment that are essential to making sense of human-environment relationships from the standpoint of Maya cosmivision.

This worldview, according to the Accord on the Rights and Identity of Indigenous Peoples, adopted as a side agreement before the signing of the final peace accord that formally ended the country's 36-year civil conflict in 1996, "is based on the harmonious relation between all the elements of the universe, in which the human being is only one element more, the earth is the mother that gives life, and maize is the sacred sign, the way of its culture. This cosmivision has been transmitted from generation to generation through material production and writing and through oral tradition, in

which women have played a determinative role” (Cabrera and Cifuentes 1997, 81, our translation). A more complete formulation would consider specific ceremonies or ritual activities tied to the 260-day Mesoamerican divinatory calendar or *Cholq’ij* (Cabrera 1995), the work of the spiritual guides or “daykeepers” (*ajq’ijab*) who lead these ceremonies (Tedlock 1992), the conceptualization of a quadrupartite cosmos (Rice 2004:19-21), and an even more direct connection between maize production and human identity as narrated in the *Pop Wuj*, the sacred book of the Maya K’iche’ language community that in Guatemala is sometimes called the Maya Bible (Christenson 2007). The emphasis here is on how enduring memory and cultural practices transcend any static sense of identity or essentialism and embody a response to the demands of modernity.

Maya cosmivision, then, underpins persistent identity formulations that claim continuity with millenarian, or ancient, Maya culture. One study on the effort to define and disseminate a unified sense of Maya worldviews by Maya themselves in Guatemala concludes that “their appropriation and redefinition [of Maya Cosmovision] shows, yet again, that cultures are dynamic, and discovers horizons for the decolonialization of political, medical, cultural, and knowledge practices. Without falling into idealism, it is a notion that weaves together symbolism, spirituality, politics, and self-management” (Cano Contreras et al. 2018, our translation). In both Mexico and Guatemala, Maya identity references a connection with the ancestors and ancestral ways of thinking presenting a challenge to the history of colonialism in Mesoamerica, the sovereignty of the nation-state, and imposed development agendas, the latter frequently embodied in so-called megaprojects that are portrayed as crossing borders or uniting people even as they all too often exclude the voices (and the desires) of those they impact.

Context

We use the idea of the Ruta Maya in the title of this essay as shorthand for efforts over the past three decades to frame touristic activities and promote development in southern Mesoamerica. The ideas received particular impetus three decades ago in *National Geographic* (Garrett 1989) when the Ruta Maya was promoted as “the idea of a developed route to connect the many tourist attractions” in Mexico, Guatemala, Belize, Honduras, and El Salvador (Taylor 2018: 46), the region some of us might refer to as the Maya cultural region. By 1992, the Ruta Maya had been rebranded as Mundo Maya, which received money from the Inter-American Development Bank (IDB) “to develop a circuit of Maya archaeological sites along with eco and adventure tourism across Mesoamerica” (Grandia 2007: 492).

This branding connected with other initiatives that focused on conservation agendas and economic development. The Calakmul Biosphere Reserve (1989) and the Maya Biosphere Reserve (1990) were part of the so-called Maya Forest in Mexico, Guatemala, and Belize and make up the largest expanse of contiguous rain forest north of the Amazon Basin. The Mesoamerican Biological Corridor (MBC) was founded in 1997 and portrayed as a “transboundary conservation and development project” including the seven Central American countries and five states in southeastern Mexico (Holland 2012: 56; Grandia 2007). The agenda behind these reserves is complicated, and restrictions on productive activity in core reserve areas have focused more on conservation or modes of cultural tourism that often have detrimental impacts on the subsistence activities of local

residents and contribute to population displacement when people migrate either temporarily or permanently in search of work opportunities. The stakes can be seen in the debate surrounding deforestation in the Maya reserve in Guatemala where communities in the eastern Petén receiving concessions to use core biosphere areas for production have done a much better job of preserving forests and preventing fires than in the west where access is more restrictive (Malkin 2015).

To all appearances these environmental projects would be considered “soft” development projects more in line with sustainable development models. Nevertheless, in the Mundo Maya, the issues quickly become more complicated when conservation agendas are considered in tandem with trade agreements like the North American Free Trade Agreement (NAFTA) in 1994 that precipitated the Zapatista rebellion in Chiapas, the Puebla Panama Plan (PPP) in 2004, and Dominican Republic-Central America Free Trade Agreement (CAFTA-DR) between 2006-2009. Returning to the MBC, Liza Grandia refers to it as “green neoliberalism” (2007:486) and reports that a 2001 policy paper for the MBC ultimately shifts to “advocate that a more explicit involvement of the private sector in conservation could make economic growth and sustainable development mutually reinforcing.” She continues by noting that in “such planning documents the Mesoamerican people are described as amorphous ‘stakeholders’ (a peculiar word itself not easily translated into Spanish)—thereby implying that they may participate in the MBC through ownership, but not as citizens with inherent rights and freedoms” (2007:487). This reflects similar contradictions that Juanita Sundburg (2003) noted between protecting the environment and democratization in her research in the Maya Biosphere Reserve. When Grandia turns again to the PPP, she glosses the acronym as “privatisation, profiteering, and poverty” (2007:490-492).

The intent here is to place perspectives grounded in indigenous, specifically Maya, knowledge systems in conversation with other perspectives that at least initially are more directly tied to Western conceptions of development and progress. From the Western perspective and the realm of political ecology, we might think of the concept of human environmental rights articulated by Barbara Rose Johnston (2011), rights which encompass meeting basic needs in human relationships to the environment but also extend to frames that include what we might refer to today as intergenerational justice and collective rights. Likewise, Pope Francis’ encyclical, *Laudato Si’* uses the notion of “integral ecology” to define what environmental anthropologists might refer to as an ecosystems approach in defining human-environment relations (2015: 85-89; cf. Moran 2010: 63-69). The Pope links this integral ecology to a sense of the common good that “calls for social peace, the stability and security provided by a certain order which cannot be achieved without particular concern for distributive justice; whenever this is violated, violence always ensues” (2015: 96). This reference to the common good and distributive justice is a point of conversation with indigenous knowledge systems that take into account ongoing histories of colonialization while simultaneously engaging a more pluralistic approach to ways of knowing that are both experiential and more “scientific.” One study of reading the encyclical in Q’eqchi’ Maya communities in the Verapaz region of Guatemala emphasizes how approaching social problems requires “calling on the collective knowledge of the *ancianos* [elders]” (Hones del Pinal 2019:299), and in an aside to her discussion of indigenous law in Latin America, Grandia even expresses a preference for “the terminology of ‘indigenous science’ over the Victorian-inflected category of ‘traditional ecological knowledge’” (2020: 108n2). So it is that one of the activists we interviewed for this essay referred



Figure 1. Maya Train Route (source: Trainspotting34, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons)

to the “clash of two logics, one Maya and one Western”; the conflict arising from this clash results in the dispossession (*despojo*) of Maya peoples from their ancestral territories when they come face-to-face even with projects that are sometimes labeled as sustainable or promoted under the banner of human rights.

Múuch’ Xíinbal

Although frameworks of democratization and citizenship themselves can be debated, the environment itself provides the point of transition to two cases of resistance and concrete action from the community base in the Maya region. The first case involves the communal assembly *Múuch’ Xíinbal* and resistance to the *Tren Maya* proposed by Mexican President Andrés Manuel Lopez Obrador in 2018 as an infrastructure project that is expected to redistribute the wealth from tourism throughout southeastern Mexico (Figure 1). The *Tren* project has come under critique from many angles, including from one academic who remarked that the development model would “try to reproduce 19 Cancúns, a predation of nature” (*Infobae* 2021). Other resistance has come from the Calakmul area, where the train will supposedly bring some 8,000 tourists a day—putting stress

on water and cultural resources surrounding the archaeological site and the surrounding biosphere reserve, according to another local activist, Ernesto Martínez Jiménez (Beatley 2020). In many ways, the train project has become emblematic of these threats.

We were introduced to the communal assembly Múuch' Xíinbal in an interview with activist Pedro Uc who described himself as person who grew up as a *campesino* and identifies as an indigenous person who speaks Maya as his *idioma maternal* (mother tongue). He reflected on his trajectory that included involvement with evangelical religion and a degree from a Presbyterian seminary in Mérida before eventually parting ways with the denomination because of its closed response to his focus on issues of culture and social justice, sentiments that were formed in part through experiences in Chiapas with Bishop Samuel Ruíz and in Central America among Maya pastors who were involved in ecumenical networks. Following another degree in education, he was a teacher for over twenty years before he was forced out after leading a student protest in demanding justice for the normal school students from Ayotzinapa who were disappeared and murdered in Iguala, Guerrero, in 2014. Pedro views language as inseparable from identity, and he is a published author who has won prizes for poetry in Yucatec Maya (the term linguists use for the language Yucatecos refer to as Maya). He also received threats for his activism in 2019.

For the purposes of this essay, Pedro's discourse when discussing the work of Múuch' Xíinbal manifests a critique of hierarchical organizational structures. The assembly was founded on 13 January 2018 to respond to some of the threats faced by local communities on the peninsula that resulted in the displacement of Maya people from the land (personal communication, 11 June 2021). The name means *caminamos juntos* ("walking together") and "the idea is that in this Assembly community decisions are cultivated, that there is a communitarian pilgrimage" (personal communication, 30 April 2021). Múuch' Xíinbal has no formal office, but it has filed seven *amparos* (requests for protection) against train construction, resulting in four cases where construction activities were suspended. The organization also has a *demanda* (demand or claim) against FONATUR, the Mexican government agency responsible for fomenting tourism throughout the nation.

Current activism extends beyond the Tren Maya to a series of what environmentalists and other activists refer to as megaprojects throughout the peninsula. In this sense the train is symbolic of other incursions into Maya communities that threaten communal territory and lifeways. To counter these developments, Pedro spoke of a series workshops they organize with youth that focus on *derechos indígena* (indigenous rights) and *formación política comunitaria de los pueblos indígenas* (community political formation for indigenous peoples). He spoke of doing this with conviction, with both *alegría y sufrimiento* ("happiness and suffering"), and continued:

"They will [likely] end up crushing us, but as they have told us (our grandparents, our parents), our learning comes from the natural world itself, from the wild animals. And none of them are conscious of their death. We have to struggle until the last moment; we're not going to make it easy for our predators. We have to struggle. [...] The people who organized themselves in this modest assembly (men, women, children), I think that we are pursuing a clear objective, the defense of our territory, not of the land but





Figure 2. Map of Aldea Pachaj with Mountain Forests (sources: © OpenStreetMap, license: <https://www.openstreetmap.org/copyright>; Guatemala map fr.svg: STyx (talk · contribs) derivative work: Rowanwindwhistler (talk) (https://commons.wikimedia.org/wiki/File:Guatemala_map_es.svg), embedded by C. M. Samson, <https://creativecommons.org/licenses/by-sa/4.0/legalcode>)

of the territory because this is where everything is: there is the air, there is the sun, there is the light, there is the darkness, there is the water, there is the rain, there are our dreams, there is our strength—and our rebellion too.”

This statement links the Maya people to their place of habitation (territory) rather than to the land as mere material substance. From the standpoint of Maya cosmivision, such habitation requires an intimate relationship with forces that are essential to being itself—air, sun, light, darkness, water. One implication is that there is a complementary or reciprocal relationship between human beings and those forces that sustain life itself. And in the Maya world, dreams are often revelatory of the destiny of individual people and of groups. Dreams empower the struggle and rebelliousness necessary for the defense of a place of habitation against megaprojects and other environment threats to Maya ways of being.

Among other environmental issues facing the indigenous communities on the peninsula is plantation monoculture dedicated to commodities like African palm, sugarcane, and soybeans, the

latter associated with land clearing by a Mennonite community that is also disrupting apiculture and local honey production. Intensive pork production facilities, largely producing for Asian markets, has impacted the quality of water sources near Maya communities. The limestone karst of the peninsula makes for a porous landscape, and these *cenotes* have served as water sources for millennia, with the result that they also maintain a sacred valence for many who continue Maya spiritual practices in the same communities. The struggle is an intense one, and an informational tri-fold brochure from Múuch' Xíinbal's website explains,

“Here in our territory we learn to speak a language, Maya, learn to be families and to be communities where we have received with respect all of those who have arrived from afar. But we don't understand why they hurt us, pursue us, defame us, imprison us, expelled us from our houses and jungles, and even killed us after we have received them with goodness and respect in order to live together with them.”

