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Food Technology, Preference, and the Creation and Maintenance of Identity in the Tequila Valleys

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Archaeology

by

Kellie Peterson Roddy

2025

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2025

ABSTRACT OF THE DISSERTATION

Food Technology, Preference, and the Creation and Maintenance of Identity in the Tequila Valleys

by

Kellie Roddy

Doctor of Philosophy in Archaeology

University of California, Los Angeles, 2025

Professor Richard Lesure, Chair

This dissertation investigates how food technologies and culinary practices shaped identity in the Tequila Valleys of West Mexico between 200 and 1200 CE. Drawing on interdisciplinary methods—including ceramic and groundstone analysis, microbotanical residue identification, and the archaeology of gender—the dissertation explores how daily meals and elite feasts reflected shifting political, social, and cultural landscapes. Particular attention is given to key transitional moments around 500, 900, and 1200 CE, during which new cooking technologies, vessel forms, and food preparation practices emerged. By applying a chaîne opératoire approach, this research reconstructs the material sequences of food production, preparation, and consumption, providing a detailed view of both continuity and change in culinary lifeways.

The study demonstrates that food was a central medium for expressing and negotiating identity. Ceramic evidence reveals that elite dining practices transformed more rapidly than quotidian ones, indicating the performative role of cuisine in enacting social stratification. Women's roles in food production—highlighted through analysis of shaft tomb sculptures and changing ceramic forms like grater bowls and comales—are positioned as key drivers of both tradition and innovation. Culinary choices are shown to reflect not only subsistence needs but also cosmopolitan aspirations and responses to long-distance exchange, migration, and sociopolitical restructuring. In this way, cuisine served as a dynamic arena where gendered labor, ethnic affiliations, and hierarchical power were materially expressed and culturally reinforced.

Ultimately, this research contributes to broader debates in archaeology by demonstrating how food practices shape and reflect identity over time. The resilience of core ingredients like maize and beans across centuries underscores a tension between innovation and tradition, while the sensory and social elaboration of elite cuisine reveals evolving expressions of status and belonging. By situating the Tequila Valleys within wider Mesoamerican networks, the dissertation highlights the region's active participation in processes of cultural negotiation and exchange. The dissertation also underscores the relevance of archaeological food studies to contemporary conversations about sustainability, cultural heritage, and the social significance of cuisine.

The dissertation of Kellie Peterson Roddy is approved.

Gregson Schachner

Christopher Beekman

Verenice Heredia

David Schneller

Richard Lesure, Committee Chair

University of California, Los Angeles

2025

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ACKNOWLEDGEMENTS

This project began in the middle of the COVID-19 pandemic, a time when travel was suspended, fieldwork was uncertain, and even basic access to museum collections was unavailable. I had no idea how I would carry out an archaeological project in Mexico under such conditions. My early proposals were vague out of necessity—boiling down to little more than "I will do something, somehow." Grant writing was no easier. How could I propose a work plan or budget when access, timelines, and institutional policies changed week by week? One grant reviewer rightly noted that my proposal lacked clarity. At the time, I was frustrated—how could I be clear, when no one, including the museums, knew what would be possible?

Years earlier, I had committed to studying ancient West Mexico—a region I had not yet visited, but which I first encountered in an undergraduate thesis thanks to the thoughtful guidance of Dr. Robert Preucel at Brown University. "West Mexico," I soon learned, is a constructed category encompassing a range of diverse cultural traditions across what are now the states of Jalisco, Nayarit, Colima, and beyond. That ambiguity turned out to be a fitting introduction to the challenges and opportunities of the field.

In fact, much of the most iconic material from the region—especially the Late Formative shaft tomb sculptures—is now held not in Mexico but in U.S. museums. I chose UCLA in part because of this. The Los Angeles County Museum of Art holds one of the most extensive collections of shaft tomb sculptures in the country, while the Fowler Museum at UCLA provided something even more essential: scientifically excavated archaeological collections. Thanks to the lucky foresight of applying to UCLA, I was able to begin this research even amid a global shutdown.

I am especially grateful to Dr. Christopher Beekman, whose generosity with data and mentorship during my Master's work provided both inspiration and material from the site of Los Guachimontones. I first participated in fieldwork there in 2018, and my continued collaboration with Dr. Beekman and Dr. Verenice Heredia shaped many of the questions I pursued in this dissertation. It was that initial focus—and their encouragement—that helped me begin.