The Proyecto Chico Mendes

In the Guatemalan highlands, the Proyecto Chico Mendes was founded 23 years ago in the K'iche'-speaking highland community of Cantel (Figures 2 and 3). Matt first met the organizer, Armando López, in 2010. At the time, Armando said the goal was to “*rescatar nuestros nacimientos de agua, y generar oxígeno para todo el mundo*” (“to rescue our springs of water and to



Figure 3. Landscape of Aldea Pachaj, Guatemala, where the reforestation project, Chico Mendes, is located. Photo by Samson.

generate oxygen for the world”). He also defined himself as an ecologist, who had to produce his own plants without chemicals. His work, he said, was “against the injustices in our environment and [injustices] against indigenous peoples.” There is more to unpack in his discourse, but it is significant that over time it has become more focused on issues like mining and megaprojects, which not only are perceived as threats to local villages but are also central in the discourse of activists who insist upon a persistent connection challenging discourses of state sovereignty. For this discussion, an emphasis on working with students in reforestation activities shows how the expectation of reciprocity binds generations and reinforces the sense of community with the broader Maya cosmovision. Armando was clear about the connections in one interview conducted several years ago:

“We’ve got right[s], but we also have obligations. This is something I have always managed (*manejado*) with the 380 students at the Choquiac school where my wife works, saying to them, “We have rights, young people, to drink water, to breathe, to receive all the benefits the trees give us, but we also have obligations to reforest.” But [this is] a voluntary reforestation, a conscientious reforestation in which we believe that if we say that we have three thousand trees planted, large trees, then we have rights to fight and not see our mountains [given away?] in concessions to the mining companies.”

Such obligations and resistance to exploratory licenses and mining concessions are linked in Armando’s ecological practices to the protection of endangered plant species and relationships with forest fauna, the care for which itself is a kind of political activism. It is an activism grounded in care of the local environment which, in turn, reflects a challenge to development practices perceived as destructive to both life and lifeways in local communities. At the same time, the act of planting trees on the mountains reflects the reciprocal or mutual relationship between human beings and the forces of the natural world. Montejo discusses the way in which ancestors have been angered in another part of Guatemala because of a shift from the production of maize to coffee production, evoking Michael Taussig’s (1980) work on commodity fetishism to show how, among the Maya “the change from a traditional use-value mode of production to a capitalist, or exchange-value, system disrupts their traditional worldviews and religious practices” (2004: 232). Herein lies the complicated intersection between efforts “to revitalize traditional ways” and the forces of globalization that cannot be avoided (2004: 255). In Montejo’s telling, the abandonment of *costumbre* creates conflict between the generations with telling consequences in the present:

“The peasants who become coffee planters are angering the ancestors because the ancestors’ precious gift of corn is being relegated to a secondary position. These Jakalteq are more interested in getting rich than in the maintenance of the sacred food. Because of this rejection, the spirit of corn is abandoning Jakalteq territory.” (232)

The idea of the spirit of corn abandoning Maya territory is something we should take seriously in Mesoamerica. In our interview, Pedro noted that “to convert land into a territory, we convert it by living in this land and producing and reproducing life in all of its manifestation on this piece of

land.” The struggle against neoliberal development agendas in the Maya world portrayed in the two cases considered in this essay is a confrontation wherein the social reproduction of Maya lifeways and of life itself is threatened. In moving toward a conclusion, we highlight the linkages between development agendas and climate change in Mesoamerica with issues of environmental justice in a broad sense. These connections are rooted in the way in which anthropogenic climate will continue to serve as an impetus for thinking about environmental issues such as land and water use in the coming decades.

By some accounts, Guatemala is one of the ten most vulnerable countries to climate change (Kreft et al. 2016), while the larger Mesoamerican region has long been known for its geopolitical vulnerability and its susceptibility to natural disasters. These include earthquakes, volcanic eruptions, hurricanes, and more recently droughts along the so-called Dry Corridor (*Corridor Seco*) that extends through much of eastern Guatemala and southward into Honduras and El Salvador (FAO 2015; Ruano and Milan 2014). In terms of extreme climate events, the long list from the past 20 years should be updated by adding Hurricanes Iota and Eta, which both had major impacts throughout eastern Central America in the latter half of 2020. Taking into account the way in which local and regional cultures are impacted by climate change requires a multiscale analysis that demonstrates the impact of environmental change at the local level and “how climate change is adapted to human lives” (Rasmussen 2015:xv). In a time that has been labeled the Anthropocene (Crutzen 2006; Crate and Nutall 2016), visions of development and progress cannot be separated from issues of climate and climate justice any more than indigenous identity can be separated from the ancestors and the places where the ancestors walked. These are the territorial connections we see in Múuch’ Xíinbal’s response to a megaproject like the Maya Train and Chico Mendes’s efforts to protect communal water sources.

Conclusion

So, how does a persistent Maya identity tied to place and territory resist extractivism in the face of government and developmental agendas that activists contend are designed to foster the *despojo* of the Maya (and other indigenous peoples) from their ancestral territory? This can include the removal of the people altogether as well as threats to lifeways tied to place and custom extending at least three millennia into the past.

In emphasizing persistence, we note that we are not trying to construct an essentialist view of the Maya; the intent is to put Maya perspectives in conversation with issue of development and development agendas promoted by the state. These are particularly important concerns in a time when the solution to forced migration from Central America, often emanating from largely Maya communities in Guatemala, is tied to the failure of development models linked to what some have even referred to as failed states (The Guardian 2018). The issue is not change versus some kind of static cultural continuity; rather it has to do with the way in which local reality has engaged with and adapted to transnational and globalized forces that impinge upon the lives of Mesoamerican peoples. If these forces are tied to nation-states, they are also linked to larger social forces. What is



Figure 4. Mural “El Bosque es la herencia de los ancestros . . . cuidémoslo”. A mural that reads “The forest is the inheritance of our ancestors, let’s take care of it” on site at the Chico Mendes reforestation project. Photo by Samson.

clear is that development is also in tension with Maya worldviews tied to the reciprocity between human beings and the “other than humans” with whom they interact (de la Cadena 2015). Mario Blaser and Marisol de la Cadena (2018:4) have defined this pluriverse as a practice of “heterogeneous worldings coming together as a political ecology of practices, negotiating their difficult being together in heterogeneity,” taking their lead from the “Fourth Declaration of the Lacandon Jungle” of the Zapatistas in which they express a desire for “a world where many worlds fit” (2018:1; see also Gahman 2017). This vision of a pluriverse might be a pan-indigenous one in their telling, but it resonates with Maya concepts of reciprocity that John Early describes as covenantal in nature in the sense that “the gods will protect and sustain humans in return for humans praising and nurturing them” (2006:69). It resonates not only with the sustaining practices of reforestation but also with Pedro’s sense that learning comes even “from the wild animals.”

Evoking the Zapatistas is certainly contentious in the Mundo Maya where conflicting development agendas are prevalent—and where their agenda hasn’t gained as much traction.

Instead of revolutionary images, some will prefer a language of community-based development or even alternatives to development (Taylor 2018). Time will tell how these agendas play out in the future. But perhaps the impetus for confronting both environmental and cultural challenges resides most directly in resistance and reframing, even in a return to the teaching of the ancestors (Figure 4). Hearing a Yucatec Maya activist say that some of his activist sentiments were nurtured in an evangelical context and the belief that God is a “God of justice” might be surprising at the end of an interview centered on affirming territory as a form of resistance to the Tren Maya. Maybe as anthropologists it is easier to hear Armando’s commentary on broken connections, where he reflected on how the elders used to respond when the rain clouds appeared on the horizon, and how human beings bear some responsibility for the current situation. The elders said,

“It’s getting cloudy. Oh, yes, we have to light the candles” (or place the candles in the four cardinal directions). We have to call out, to tell the rain that it is welcome. . . So, it is a very, very difficult system now. And I also think, in the way all these changes that have occurred affect Maya cosmovision, that really we have lost our principles, and our values, and the respect toward all of these principles that our parents have left us in the past.” (Armando Lopez cited in Samson 2021:140)

In a present filled with pandemic and crisis, it is the commitment to lifeways based on the principles (and the gifts) of the ancestors that underlies a persistent Maya identity in the territory that outsiders have called the Mundo Maya. These lifeways and gifts do indeed offer the possibility of creating a world in which other worlds are fully taken into account—and definitions of progress are consistently called into question.

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Documenting the Brigades: Oral History of Local Archaeology Experts in the Puuc Region, Yucatán, México

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*Places are always in transit, in the process of becoming. People consistently create, erase, and change the meanings of their landscapes. In her now-classic 1995 book *Living with the Ancestors*, Patricia McAnany argues that ancient Maya ancestors are markers of places for both elite and non-elite populations and acted as a text-free genealogy of place. However, a long and violent colonization process effectively distanced indigenous peoples' cultural links to ancestral archaeological sites. Furthermore, McAnany warned us that only a few indigenous Americans are included in the process of archaeological research, making the practice potentially an unwelcome guise and "an instrument of domination." She proposed community engagement as a way forward out of the colonial past. Indeed, contemporary Maya populations connect with their ancestral land and rural lifeways regardless of archaeological narratives. Oral history is a method that bridges archaeological and local understandings of rural landscapes. Since 2018, faculty and students from Kenyon College have collected oral histories from local workers who engage with archaeological sites. The brigadores (i.e., brigades), constituted of indigenous farmers turned professional excavators, masons, and custodians, have interacted with Yucatan's Puuc landscape for generations, building a deep well of knowledge about the archaeoscape. In this article, I discuss the preliminary results of our project, *Voices of the Puuc Angels: Rural Life among the Archaeological Ruins of the Yucatan Peninsula*, which documents the brigadores' narratives about rural lifeways in Yucatán and their relationship to the ancestral archaeological past.*

Key Words: Oral History, Maya Archaeology, Puuc, Placemaking, Community Archaeology



Introduction

This article is about and for the men who reconstruct and care for the buildings that shape our archaeological imagination and draw experts and tourists alike to southeastern México. Here we explore how the *Brigadas de Restauración*, a group of indigenous farmers highly skilled in archaeological survey and ancient masonry restoration, engage with the archaeological landscape through their labor. By capturing local narratives among the ruins, using oral history, we shed new light on understanding the archaeological landscape of the Puuc Hills, in Yucatán, México. These narratives are different from archaeological interpretations of the landscape since abstract academic concepts, such as cultural heritage and identity, have no salient meaning for the local Puuc people. These narratives about how local laborers encounter the archaeological landscape constitute a previously unacknowledged view of local ruins. Oral history amplifies these men's voices as contributors to archaeological knowledge; moreover, making the interviews digitally available opens access to information for the community. These narratives expand our understanding of how the archaeology of a region impacts local communities and highlights their active and frequently unmentioned contribution to the archaeological imaginary.



To balance and share the authority of archaeological interpretation, Patricia McAnany (2020) proposes a shift away from a research that focuses on the final product (i.e., journal articles, conference papers, archaeological reports, etc.) to one that privileges the process of collaborative research. This shift requires the establishment of long-standing relationships with communities close to places of archaeological research. How does this look in practice? How do we, as scientists of the past, focus on the process and not on the products that our careers privilege and require? In this paper, I explore the use of oral history as a method to help bring to light the different ideas that local communities have about the archaeological landscape. Incorporating these narratives of place and the people behind them into the archaeological process is a first step to creating a more democratic discipline.

In 1995, Patricia A. McAnany published the book *Living with the ancestors: Kinship and kingship in ancient Maya society*, an obligatory text in Mesoamerican archaeology. In it, she describes her research at the site of K'axob, Belize, under the argument that mortuary rituals and dedicatory cache deposits from this small Formative-period village indicated a comprehensive understanding and incorporation of Maya cosmology before the emergence of the institution of divine kingship (McAnany 2014:160). She further theorizes that agricultural practices in Preclassic sites (circa 1000 B.C. – A.D. 300) like K'axob eventually were appropriated by Classic period (A.D. 300 – A.D. 900) Maya elites. Most importantly, she suggests that ancestors are the markers of continuity and transition from generation to generation. Their active role in the landscape establishes a sacred geography linking territorial places to ancestral time.

In the following paragraphs, I very briefly summarize the history of the rural lifeways in the Puuc region of the Yucatán Peninsula, emphasizing the historical processes that changed the ways local people interacted with their landscape. Then, I describe the history of the *Brigadas de Restauración*, discuss some of the main themes brought up in their digital narratives and share some preliminary interpretations about their stories of labor and the landscape.

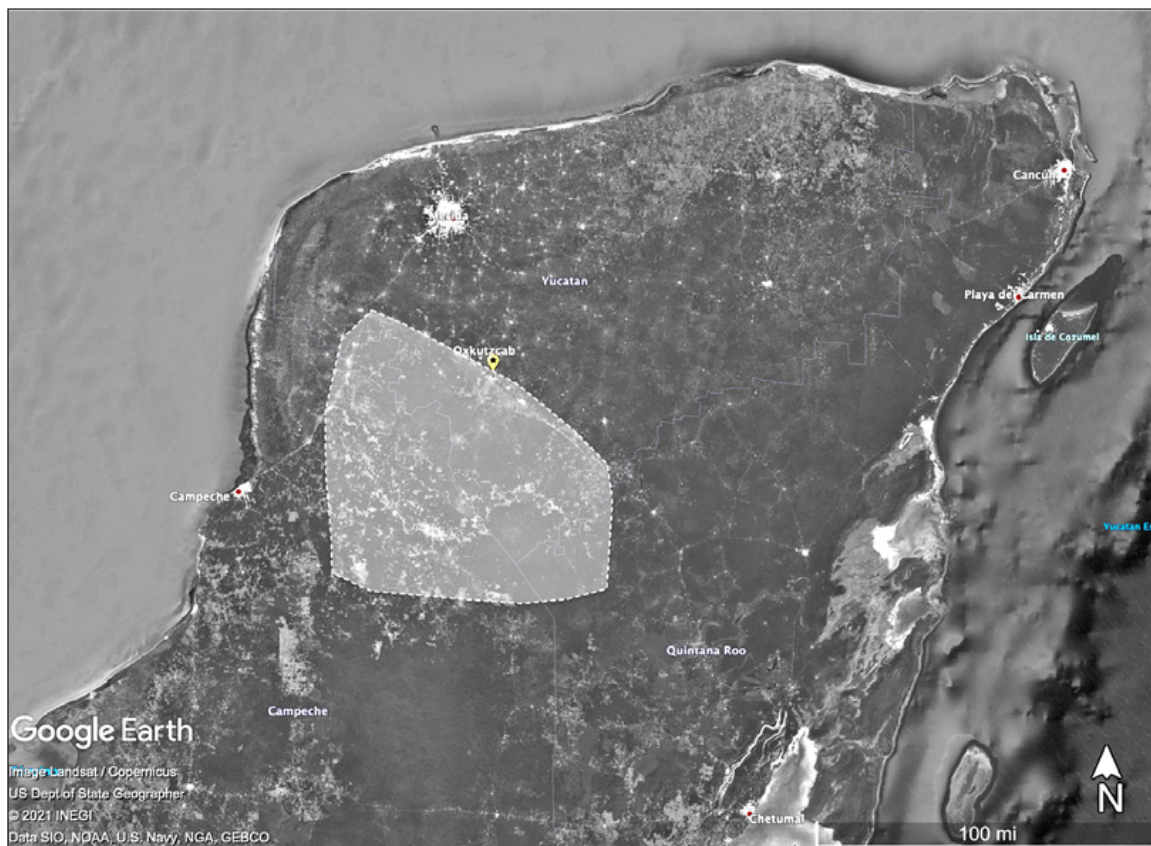


Figure 1. The Yucatán Peninsula, México. Gray area indicates the location of the Puuc region.

A Brief History of the Rural Lifeways in the Puuc Region

The Puuc zone is located in the southeast of the Yucatán Peninsula and has the densest concentration of Maya speakers in southeast México (Quintal Aviles 2005:292). Its landscape is characterized by hilly fertile land and abandoned ancient Maya masonry buildings (Figure 1). As late as the beginning of the 21st century, it was not uncommon to think that Maya Puuc communities disappeared after the Classic Period. This popular idea of a collapsed and vanished civilization heavily masks multiple processes – historical, cultural, political, economic – that shaped contemporary local communities and the rural landscape.

Current archaeological research by Ringle, Gallareta Negrón, and Bey (2020) demonstrates that throughout its pre-Hispanic occupation, the Puuc Region’s economy thrived through stone quarrying, lime production, and to a certain degree agriculture. Here populations settled around 750 B.C., with an increase in population and site density at about A.D. 600 to 950, when the area was periodically depopulated, leaving the remains of ancient settlements throughout the landscape. During the conquest period, evidence suggests that the Yucatán peninsula was politically divided between multiple chiefdoms, out of which the Tutul Xiu—who traced their royal family lineage to

the Classic Period capital Uxmal—ruled over the Puuc area. During the 18th and 19th centuries, most communities living in the region were integrated into a peonage system on henequen haciendas implemented by wealthy Yucatecans of Spanish descent. The system exploited indigenous communities for labor in the processing of henequen fiber, of which wealthy Yucatec families kept all the profits (Meyers 2012).

At the beginning of the 20th century, after the Mexican Revolution, there was an active effort by the State to consolidate its diverse and dispersed inhabitants into a singular national identity and create national citizens. Communities in the Puuc region were “liberated” from the hacienda peonage system by General Salvador Alvarado. Maya communities left the haciendas, were given lands to farm by the government, and changed their status from peons to Mestizos (Quintal Aviles 2005:326). By 1930, the increase of state-sponsored *Campesino* education promoted Spanish as the official national language, resulting in a decrease of Maya speakers and the adoption of prominently western values. In 1939 Mexican archaeology was institutionalized by the founding of the Instituto Nacional de Arqueología e Historia (INAH), which helped create a traditional sense of Mexican national identity by emphasizing an official national narrative, the exploration and restoration of ancient archaeological sites and its regulation of local and foreign investigations. These processes demarcated the break in continuity between local communities and their deep past, creating: (1) the “ancient Maya” – i.e., mysterious constructors of ancient temples considered the cultural patrimony of the world, and who have since disappeared from the region, and (2) Mestizos, the local rural dwellers without a past (Quintal Aviles 2005:306). In the latter part of the 20th century through the present, globalization, rapid urbanization and the disconnection between local communities and their prehistoric past are a strong factor in the devaluation of the rural lifestyle, causing younger segments of the population to migrate to larger urban centers in Mexico and the US.

Hence, from the ancient Maya stone buildings located in the Puuc landscape stem two different interpretations of the past: one that is top-down at the state’s service, and another developed by local people engaging with the landscape in their daily lives. These narratives, of course, are permeable – they interact, challenge, and reinforce each other (Jones and Russell 2012:271-72). Using oral history we can explore, record, and incorporate personal experiences of how local people engage with their landscape, ideas which are frequently subsumed or marginalized by grand, nation-building narratives.

Collecting Oral Histories

The previously summarized historical processes and power dynamics left much material evidence associated with the past throughout the landscape, from large masonry buildings to small ceramic sherds. Our project explores three questions: (1) How do local communities create meaningful narratives about this complex landscape? (2) How does it affect their perception of the rural environment (following Connerton, 2012; Stanton and Magnoni, 2002)? And how are landscapes socially constructed through identity, memory, and individual experience (following Van Dyke and Alcock 2003; Yoffee 2007)?



Figure 2. The two original members of the Brigada Volante. Photos by Mauricio Marat (left) and the author.

In 2018, the author and colleague Sam Pack, funded by the Ohio Five Digital Scholarship Initiative, designed a project to explore contemporary ideas about local indigenous identity, cultural heritage, and its connection with a past that has been aggressively shaped by multiple layers of history, colonialism, and nation-building. Our approach was digital storytelling, an emergent new form of digital narrative in which an individual relays their own history, which is then presented and archived in a digital format. I choose to use oral history as our main method due to its ability to show how people experience their past and landscape from an individual perspective. Our focus was to transform the anthropologist's traditional relationship as an expert into a collaborative endeavor focused on local community narratives about how contemporary Maya people view and engage with ancestral material heritage in rural areas. Moreover, our project aimed to document the different ideas local people have about rural lifeways in Yucatán and their relationship to the archaeological past through digital storytelling.

The video interviews were then transcribed in Spanish, translated to English and uploaded to Digital Kenyon, a digital repository for scholarship conducted by Kenyon College faculty, students, and staff. We currently have 20 interviews corresponding to six groups of local experts: academics,



Figure 3. Three of the original members of the Brigada de Restauración. Photos by the author.

La Brigada Volante, *La Brigada de Restauración*, site custodians, excavators, and artisans. All interviews can be found here: <https://digital.kenyon.edu/puucangels/>. In this article, I focus on interviews with members of the two brigades.

Rural Life Among Archaeological Ruins in the Yucatán Peninsula

In 1981, as part of an effort to protect Puuc archaeological sites from looting and natural deterioration, Norberto Gonzales Crespo (INAH) created the project *Brigadas de Restauración de las Zonas Arqueológicas de Yucatán*. The project brought together and formalized two groups of local Oxcutzcab agriculturalists who, since the 1960s, have recorded, protected, and consolidated the ancient structures located in rural landscapes. The first brigade, called *Brigada Volante*, consisted of two individuals, Mario Magaña and Pedro Gongora; both men have recorded Puuc sites and monitor their conservation for close to 50 years (Figure 2). The second, called *Brigada de Restauración* consists of a group of Oxcutzcab masons-turned-restoration experts who have

reconstructed virtually every site available to the public in the Yucatán, as well as those in other states of southeast México (Figure 3).

Narratives from The Brigada Motorizada: Pedro Gongora

Don Pedro Góngora was born in Oxcutzcab, Yucatán in 1947. His maternal grandfather was born and raised in Hacienda Tabí, working long hours, with little pay and confined to the hacienda as a *peón*, which Don Pedro refers to as slavery. After Salvador Alvaro liberated local communities from the hacienda system, his family eventually settled in Oxcutzcab, where they owned a small *ranchito* and a *milpa*. Don Pedro mentions that his parents had no connection with the ancient buildings, nor knew to whom they belonged. Even though he was raised in the Puuc region, his first interaction with ancient archaeological sites was when he was hired by the *Secretaria de Recursos Hidraulicos* to survey the landscape at the age of 26. A large number of mounds and standing masonry architecture piqued his interest in these ancient buildings and their presence on the rural landscape.



Figure 4. Don Pedro patrolling in his motorcycle at Oxcutzcab, Yucatán. Photo by the author.

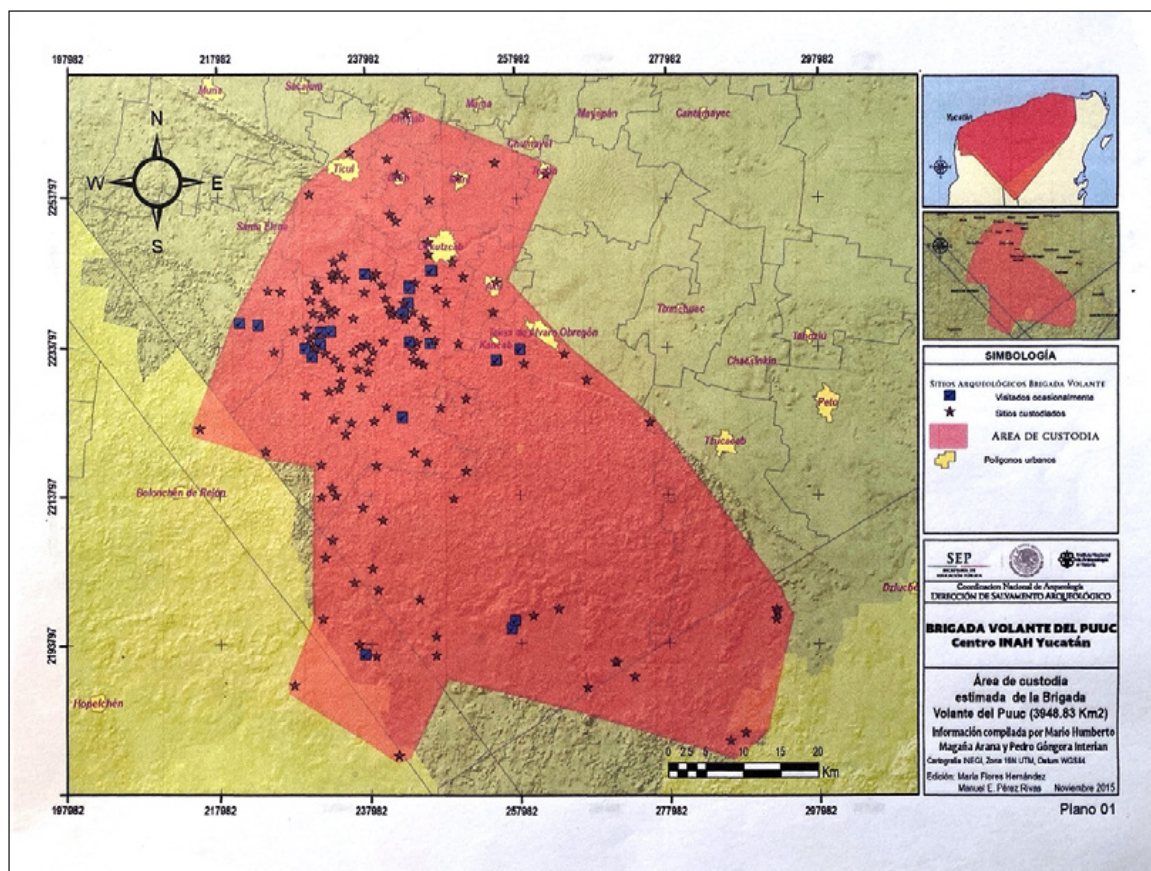


Figure 5. Approximate patrolled area of the Brigada Volante. Map by María Flores Hernández and Mario E. Pérez Rivas.