This is all to say that this dissertation was written in sometimes challenging circumstances, and without the help of many, I could never have started, much less completed, this project. I can never hope to adequately thank all the people who have helped me along the way, but I will do my best to acknowledge them here.

First, I am grateful to the institutions that provided funding and support throughout this project: the Cotsen Institute of Archaeology at UCLA, Dumbarton Oaks, the Latin American Institute at UCLA, and the UCLA Graduate Division. I am thankful to the Colegio de Michoacán and the Centro Interpretativo de Los Guachimontones for generously granting me access to laboratory space.

The Proyecto Arqueológico Teuchitlán (PAT) and its associated graduate students, Leonardo Valdez, Sarah Loomis, Gabriela García Ayala, and Cristian Ramirez have helped me significantly along the way. To my good friend Tony DeLuca—thank you for tolerating my cranky mornings and hour-long phone calls.

I am thankful to my committee—Gregson Schachner, Verenice Heredia, Christopher Beekman, Richard Lesure, and David Schneller. I am deeply grateful for the guidance, patience, and support of my dissertation chair Richard Lesure whose mentorship has been invaluable throughout this process. Greg has been a steadfast and consistent mentor. Verenice and Chris have humored me through more than a few silly questions and offered valuable insights all along the way. David Schneller thank you for being a gracious pinch-hitter.

Several individuals affiliated with the Cotsen Institute have been essential to my work. Sumiji Takahashi and Tanja Hrast provided critical administrative support. Sonia Zarrillo during her time as a postdoc first taught me how to identify starch grains. Vanessa Muros helped me with equipment, lab space, and a listening ear when I needed one.

Gazmend Elezi patiently taught me the ins and outs of mass spectrometry. Reuven Sinensky offered thoughtful, principled discussions about ethics that have stayed with me. Camille Acosta has been a source of friendship and generous help for many years. Luis Rodriguez-Perez knows how he helped.

My cohort—Alba Menéndez, Baishakhi Sengupta, Maryan Ragheb, Zichan Wang, and Eden Franz— were a source of both support and inspiration. Rachel Wood, a special thank you for helping me slice through the many Gordian knots I twisted myself into.

To my family—especially my mom and sister—thank you for being my first proofreaders and for tolerating countless punctuation errors. I'm especially grateful you never charged me by the hour.

Finally, to my wife, Madeleine Sims—thank you for helping me in every way, all the time (And to my dog Georgina, who cares not at all for archaeology or academia, but whose passion for Mexican food I can never hope to surpass).

To all else who I may have missed-Thank you.

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Chapter 1: Introduction

1.1 Background of the Study

"If all ancient Maya had access to the same triumvirate, focusing on these foodstuffs alone is not likely to bring us closer to understanding food use, social use of food, and the different kinds of contexts in which food was consumed" Goldstein and Hageman (2010:422).

Goldstein and Hageman, building on Sophie Coe's work (Coe 1994:120–122, 247–252), argue that while maize, beans, and squash are often assumed to be central to ancient Maya diets, this focus may be too narrow. They suggest that relying solely on this traditional trio overlooks the variety of other foodstuffs that could have been important. Encountering this quote early in my research was formative in shaping my thinking. The statement crystallized for me the importance of moving beyond the conventional emphasis on maize, beans, and squash as the definitive foundation of Mesoamerican cuisine. The presence, absence, and quantities of these crops are, of course, significant — but this insight sparked my interest in how cuisine can be radically shaped and transformed even when core ingredients remain the same.

While Goldstein and Hageman focus on seeking additional foodstuffs and exploring proportional variation within diets, their argument also led me to consider how meaningful differences in cuisine emerge not only from ingredients, but from preparation, context, and cultural practice. It would be like saying that American cuisine is defined by wheat, beef, chicken, pork, and corn products — a statement that, while technically true, would erase the extraordinary diversity of regional food traditions, independent cuisines, and culturally distinct practices.

Food plays a fundamental role in shaping cultural identity, social structures, and economic systems (Twiss 2007, 2019; Klarich 2010; Goody 1982; Graff 2020). In ancient Mesoamerica, these dynamics are expressed through material culture, particularly ceramics, which served both functional and symbolic roles in food systems (Ardren 2020; Coe 1994; Mathiowetz 2019). The Tequila Valleys of West Mexico provide a valuable case study for exploring the intersections of food, identity, and material culture, yet connections between food practices and broader sociocultural changes—especially culinary evolution and gender dynamics—remain underexamined.