Mario Magaña, an INAH custodian from Oxcutzcab and Pedro’s brother-in-law, suggested that Pedro work with him and apply his surveying skills as a custodian of ancient Maya sites. From the start Don Pedro showed passion for his job, as he mentions that, even when the institute did not require it, he worked beyond his regular eight-hour day and travelled long distances by horse, bicycle, or on foot. Both he and Mario relied on a series of informal road networks, or *brechas*, and the hospitality of local agriculturalists that gave them a roof to sleep under when night fell and they were unable to get home. After being hired by INAH, and with the help of Don Mario, Don Pedro learned and incorporated archaeological technical vocabulary to refer to ancient sites and their features. In 1973 both Pedro and Mario were hired as custodians of small peripheral sites in all of the Puuc region and in 1981, Mario and Pedro’s custodial work was formalized when they acquired Yamaha motorcycles and created the *Brigada Volante* (Figure 4). The two men patrolled an area of 3,948 km² on their motorcycles, acquiring the nickname “Puuc Angeles” by local archaeologists (Figure 5).

From interviews and talks with Don Pedro, it is clear that even though he was born and raised

in the Puuc region, he did not feel any cultural connection to the archaeological landscape. This complete disconnection can be traced back to the beginning of the 20th century, when his ancestors were still living as *peons* in Hacienda Tabí. This view changed when he began to work as a surveyor and later as a custodian and part of the *Brigada Volante*. When asked if his parents knew of and told him about archaeological ruins, Don Pedro said:

“No. I learned it from my own, because I was orphaned by my father at 6 years, he was a peasant, just as my grandparents had no idea what the ruins were, but I knew from the moment I started in this, to distinguish buildings and vestiges... Well for me it was not difficult because I already had a notion of what archaeological remains are and I learned to distinguish between what are foundations and the masonry buildings. It was not difficult for me to adapt because I already liked it and I still do.”
(Digital Kenyon 2018a)

Maya language played a critical factor for the Puuc Angels to contact populations located in remote places where roads were not available until recently. Moreover, Pedro’s excellent memory, which can remember precise details from individual sites, is a testimony of his deep expertise in the landscape and its history. For example, the phallus that is now located at the entrance to the



Figure 6. Don Pedro and Kenyon staff at Cooperativa, Yucatán. Photo by the author.

Loltún cave, he comments, was initially found at the site of Cooperativa and then moved to this more touristy location (Digital Kenyon 2018a). The use of the local Maya language, an excellent memory, and the detailed knowledge of the landscape give Don Pedro and Don Mario a unique and unreplaceable perspective of ancient Puuc sites.

Some other themes from his stories included the reconstruction of a recent past landscape that no longer exists, in which communities from the south of Yucatán were isolated from the state and its influence. In an excerpt from one of the stories Don Pedro told me about getting lost in the jungle he describes:

“I was so excited that day that I did not realize that a storm was coming, and it was too late for me to go back. I had no lamp, I had nothing, I was not prepared for it. At night I left the site. I went through a trial, I knew. I got to where there was a milpa, and there was a lady cutting grass, and I asked her if there was a trail that goes by Tabí and she told me ‘the truth is no, I only have companions that go in search of water by the well, and they go in that direction; but I do not know.’ ‘Well, it’s okay,’ I said goodbye and followed a narrow trail. At first, it was okay because it’s a high jungle so I could see (the path), but suddenly I got where the bush was short, and the



Figure 7. Restoration Brigade restoring Kiuić's central Temple-Pyramid. Photo by the author.

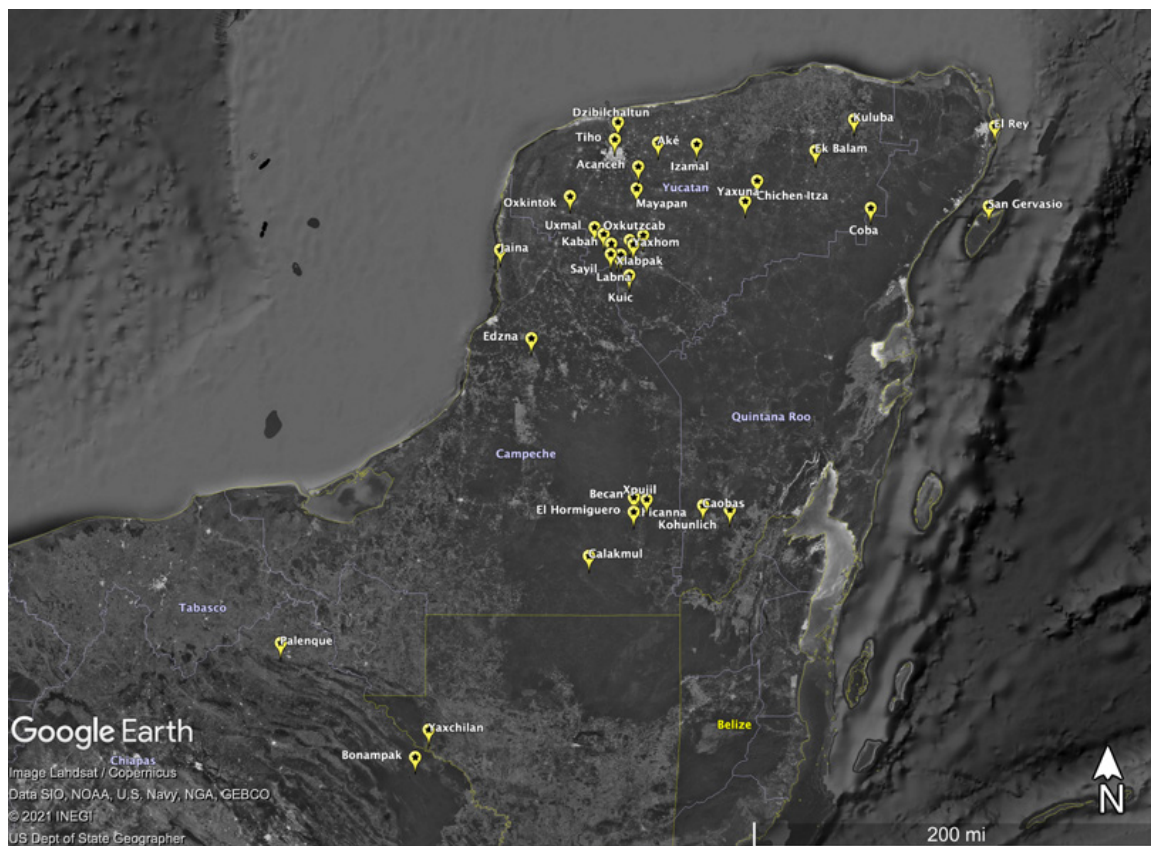


Figure 8. Some of the sites restored by the Brigada de Restauración.

trail got lost. And then, it started to rain, I took out my raincoat and I sat on some stones, the rain started, the thunderbolts. ‘What am I going to do now? I do not know where I am anymore.’ Suddenly it was dark, I remembered that I had a compass in my bag and when the lightning flashed, I was able to see the direction. I thought if I go to the south, over there, I must find the way back, but how do I do it if I can’t see, it’s very dark. I made the decision to go in the dark and I was able to make it out on the road. But it looked like I had fought with a jaguar, I was full of thorns. The good thing is that I did not get bitten by a snake or something, but when I left the road, I was disoriented because I did not know whether to go to the right or to the left.”
 (Digital Kenyon 2018a)

This excerpt, includes ideas about the use of ancient roads or trails, landmarks, knowledge about the jungle landscape, his technical knowledge, and the perils of his work. The knowledge accumulated through decades of viewing and reviewing archaeological sites molds the particular lens by which Don Pedro views the Puuc’s landscape (Figure 6). It is this personal and continual interaction with the land that give it meaning to people.

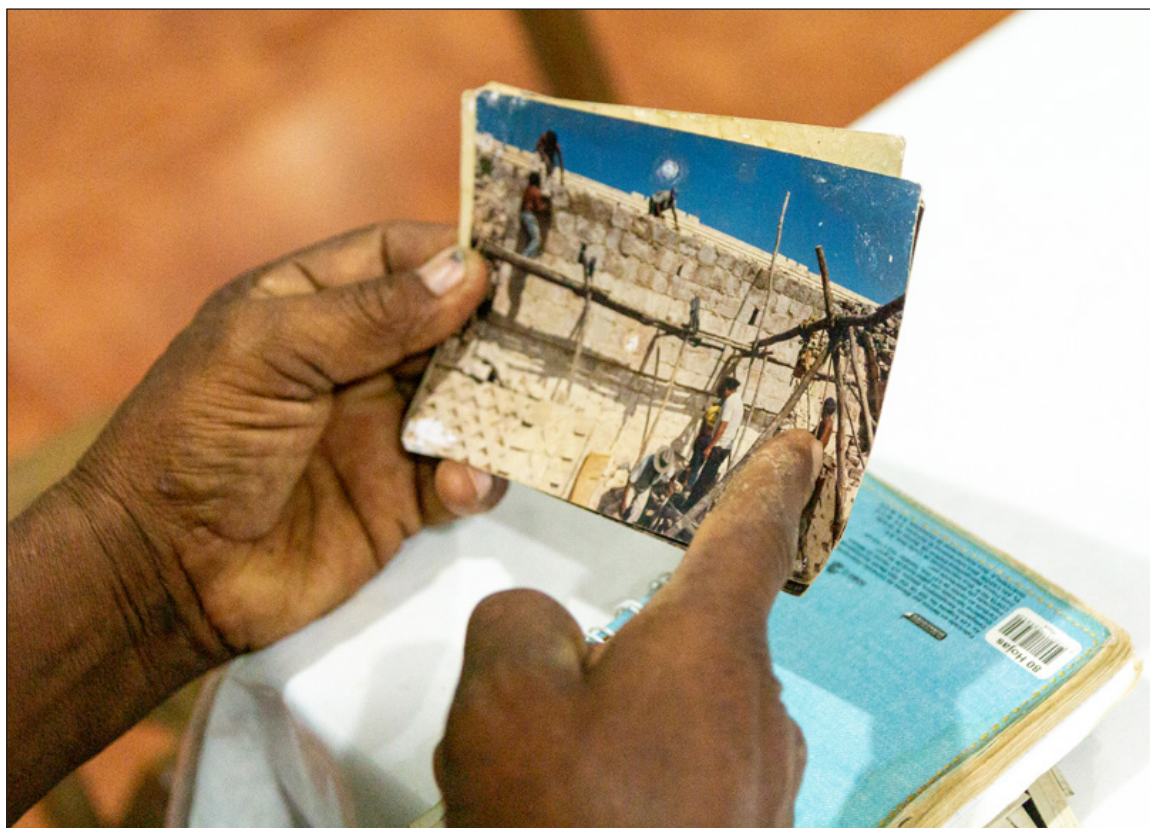


Figure 9. Santos Cruz recalling the restoration of a Palace Structure in Kabah, Yucatán. Photo by the author.

Narratives from La Brigada de Restauración: Santos Cruz Sierra, Willbert Castillo Cantú, Samuel Antonio Perez Chi

Anthropologist Medina Un (2018) remarks on the rich history and complexity of the specialized restoration labor of the Oxcutzcab masons since their first training by INAH archaeologists and restoration experts at the site of Chichén Itza in the 1960s. Santos Cruz Sierra and Wilbert (Will) are two of the most prominent masons who have worked restoring archaeological sites in multiple Mexican states for over 45 years. Each archaeological project has one *Cabo* – the main mason who oversees the completion of all restoration at a particular archaeological site (Figure 7). In this article, I will be focusing on Santos and Wilbert’s interviews.

Don Santos Cruz, born in Oxcutzcab, Yucatán, was invited in 1972 by Aurelio Monroy and Angel Novelo, both *Cabos*, to work in Yaxchilán to consolidate and raise the site’s stelae. Two other masons, Don Will and Samuel Antonio Perez Chí, were also among those hired. The journey included a flight on a small propeller plane – “*como los chicleros*” (i.e., like the gum collectors) – and a boat ride across the Usumacinta River. The season lasted six months. Samuel was just 12 years old, and

before that trip he had no knowledge about archaeological sites or the ancient Maya. These masons have worked or been in charge of the restoration of Maya sites that shape the archaeological imagination which has drawn a global audience to southeastern Mexico. In Yucatán, some of these sites include Chichén Itza, Uxmal, Ek Balam, Oxkintok, Labna, Yaxuna´, Kabah, Sayil, Xlapak, Acanceh, Dzibichaltún, Aké, Culuba, Mayapán, Xkitché´, and Multunchic. Beyond Yucatán, other such sites include Edzna´, Jaina, Xpujil, Becan, El Hormiguero, Cakalmul, and Chicana (Campeche); El Rey, Coba´, Kohunlich, Caobas, and Cozumel (Quintana Roo); and Palenque, Bonampak, and Yaxchilán (Chiapas) (Figure 8). Santos, for example, was the *Cabo* at Labna when the restoration of the arch and *sacbé* took place (now considered architectural icons of Maya archaeology); copious technical notes and photograph files that he personally took during the restoration process, most of which are not public, are still in his possession (Figure 9).

During his interview, Santos talked about his technical knowledge in Maya architecture, including architectural terms, measurements, and the difference between modern and ancient masonry. “*Es un rompecabezas debajo del escombros*” (i.e., it’s a jigsaw puzzle underneath the rubbish) Samuel said in an interview. Santos thinks that local people are disconnected from the past because they tell him that the current ruins were “*inventadas*” (i.e., made up) by the archaeologists. This idea must be particularly offensive for Santos, who has reconstructed countless ancient buildings with his own hands following the architectural patterns seen in the rubble. Both Santos and Will express pride in their work, technical expertise, and the ability to keep everybody safe during their tenures.

Santos also knows first-hand the dangers of his profession. Santos narrates an incident at Kabah in 1993 in which the carelessness of another *Cabo* caused an accident that took the life of one of his peers and original member of the *Brigadas de Restauración*, Don Juan Dzib. Don Will says:

“We keep everybody safe, that’s our job. We check the scaffolds and see that no one gets hurt. [...] that’s why I tell you that there are moments where we are doing well but we must take care of ourselves. Like when the pit was made there (at the site of Kiuc). We already were 8 meters deep like that, the guys who were down there. I told people to not leave stones, do not leave this, do not leave anything, because a stone at 8 meters hurts when it falls. And if it falls it’s on your head. That’s why we ordered helmets then, to protect ourselves. It was a blessing that nothing happened.” (Digital Kenyon 2018b).

Final Comments

In the past decades, there has been a shift in the power relations between archaeologists and their publics, particularly among indigenous peoples in settler nations (Jones and Russell 2012:273). Interviews with groups of workers that labor closely with archaeologists revealed a different narrative that people create about the ancient past. Narratives from these brigadores are molded by worldview, or in this case profession, from each group, and to a degree by each

individual. Archaeology creates a nexus in which material culture is interpreted and infused with different meanings.

It is premature to pinpoint any specific views the Brigadas have about archaeology. For the brigadas, archaeology is a source of perennial work, pride, and community building (including archaeologists). Their personal histories express a strong sense of passion for their labor, fondness for individual archaeologists they respect, and deep history of unique experiences rooted in the archaeological landscape. The brigada's history of community and knowledge building is not explored the same way that individual histories of archaeologists and sites are. It is the impression



of the author that interviewees were “caught off guard” when asked about their views on archaeology, perhaps because it’s a question that is very infrequently asked to them. The brigades live in the present and look towards the future, not the past; abstract academic concepts, such as cultural heritage, are not common in their talks about the ruins. Instead, they are proud of their specialized work, which can be seen in virtually all major archaeological structures in the Puuc region and is the reason they will restore buildings there for the foreseeable future.

Preliminary results of our project show some interesting implications for future oral history studies in the region. Narratives recovered from local archaeology experts are not static in time; that is, they are diachronic and dynamic. Don Pedro Gongora talks of a long-term process of transformation of the landscape and a lapsed way of life, in which people were transitioning from a post-Colonial hacienda system to the current rural, agricultural landscape. In Santos’s narrative, we hear the importance of a constructed kinship and the use of technical and Maya language applied through the practice of masonry, with his cohort of *compañeros*, which can be traced back about 40 years and has restored some of the most notorious archaeological landmarks in México.

Both narratives implicitly refer to the creation of a community of practice by restoring and preserving ancient Maya buildings; they depict the long trajectory, expertise, and importance that their jobs have in their personal lives. There is a reconnection with ancient Maya sites through labor. Most of those interviewed did not have a connection with the sites until they worked on archaeological projects. While this may seem obvious, they are individuals that have been around the sites all their life but have never considered these as part of their direct heritage. For example, Don Pedro, who grew up in the Puuc, did not pay serious attention to the sites until he started to work as a surveyor at the *Secretaria de Recursos Hidraulicos*.

Don Pedro and Don Will express concerns regarding the legacy of their work, a topic that was exacerbated with the passing of Don Mario Magaña in 2017. Don Pedro mentions that:

“Unfortunately for me the brigade no longer has a future. Once I die everything will be over. That’s my point of view. I’m seeing it right now. I’m not sure what’s going to happen, I see it difficult, I see it very difficult. Now most young people, for example, the least time they work and how much more they can be paid without working the better. That is the mentality of young people and that is disappointing. That is why

I feel bad when I say it, but I am seeing that reality. But what can we do? We cannot change his mentality. He does not work five minutes more than the hour, but to the contrary he works less.” (Digital Kenyon 2018a)

On the other hand, Don Santos’s son, Will, became an archaeologist:

“I feel very proud. Because I remember very well at that time my son did not reach the age that he was allowed to work, but because he liked it, good he should work. He told me if there was a chance that he will come to work. But his mother said, “look for a soft chamba [work], well not very soft.” (Digital Kenyon 2018b)

These labor narratives are different from our interpretations of the archaeological landscape since abstract academic concepts, such as cultural heritage and identity, have no salient meaning for local Puuc people. They are about how local laborers encounter the archaeological landscape and constitute a previously unacknowledged view of local archaeological ruins. Oral history amplifies these people’s voices as contributors to archaeological knowledge; moreover, making the interviews digitally available opens possibilities for information to make it back to the community. These narratives expand our understanding of how the archaeology of a region impacts local communities and highlights their active and frequently unmentioned contribution to the archaeological imaginary.

Acknowledgments

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The ‘Month Signs’ in Diego de Landa’s *Relación de las cosas de Yucatán*

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The Maya hieroglyphs written on the pages of the manuscript titled Relación de las cosas de Yucatán are the latest known examples of Maya writing. Written in the second half of the 16th century, they illustrate both the continuity of a literary tradition by then almost two millennia old, as well as strikingly innovative conventions reflecting an underlying local language (Yukatekan) distinct from the Ch’olan language of the script’s early developers. The manuscript, ascribed to Diego de Landa, has been a source of numerous (mis)interpretations following its recovery in the 19th century. As a testimony to the collision of cultures and a stockpile of misunderstandings, the Maya ‘alphabet’ found on folio 45r has been labeled everything from a Spanish fabrication to a ‘Rosetta Stone’. Similarly, the often-unique spellings of the Maya month names on folios 34r-43v have occasionally led to raised eyebrows. But it now seems increasingly clear that, while the manuscript’s month spellings do diverge considerably from the traditional Ch’olan spellings of the southern Maya lowlands, they in fact seem to constitute a bridge between the original orthography of these months and their Colonial Yukatekan glosses. Specifically, it would seem that an unknown northern scribe appended phonetic signs indicating the local pronunciation of many of the more divergent names. In this article, we re-examine the ‘month signs’ of the manuscript based on recent developments in Maya decipherment and on new photographs of the original manuscript in the Real Academia de la Historia, Madrid.

Keywords: decipherment, epigraphy, diglossia, Relación, Landa



Discovered by Brasseur de Bourbourg in 1863, and published the following year in a partial French translation, there is arguably no manuscript more central to Maya studies than the *Relación de las cosas de Yucatán* (Brasseur de Bourbourg 1864; Landa 1566; Tozzer 1941). And yet, despite its importance and lengthy publication history, George Stuart (1988) points out that it has frequently been published with entirely inadequate illustrations. Because of this, it can come as a surprise to many Mayanists to learn that the manuscript contains no less than 497 hieroglyphic signs (Zender 2017:9). While most of these are single signs representing the 20 day names, at least 27 represent other logograms (forming parts of the month names) and some 65 are syllabograms. Of the latter, there are 40 graphemically distinct syllabograms representing 35 phonetically distinct syllables. Out of the 90 known syllabic values represented in Maya writing through its history, the *Relación's* 35 syllabograms comprise 39% of all known syllabic values. (Alternatively, given 21 consonant and 5 vowel phonemes in the Colonial Yucatec language, there should be 105 possible CV syllables, of which the manuscript provides 33%). The majority of



the manuscript's syllabic signs appear on folio 45r, including the famous 'abecedary', while the rest appear on folios 34r–43v, the 'calendar section'.

The manuscript's day names are relatively uniform: their outlines were drawn with a compass and internal details provided by hand. Although paleographically significant, these signs do not offer nearly as much epigraphic, linguistic, and cultural information as the month signs and the abecedary. Consequently, we focus on the month signs here and, for reasons of space, leave the abecedary for another study (Zender and Kettunen i.p.).

The manuscript's day names are relatively uniform: their outlines were drawn with a compass and internal details provided by hand. Although paleographically significant, these signs do not offer nearly as much epigraphic, linguistic, and cultural information as the month signs and the abecedary. Consequently, we focus on the month signs here and, for reasons of space, leave the abecedary for another study (Zender and Kettunen i.p.).

The Month Signs


This study builds on Kettunen's (2020) transillumination photographic study of the *Relación* manuscript to highlight hitherto unnoticed or poorly published details of its month names (Figure 1), and to suggest resolutions for several long-vexing mysteries therein. It also develops a recent argument made by Zender (2017:9-10) that close study of the often-unique month names of the *Relación* manuscript have not only been instrumental to past decipherments, but would also repay ongoing investigation. The manuscript includes all 18 Maya months (i.e., the twenty-day periods long termed 'months' in Maya studies), excepting only the 5-day Uayeb period. Of these, at least fifteen include syllabograms. The month signs are presented in Table 1 indicating: (1) the folio where the signs appear; (2) close-up photographs of the glyphs and associated Roman glosses; (3) transliteration of the glyphs; (4) gloss in the Latin alphabet; (5) the month name in Yucatec (including a modernized orthography, where known), and; (6) the month name (and its spelling variations) in Classic Mayan. We discuss each of the months in some detail below, drawing out the significant elements summarized in Table 1.

Pop

This month is written **po-po** [K'AN]JAL-wa on folio 39r, representing both the Yucatecan and Ch'olan names *Póop* and *K'anjalaw* ~ *K'anjalaab*, respectively. This diglossia has long been noted (e.g., Closs 1987:8-9; Fox and Justeson 1984:40; Lounsbury 1973:99-101) and is also present in the

39

días / meses



El primero dia de Popp que es el primero mes de los Yndios es en año nuevo, y entre ellos fiesta muy celebrada porque es general y de todos, y assi todo el pueblo junto hazian fiesta a todos los idolos, para celebrarla con mas solemnidad renouan la este dia todas las cosas de su seruicio como platos, vasos, vauquillos, serillas, y la ropa vieja, y las mantillas en que cobian los idolos, embuelcos. Vacian sus casas, y las vasca

Pop y estos peltrechos viejos esbana lo fuera del pueblo al munda dar, y nadie ama q lo viese menester tocara a ello. Para esta fiesta comiençan ayunar y abstenerse de las mugeres los ss. y sacerdote, y la gente principal, y los que mas queiran por su deuocion, el tiempo antes que les parecia, ca algunos le comiençan tres meses antes, otros dos, otros como les parecia y ninguno menos de xiiii dias, y estos xiiii dias añadian a la abstiniencia de la muger no comer en los mangares sal ni de su pi mienta que era tenido por grane penitencia entre ellos en este tiempo elegian los oficiales cbaes para ayudar al sacerdote, y el aparejaua muchas pelotillas de su encenso fresco en unas tablillas que para ello tenian los sacerdotes para q los abstinetes y ayunantes quemass en a los idolos. Los que estos ayunos comiençan no los ostan quebrantar porq ozeia les vendrian algun mal














c	8		
d	9		
e	10		
f	11		
g	12		
h	13	Kan	
i	14	Cbicba	
j	15	Cimi	
k	16	Manik	
l	17	Lamat	
m	18	Mukuc	
n	19	uc	
o	20	C'uen	
p	21	Uc	
q	22	Ben	
r	23	Ix	
s	24	Men	
t	25	Cib	

Figure 1. Folio 39r of the *Relación de las cosas de Yucatán* (Manuscript B-68, 9-27-2, 5153, Real Academia de la Historia, Madrid). Transillumination photograph by Harri Kettunen.


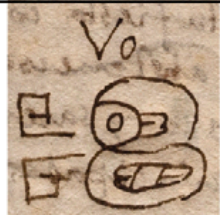







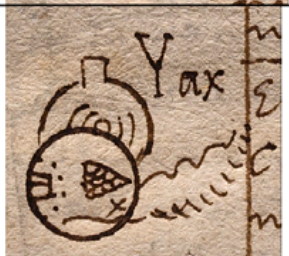
Folio:	Sign:	Transliteration:	Gloss:	Yucatec:	Classic Mayan:
39r		po-po [K'AN]JAL-wa	<Pop>	<Pop> <i>Póop</i>	<i>K'anjalaw ~</i> <i>K'anjalaab</i> [K'AN]JAL-wa [K'AN]JAL-wa- bu [K'AN]JAL-bu
39v		wo IHK'-AT	<Vo>	<Uo> <Wo>	<i>Ihk' At</i> IHK'-AT IHK'-AT-ta IHK'[AT]-ta wo-hi
40r		?-CHAK-AT	<Zip>	<Zip> <i>Sip</i>	<i>Chak At</i> CHAK-AT CHAK-AT-ta
40v		SOTZ'	<Tzoz>	<Zotz> <i>Sòotz'</i>	<i>Suutz'</i> SUUTZ'
41r		se-wa	<Tzec>	<Tzec> <Sek>	<i>Kaseew</i> ka-se-wa ka[se]-wa ka-se se-ka-wa (Dresden)

Table 1, Parts 1 and 2. The 'month signs' of the *Relación* (Manuscript B-68, 9-27-2, 5153, Real Academia de la Historia, Madrid): Pop – Yax. Photographs by Harri Kettunen.

42r		TZ'IK?-ni	<Xul>	<Xul> <i>Xul?</i>	<i>Tz'ikin</i> TZ'IK?-ni TZ'IK?-ki-ni tz'i-ki-ni (Chunchimay)
42v		YAX-K'IN-ni	<Yaxkin>	<Yaxkin> <i>Ya('a)k'iin</i>	<i>Yaxk'in</i> YAX-K'IN-ni YAX-K'IN
43r		mo[lo]	<Mol>	<Mol> <Mol> (perhaps <i>Mool</i>)	<i>Mol ~ Moolool ~ Moloow</i> mo[lo] mo[lo]-la mo[lo]-wa
43v		i-ki-SIJOOM-ma	<chen>	<Chen> <i>Ch'e'en</i>	<i>Ihk' Sijoom</i> IHK'-SIJOOM-ma IHK'-SIJOOM [IHK']SIJOOM-ma
34r		YAX-SIJOOM?-ni	<Yax>	<Yax> <i>Ya?ax</i>	<i>Yax Sijoom</i> YAX-SIJOOM-ma ya-YAX-SIJOOM-ma (CHN T4L, L1) YAX-SIJOOM









34v		SAK-ka? SIJOOM?	<Zac>	<Zac> <i>Sak</i>	<i>Sak Sijoom</i> SAK-SIJOOM- ma SAK-ka- SIJOOM (NTN dr 82) SAK-SIJOOM SAK-si- SIJOOM (TAM HS 2) SAK-SIJOM-mo (IXK St 5)
35r		CHAK- SIJOOM?-ni	<Ceh>	<Ceh> <i>Kéeh</i>	<i>Chak Sijoom</i> CHAK- SIJOOM-ma CHAK- SIJOOM
35v		ma-MAHK	<Mac>	<Mac> <i>Máak</i>	<i>Mahk</i> ma-ka ma-MAHK ma-MAHK-ka
36r		K'IN-ni?- [K'AN]UUN-wa	<Kankin>	<Kankin> <i>K'ank'iin</i>	<i>Uniw</i> UUN-wa UUN-wi UUN-ni-wa UUN

Table 1, Parts 3 and 4. The 'month signs' of the *Relación* (Manuscript B-68, 9-27-2, 5153, Real Academia de la Historia, Madrid): Zac – Cumhu. Photographs by Harri Kettunen.

36v		MUWAAN(-ni?)	<Muan>	<Muan> <Muwan>	<i>Muwaan</i> MUWAAN MUWAAN-ni MUWAN-na mu-wa-ni (QRG and Dresden 46c)
37r		pa-?-PAAX	<Pax>	<Pax> <i>Pàax</i>	<i>Paax ~ Paxiil</i> PAAX? [PAAX]xi-la (pa)PAX-xa (Dresden) pa-xa (NTN)
37v		k'a-ba-[K'AN]a-wa	<Kaiab>	<Kayab> <K'ayab>	<i>K'anasiy</i> [K'AN]a-si-ya [K'AN]a-si [K'AN]a-wa (Dresden)
38r		ku-k'u/K'UH-BIX-OHL	<Cumhu>	<Cumku> <i>Kumk'u</i>	<i>Hul Ohl ~ Bix Ohl</i> HUL-OHL-la HUL-OHL BIX-OHL-la BIX-OHL

months *Uo*, *Zip?*, *Kankin*, *Kayab*, and *Cumku* in the Landa manuscript. The word *pohp* is a well-known term for ‘mat’ in Mayan languages, with various cultural connotations, including ‘authority’. Yucatec *póop* (Bricker et al. 1998:220) and Proto-Ch’olan **pohp* (Kaufman and Norman 1984: 129) are just two forms that attest to an original infix *h* in Proto-Mayan **pohp* (Kaufman 2003: 967). The term *K’anjalaw* ~ *K’anjalab* for the month name in Classic Mayan is more challenging. While *k’an* ‘yellow, pale’ and *jal-* ‘to weave’ are both well attested, the varying suffixes, although likely regional (see Lacadena and Wichmann 2002:311), remain of unclear significance, although the *-Vw* variant potentially has cognates in three other month names: *Kaseew* (Zec), *Moloow* (Mol), and *Uniiw* (Kankin).

Uo

As first recognized by David Stuart (1987b), this month is written **wo IHK’-AT?** on folio 39v, with the first sign signaling the Yukatekan name (glossed <Vo> in the *Relación*, <Uo> elsewhere), and the following elements providing Classic Mayan **IHK’-AT** (the final element must be either a compressed **AT** [T552] or a **ta** syllabogram [see Beliaev 2013]).

The meaning of either <Uo> or *Ihk’ At* is not clear. Regarding the former, Thompson (1950: 108) notes that:

“Uo is the Yucatecan name for a variety of small frogs which are almost black in color but with a yellow line down the spine. They are usually found in the ground [...] According to Maya legend they are the musicians of the Chacs, the rain gods, probably because the croaking of frogs announces rain. Nevertheless, I do not believe that the name of this month can have any connection with these small frogs [...]”

Potential Yukatekan sources for the sequence /wo/ include frog, dragon fruit, writing, letter, and the sound of running liquids. The colonial Motul dictionary (Ciudad Real 1577) includes all of the following:

- <Uo: pitahayas, y la mata que las lleva.> “dragon fruits, and the plant that carries them” (Ciudad Real 1577, I: 451r)
- <Uo: unas ranas de mucho unto y manteca. buenas de comer: dan gritos muy triftes.> “[Types of] frogs with a lot of grease and fat. Good to eat. Their cry sounds very sad.” (Ciudad Real 1577, I: 451r)
- <Uooh: caracter o letra.> “character or letter” (Ciudad Real 1577, I: 451r)

Additionally, Pérez (1877: 381, 382) includes:

- <uo> (wo?) “un animal pequeño á manera de rana, y de un canto mas alto y monótono que el de esta. Críase bajo las piedras en los lugares húmedos. | Rana, pitahaya (la mata). | Segundo mes del año indio; comenzaba 5 de Agosto.” (“A small animal like a frog, and with a higher and more monotonous song than this. Breeds under stones in damp places. Frog, dragon fruit (the plant). Second month of the Indian year; it started on August 5th.”)
- <uoh> (*woh*) “el murmullo del agua; el ruido que hace al caer. [...]” (“The murmur of the water; the noise it makes when it falls.”)
- <uooh> (*wooh*) “bullir los insectos. | Ruido de cualquier líquido al caer o derramarse y tambien se aplica al [ruido] de los granos. | Letra. | Escribir.” (“Rustling of insects. Sound of any liquid falling or spilling; also applies to the [sound] of grains. Letter. To write.”)

An important late ninth century context for *Wo(ʼ)* appears at Chichen Itza (Figure 2) where the following date is written not less than five times in the Monjas Lintels:

8-‘Manik’ u **K’IN-ni tu 5-10-na IHK’-[AT]ta wo-i**
waxak ‘Manik’ uk’in tuho’lajun ihk’at wo’i(ʼ)
 “The day 8 Deer, on the 15th of Ihk’ At, which is *Wo(ʼ)*”
 (5th Feb, AD 880)

Zender (2017, 2021) has noted that these texts include precisely the same diglossic relationship between Yukatekan and Ch’olan month names which continues into the late-16th century *Relación*. Thus, minimally, northern and southern names for this month have been distinct for at least eight centuries.

This might help to explain the otherwise unique **wo-hi** spelling on a Late Classic codex-style vase (Figure 3:M4), first noted by Simon Martin (1997:854; 2017). Although this might seem to provide some evidence for a Yukatekan affiliation, other spellings on the same vase—such as [K’AN] **JAL-bu** (at B1, I4b, and L1b), **UUN-wa** (at G2b), and **ka-se-wa** (at I5b)—reflect a Ch’olan or even Western Ch’olan affiliation (Lacadena and Wichmann 2002). In light of this, it may simply be the case that *Wooh* was an alternative, northern designation for the month; one that we identify as ‘Yukatekan’ merely because it survived to be recorded in Colonial Yucatec sources.

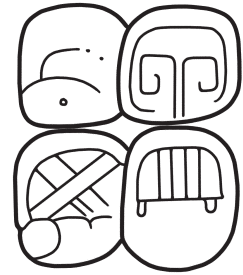


Figure 2. Late 9th century bilingual spelling of *Ihk’ At / Wo(ʼ)*. Monjas Lintel 4 (underside): A4, Chichen Itza. Redrawn by Harri Kettunen after a drawing by Ian Graham.

Zip

The next month appears on folio 40r as (?-)**CHAK-AT**, where the element prefixed to the left of **CHAK** is unclear. It might have been another phonetic complement or parallel spelling providing the Yukatekan month name; alternatively, it may merely have been an unrelated marking made by the 16th century copyist.

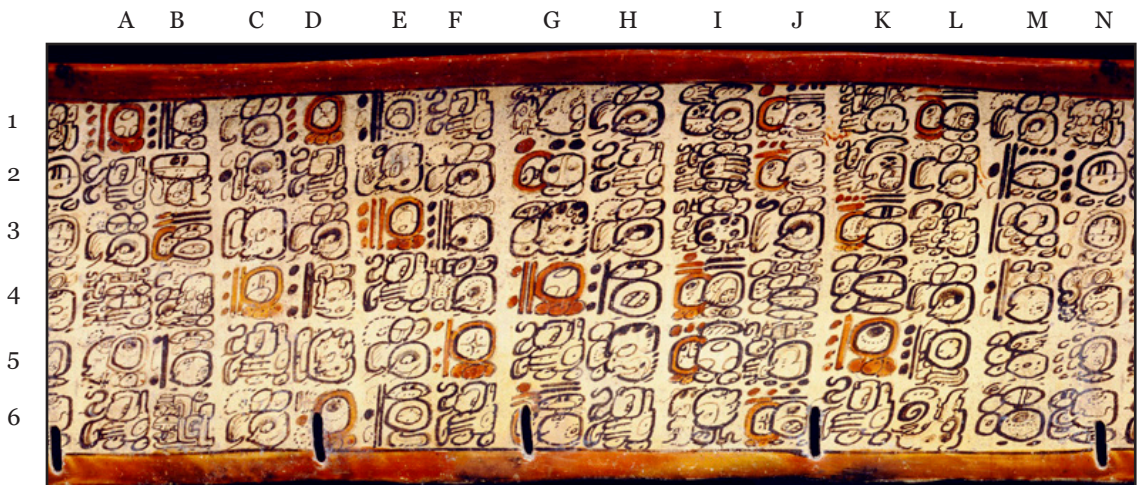


Figure 3. Late Classic codex-style vase (K6751). Rollout photograph by Justin Kerr.

The Ch'olan name *Chak At* 'Red At' follows the pattern of the previous month (i.e., *Ihk' At* 'Black At'). The meaning of the substantive, *At*, remains unclear. However, worth mentioning is that there is a dance at Yaxchilan (Lintels 6 and 43) where *chak at* appears to refer to an object held by the king (Alexandre Tokovinine, pers. comm. 2021). This pattern of 'color' months is also present in the month names Chen, Yax, Zac, and Ceh discussed below. The Yucatekan name *Zip*, however, has evident associations with hunting (Edmonson 1986:32, 34; 1988: 248; Tozzer 1941:155, Note 781). Landa (1666:Folio 41r) notes that during the month of *Zip*, hunters carried out rituals to the gods of the hunt:

<El dia ^ de a delante se juntavan los caçadores en una casa de uno de ellos, y llevando consigo sus mugeres como los demas venian los sacerdotes y echav̄ el demonio como solian. Echado ponian en medio el adereço para el sacrificio, de encienso, y fuego nuevo, y el betún azul. Y con su devocion invocavan los caçadores a los dioses de la caça: Acanum Zuhuyzipi tabai, y otros y repartian les el encienso, el qual echavan en el brasero, y entanto que ardia sacava cada uno flecha, y una calabera de venado, las quales los chaces untavan con el betun azul, y untadas vailavan con ellas en las manos unos [...] >

“The next day the hunters gathered in one of their houses bringing with them their wives like the others, the priests came and cast out the demons like they used to. This done, they put in the middle the adornments for the sacrifice of incense, the new fire, and blue pigment. The hunters with their devotion invoked the gods of the hunt, *Acanum*, *Zuhuyzipitabai*, and others, and they distributed the incense, which they each threw into the brazier. While it burned, each one took out an arrow and a deer skull, which the *Chacs* smeared with the blue pigment. Anointed, they danced with them in their hands [...] (Transliteration and translation by Harri Kettunen and John Chuchiak, 2021).

In addition to the hunt deity cited by Landa, Redfield and Villa (1962:117-118) note the belief that “deer are guarded by certain supernatural beings called *zip* ... [who] look like deer, having their bodies, their horns and their hoofs; only they are small, about the size of a dog”. Although of uncertain etymology, one of us has noted the likely derivation of Yucatec *sip* from Proto-Mayan **xib* ‘male; stag’ with some irregular phonetic and semantic influence from Proto-Mayan **siip* ‘tick’ (Zender 2016; see also Looper 2019:211, Note 6). It seems likely, in any case, that the Yucatec name of this month ultimately derives from its association with the hunt.

Zodz

As usual, the next month (folio 40v) is written with a logogram representing a bat's head. Glossed <Tzoz> in the manuscript, this apparently cues Yucatec *sòotz'* 'bat,' contrasting with Ch'olan *suutz'*. The gloss is unique and peculiar, being written <Tzoz> rather than the expected <Zotz> ~ <Zodz>. This might perhaps be explained by damage, the folio around the sign showing clear signs of repair (see Kettunen 2020:68, Figure 7 for a transillumination image of the damaged section of the folio).



Figure 4. Variant spellings of the month Zec in the Dresden Codex: (a) 7-**se-ka-wa**, Dresden 62; (b) 19-**se-ka**, Dresden 46; (c) **CHUM-se-ka**, Dresden 50; (d) 15-**se-ka**, Dresden 50. Photographs courtesy of Sächsische Landesbibliothek, Staats- und Universitätsbibliothek, Dresden, digital.slub-dresden.de.

Zec

The next month is written **se-wa** and glossed <Tzec> (folio 41r). The traditional Ch’olan name of the month is *Kaseew*, usually written **ka-se-wa**. The more common Colonial Yucatec name <Zec> suggests a reason for the omission of **ka** here, since the glyph would then have the benefit of beginning with the same sound as the local name. This might also explain the spellings **se-ka-wa** (Figure 4a) and (more commonly) **se-ka** (Figure 4b–d) in the Dresden Codex, which also reflect some reorganization evidently prioritizing the Yukatekan pronunciation. Unfortunately, neither *sek* nor *kaseew* are presently explicable. That said, *Kaseew* evidently refers to a type of a palm tree in the Poqomchi’ calendar (Termer 1930: 395), and it’s also possible that the final -VVw of *Kaseew* has some connection with a similar suffix in the months *K’anjalaw* (Pop), *Moloow* (Mol), and *Uniiw* (Kankin).

Xul

This month is written with the T758v mammalian head **TZ’IK?** and a **ni** syllabogram (folio 42r). On the Chunchimay 2 capstone (Figure 5), we have a clear phonetic spelling of this month name as **tz’i-ki-ni**, and this is further supported by Yaxchilan Altar 1 (L4), where the T758v animal head takes the complements **-ki-ni**. *Tz’ikin* is a widespread term for ‘bird’, but the motivation for the mammal head logogram, as first noted by Lamb (2002:17-18), may relate to the pre-Ch’ol root **tz’ik* ‘animal’ proposed by Attinasi (1973:349). In the Q’eqchi’ calendar, the month name is *Chichin* (Thompson 1932: 449-450) and in Poqomchi’ *Tzikin-kij* (Termer 1930: 394-395).



Figure 5. Detail of Chunchimay 2 capstone, Campeche, showing the Calendar Round 9-**KAB-ba tu 9-tz’i-ki-ni**, *bolon kab tu bolon tz’ikin*, “9 Caban on the 9th of Xul” (after Benavides and Novelo 2009:230, Figure 4). Drawing by Marc Zender.

Yaxkin

Written **YAX-K'IN-ni** (folio 42v), this spelling adequately reflects both Yukatekan and Ch'olan. The first element derives from Proto-Mayan **ra'x* 'green-blue; unripe, raw; new, first' (Kaufman 2003:225-228; 2017:89), and the second from Proto-Mayan **q'iiŋ* 'sun; day, time; festival' (Kaufman 2003: 461-463; 2017: 96). Thompson (1950: 110) offers no less than four translations for the name of the month: “new sun,” “green sun,” “first sun,” and “dry season,” while Tozzer (1941: 159, footnote 818) has “new sun,” “new day,” and “first day.” Ultimately, an original seasonal association seems likely, albeit probably altered by the drift of the seasons against this calendar over time (see also Lamb 2002, 2017).

Mol

Most Classic texts spell this month **mo[lo]**, just as we see on folio 43r, though a few settings include the additional suffixes -VVl, -VVm, or -VVw (Lamb 2002:18). Landa (folios 42v-43r) notes that during the month of *Yaxkin*, preparations were made for festivities held in *Mol*, providing a good clue to the meaning of the month name:

<En este mes de Yaxkin se comencavan a aparejar como solian para una fiesta q̄ hazia general en Mol en el dia q̄ señalava el sacerdote, a todos Los dioses. llamavanla Olob-Zab· Kamyax. Lo q̄ despues juntos en el templo, y hechas las cerimonias y saumerios que en las passadas hazian precendian era untar con el betun azul que hazian todos los instrumentos de todos los oficios desde el sacerdote hasta los husos de la mugeres y los postes de sus casas. Para esta fiesta juntavan todos los niños y niñas del pueblo, y en lugar de enbadurnamientos, y cerimonias les davan en las conjunturas de las manos por la parte de fuera cada nueve golpezillos, y las niñas se las dava una viejas vestida de un habito de plumas que las traia alli y por esto la llamavan IxmOL que quiere dezir la allegadera [...] >

“In this month of *Yaxkin*, they began to prepare, as was their custom, for a festival that was usually held in *Mol*, on the day that the priest indicated, to all the gods. They called it *Olob-Zab Kamyax*. After getting together in the temple, and after the ceremonies and burning of incense, which they had done in the past [ceremonies], their intention was to anoint with blue pigment, which they had made, all the instruments of all the trades from the priest to the spindles of the women and the posts of their houses. For this festival, they gathered all the boys and girls of the town, and instead of smearing and ceremonies, they knocked them on the joints of the back of their hands nine times; and to the girls, these were given by an old woman dressed in a costume of feathers, who brought them there, and that is why they called her *IxmOL*, which means the gatherer [...]”

The term *mol*- ‘gather’ can be traced all the way back to Proto-Mayan **mol*- ‘to gather, pick up, stash’ (Kaufman 2003:170-171; see also Proto-Ch'olan **mol*- ‘to gather into a pile’ [Kaufman

and Norman 1984:126] and Ch’olti’ <molo> ‘congregar / congregate, bring together’ [Moran 1695:97]). Further, given the Ch’ol term *mol* ‘*tornamil(pa)*, i.e., the winter maize crop’ (Aulie and Aulie 2009:59), an original harvest season association seems likely.

Chen

This is the first in the series of four so-called ‘color months’, written **i-ki-T528-ma** on folio 37v. The traditional Ch’olan name was **IHK’-SIJOOM(-ma)**, *Ihk’ Sijoom*, ‘Black *Sijoom*’. A **SIJOOM** reading for the polyvalent T528 was first proposed by David Stuart in the early 1980s (see Fox and Justeson 1984:52, Note 30), and although there are no complete phonetic substitutions in the context of a month name, the sign frequently takes **-ma** and (at least once) **-mo**, and Christian Prager (2014) has noted an initial **si-** phonetic complement on Tamarindito HS 2. Additionally, although no proof of the reading of T528, the nominal sequence **si-[jo]mo** attested on K6395 at least indicates that *sijom* was an extant Late Classic lexical item (quite likely part of a theophoric name involving rain deities, as noticed by Yuriy Polyukhovych and Alexandre Tokovinine [pers. comm. 2021]). In light of these patterns, we may be considerably encouraged by La Farge’s (1947:168) observation, referencing work by Antonio Juarez, that the Q’anjobal calendar includes the month names <Khek Sihom>, <Yax Sihom>, <Sah Sihom>, and <Khak Sihom>.

One potentially relevant term, referring to *Sapindus saponaria* (English soapberry, Spanish *jaboncillo*), is widely attested in relevant languages, including: Ch’olti’ <zionte> (Moran 1695:116, 131); Ch’ol *sijonte*’ (Aulie and Aulie 2009:213); Chuj *sijum te*’ ‘*Sapindus saponaria*’ (Hopkins 2012:293); Lacandon *sijoom* ‘soaproot’ (Hofling 2014:309); and Mopan *sijom* ‘wild soap tree’ (Hofling 2011:385). Mopan also has (*aj*)*säk sijom* ‘amole blanco’ and (*aj*)*chäk sijom* ‘amole rojo’ (Hofling 2011:508) pointing towards a possible vestige of the Classic Mayan names of these months. Probably more relevant, however, is the Ch’ol term *sijom* ‘*tornamil(pa)*, i.e., the winter maize crop’ (Aulie and Aulie 1978:105), a synonym of *mol* (i.e., of the previous month), considerably reinforcing an original harvest association for *Mol* and the following four ‘color months’, a 100-day period closely approximating a typical ‘season’, as first noted by Fox and Justeson (1984:52, Note 30; see also Lamb 2002, 2017).

The *Relación* spelling is particularly interesting for its rendering of Ch’olan *ihk*’ ‘black’ as **i-ki**, with an unglottalized *k*. The Yucatec cognate is of course *éek*’, and it may be that the Yucatec speaker/scribe did not understand the first syllable as meaning ‘black’. This might also explain



Figure 6. Variant spellings of the month Chen in the Dresden Codex, pp.47 and 48. Drawings by Harri Kettunen.

why he did not employ the logogram for the color, as he did in each of the following three months. An important clue to the puzzle comes from the Dresden Codex, where all of the Chen months are written with infixed **IHK** ‘black’ (Figure 6; cf. Figure 3:F3), while the rest of the ‘color months’ are written with prefixes. The conventional conflation may have facilitated future scribal confusion. However, worth noticing is that in Ch’orti’ black has an unglottalized *k*. Consequently, as Alexandre Tokovinine points out (pers. comm. 2021), this **i-ki** spelling may in fact reflect a vernacular pronunciation of the term for ‘black’ in some Ch’olan languages or dialects during the Post-Classic. Furthermore, another point of departure is the phonetic complementation of T528 with a **ma** syllabogram; although this mirrors its Classic Mayan form, the following three months all complement T528 with **ni** or not at all.

The Yucatecan name of this month, *Chen*, has no apparent connection to its Ch’olan counterpart. In Yucatec, *ch’e’en* means ‘well’ (Bricker et al. 1998:82). The latter also has a wider semantic range in other Mayan languages, including caves and any cavernous formations in the landscape. The rationale of this name is, however, far from being transparent.

Yax

As noted above, this month is written **YAX-T528-ni** on folio 34r, with a **YAX** prefix meaning ‘green-blue; unripe, raw; new, first’. The complementation with **-ni** almost suggests that T528 **SIJOOM** here behaves like its own homograph, **TUUN** ‘stone’. It is tempting to suggest a local unfamiliarity with Ch’olan *sijoom*, but if so the aforementioned **i-ki-SIJOOM?-ma** lacks a good explanation. Nonetheless, the fact that T528 in both *Yax* and *Ceh* is complemented with **-ni** signals some departure from the traditional spelling practices of the south. Perhaps the frequent use of **-ni** on T528 **TUUN** was so habituating that its presence was compelled here, as a kind of ‘fossilized’ spelling.

Zac

In keeping with the other color months, Zac is written as **SAK-SIJOOM?** or ‘White Sijoom?’ on folio 34v (cf. Ch’ol *säk* ‘white’, Ch’orti’ *saksak* ‘white,’ etc., from Proto-Mayan **saq* [Kaufman 2017:89] for the meaning of the prefix). Intriguingly, the final sign receives no complement here, leaving it open to question whether the **SIJOOM?** was truly intended to have that value, particularly given its variable complementation in **-ma** and **-ni** noted above. Worth noticing in this connection is the spelling of the month as **SAK-T528-ka** at Naj Tunich (Drawing 82), potentially indicating that at least one eighth-century scribe pronounced the month name as *Sak* instead of *Sak Sijoom* (Alexandre Tokovinine, pers. comm. 2021).

Ceh

The month *Ceh* is written as **CHAK-SIJOOM?-ni** or ‘Red Sijoom?’ on folio 35r (cf. Ch’ol *chäk* ‘red’, Ch’orti’ *chakchak* ‘red’, etc., from pM **kaq* [Kaufman 2017:89]). The Yucatec name does not

mean ‘red’ but rather ‘deer’ (i.e., Yucatec *kéeh*), and the connection remains as difficult to explain as the substitution of earlier *Ihk’ Sijoom* for *Ch’e’en* ‘cave’, discussed above.

In summary, the four ‘color months’—*Chen*, *Yax*, *Zac*, and *Ceh*—have undergone considerable changes since their Classic Ch’olan origins as *Ihk’ Sijoom*, *Yax Sijoom*, *Sak Sijoom*, and *Chak Sijoom*, inclusive of the loss of a chromatic significance for two of the periods, and of the unifying *sijoom* ending (at least in pronunciation). Visually speaking, however, the retention of the stony **SIJOOM** sign in all four cases speaks to the weight of ancient tradition.

Mac

Written **ma-MAHK** on folio 35v, this is one of the most stable month names across both the languages and the calendrical traditions (Thompson 1950:106, 113). The term has the general meaning of ‘covering’ or ‘enclosure’ in several Mayan languages (Zender 2006). Thompson (1950:113) has suggested that it “may refer the fact that with the end of Mac 260 days of the year have been counted, and that ... [it] was regarded as a sort of compartment within the year.” However, other possibilities for the origin of this month name ought to be considered.

Kankin

The spelling of this month on folio 36r is graphemically the most complex of all the month signs in the manuscript. The compound on the lower right seems to correspond to the traditional Ch’olan name, *Uniiw*, composed of a logogram **UUN** with the suffix **wa**. However, the right half of **UUN** is uniquely infixed with **K’AN**, which apparently collaborates with the overlarge **K’IN** sign to the right, perhaps with a hint of a **ni** phonetic complement to lower left. Consequently, we appear to have both Yucatekan *K’ank’in* and Ch’olan *Uniiw*. The former is composed of terms for ‘yellow, ripe’ and ‘sun, day’, suggesting a related meaning to the previously-discussed *Yaxk’in*. *Uniiw*, on the other hand, seems to incorporate Ch’olan *uun* ‘avocado’—ultimately from pM *ooŋ (Kaufman 2003:1110-1111)—followed by a -VVw suffix of uncertain meaning, but perhaps shared with *K’anjalaw* (Pop), *Kaseew* (Zec), and *Moloow* (Mol). Given the agricultural and seasonal terms discussed above, it seems at least plausible that ‘ripe time’ and ‘avocado’ might have some bearing on the original meaning of this month. As first recognized by Lacadena and Wichmann (2002:383; see also Zender 2021), a late 8th century spelling of Yucatekan *K’ank’in* appears on Xcalumkin Panel 2 (Figure 7), indicating once again that the forms seen in the *Relación* have a lengthy history.

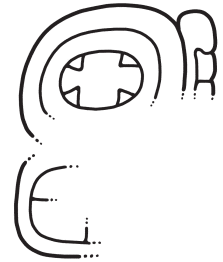


Figure 7. Late 8th century Yucatekan spelling of *K’ank’in*. Xcalumkin Panel 2: A14b. Redrawn by Harri Kettunen after a drawing by Eric von Euw.

Muan

The profile head of a bird of prey suffices to indicate the next month on folio 36v, though it is possible that the original manuscript had a clearer **-ni**, here only suggestively present at lower

right. During the Classic Period, the name of the month was written in a very similar manner, occasionally taking (-**wa**)-**ni** or, later, -**na**. In the Dresden Codex (page 46c) the name is fully written as **mu-wa-ni**, *muwaan*, ‘hawk,’ as first identified by Yuriy Knorozov (1952:115).

Pax



Figure 8. The month position 18 Pax, Dresden 47. Photograph courtesy of SLUB, Dresden.

On folio 37r we find the ‘drum’ logogram **PAAX** preceded by a phonetic complement **pa**. Underneath the **pa** sign is a curvilinear element that may reflect yet another sign in the original manuscript. As first established by David Stuart (1987a:28-33), a fully phonetic **pa-xa** spelling at Naj Tunich and a -**xa** complement on Dresden 61c provide the later synharmonic spellings of this month name, while earlier spellings typically involve a final **xi** syllable (e.g., [**PAAX**]**xi-la** on Ixtutz Stela 4:B1, cf. Zender 2002). Particularly noteworthy is an example of full phonetic complementation in a [**pa**]**PAX-xa** spelling from the Dresden Codex (Figure 8). It is very likely that this month name relates to Yucatec *pàax* ‘music, celebration’ (Bricker et al. 1998:209).

Kayab

Glossed <Kaiab> on folio 37v, and written as **k’a-ba-[K’AN]a-wa**, the Classic Mayan name for this month was *K’anasiy*, invariably written as [**K’AN**]**a-si(-ya)**. In the Dresden Codex, however, the name of the month is typically written [**K’AN**]**a-wa** (e.g., Dresden 47 and 50), closely reflecting the spelling in the *Relación*. Attached to the upper left corner of this compound, we have **k’a-ba**, presumably targeting the attested Yucatekan name <Kayab> (/K’ayab/). As David Stuart notes (pers. comm. 2015), *asiy* might conceivably be related to Q’eqchi’ *asij* ‘cicada’ (Haeserijn 1979:42; Sedat 1955:16), and *K’anasiy* perhaps glossed as ‘Mature Cicada’. If so, then an original seasonal implication of late spring or early summer is indicated. Further, given the characteristic ‘song’ of the cicada, the Yucatec name *Kayab* might well relate to *k’àay* ‘song’ (Bricker et al. 1998:149).

Cumku

The final month is glossed <Cumhu> on folio 38r, and written **ku-k’u/K’UH-T155-OHL**. As first recognized by Ringle (1988), the first two signs pair polyvalent T528 (**ku**, but also **CHAHUK** and **TUUN**) with T1016 **K’UH** (or perhaps **k’u**) ‘god’. Together, these would approximate the Yucatekan name. Following this is the traditional Ch’olan name, here written with T155 **BIX?** (Bíró et al. 2014) and T506 **OHL/WAAJ/K’AN(AN)?**, though equally frequent in Classic inscriptions is one of a series of **HUL** allographs (David Stuart, pers. comm., 1999). Given this variation, the Ch’olan name is difficult to parse with certainty, but Yucatec *kuum* is a well-known term for ‘jar, pot’ (Bricker et al. 1998:137), suggesting a potential connection between the month name *Kuumk’uh* and Lacandon ‘god pots’.

Conclusions

As we have noted, published editions of the *Relación* have often been incomplete with respect to both the text and the illustrations. George Stuart (1988:27) has observed that “[v]irtually all the editions ... have, to varying extents, re-arranged the textual material or the sequence of the calendrical glyphs, often adding ‘chapter’ headings; always using second-generation renderings of most of the glyphs; and, more often than not, editing the number of drawings”. For these reasons, we have focused first and foremost on the recent high-resolution transillumination photographs of the original manuscript housed at the Real Academia de la Historia, Madrid (see Kettunen 2020). This has allowed us to recognize several instances where errors and subsequent corrections stand between us and the original scribe(s), as well as additional instances where the copy that has come down to us surely misrepresents some elements of its source(s). A proper understanding of the manuscript’s history and lost original(s) is thus a prerequisite for any understanding of the intentional deviations from other hieroglyphic spellings of the month names of the ancient calendar.

With specific reference to the 18 glyphic compounds recording the month names on folios 34r-43v, we have stressed that what makes these compounds particularly important is that, while they are foundationally written in the same manner as month glyphs found hundreds of years earlier on monuments from across the Maya lowlands, they also deviate in patterned ways from our expectations. Colonial Yucatec month names were sometimes similar to those of the Classic Ch’olan people, but at least a dozen of these names diverge considerably from the earlier models. It would seem that, in order to provide a bridge between the original orthography of these months and their Colonial Yucatec glosses, an unknown northern scribe has appended phonetic signs indicating the Yukatekan pronunciation of at least seven and perhaps as many as eleven of the more divergent



names. As discussed above, several of these deviations began to be noted in the 1970s, such as the spelling of <Pop> discussed by Lounsbury (1973:99-101), while others were not explained until the 1980s (e.g., Closs 1987; Fox and Justeseon 1984; Ringle 1988; Stuart 1987a, 1987b). In all cases, an explanation of bilingualism and/or diglossia seems probable. Importantly, however, we have also been able to show that some of the most divergent spellings in the manuscript—i.e., those involving the months Uo and K’ank’in—can in fact be traced to late 8th and early 9th century spellings on monuments from the northern Maya lowlands, with still others attested in the 13th century Dresden Codex. Taken together, these document an impressive nine centuries of bilingualism and/or diglossia in the region.

Finally, the internal consistency of this remarkable biscript, its coherence with monumental and codical representations of the same months, and our considerable success in motivating its departures from earlier convention go a considerable way towards assuaging any lingering doubts as to the accuracy of these hieroglyphs in light of the *Relación*’s admittedly uncertain provenance and copying history.

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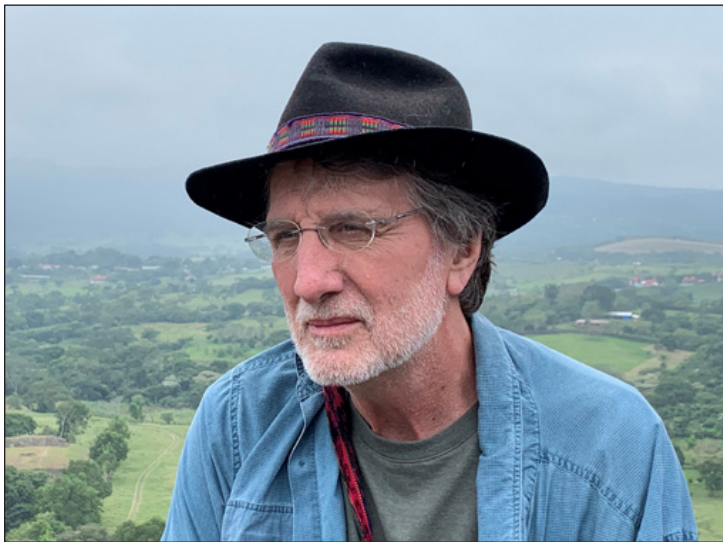
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