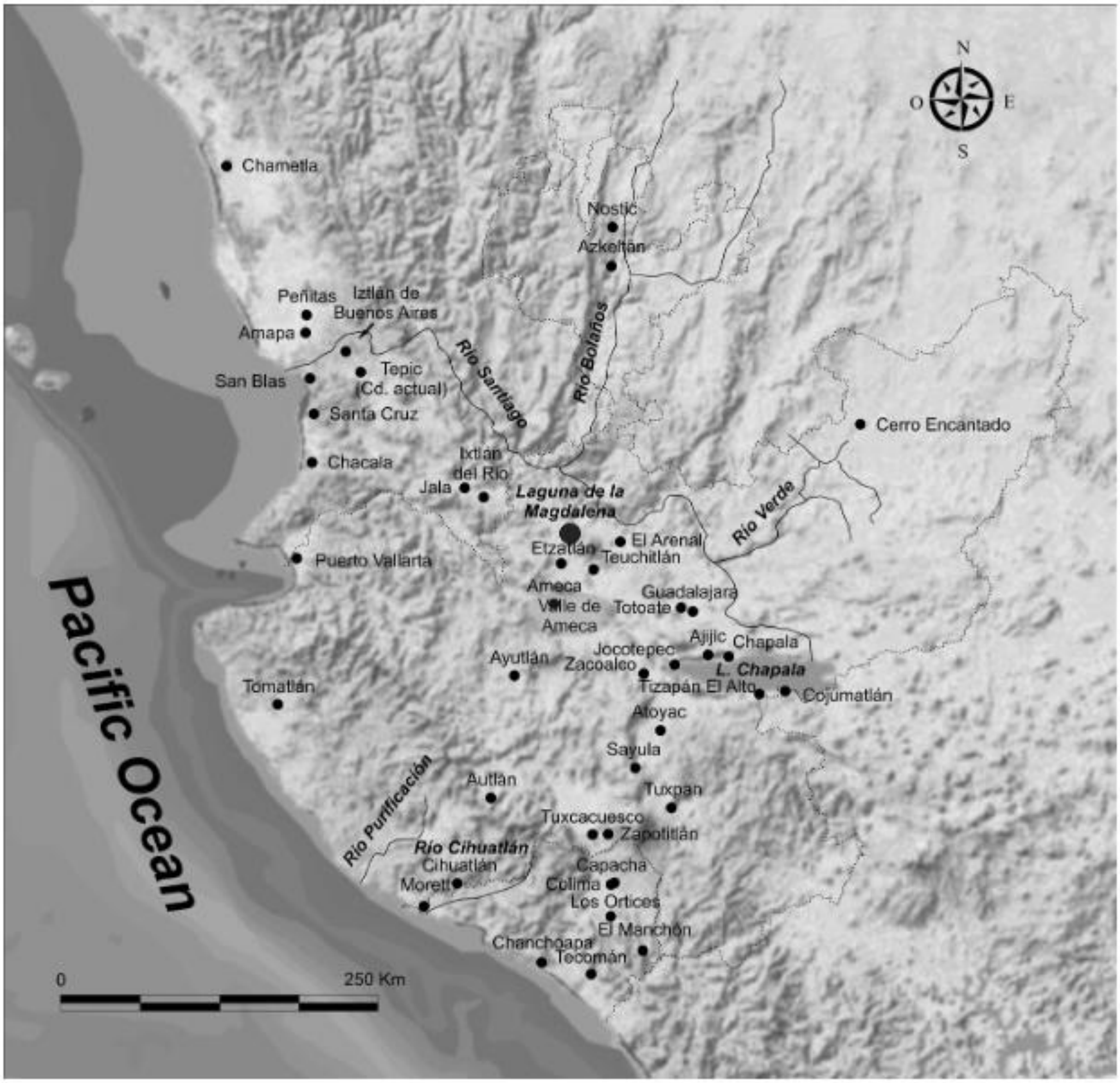

Figure 1 Map showing the major archaeological sites in Jalisco, Colima, and Nayarit (After Williams 2020 Figure 12a)

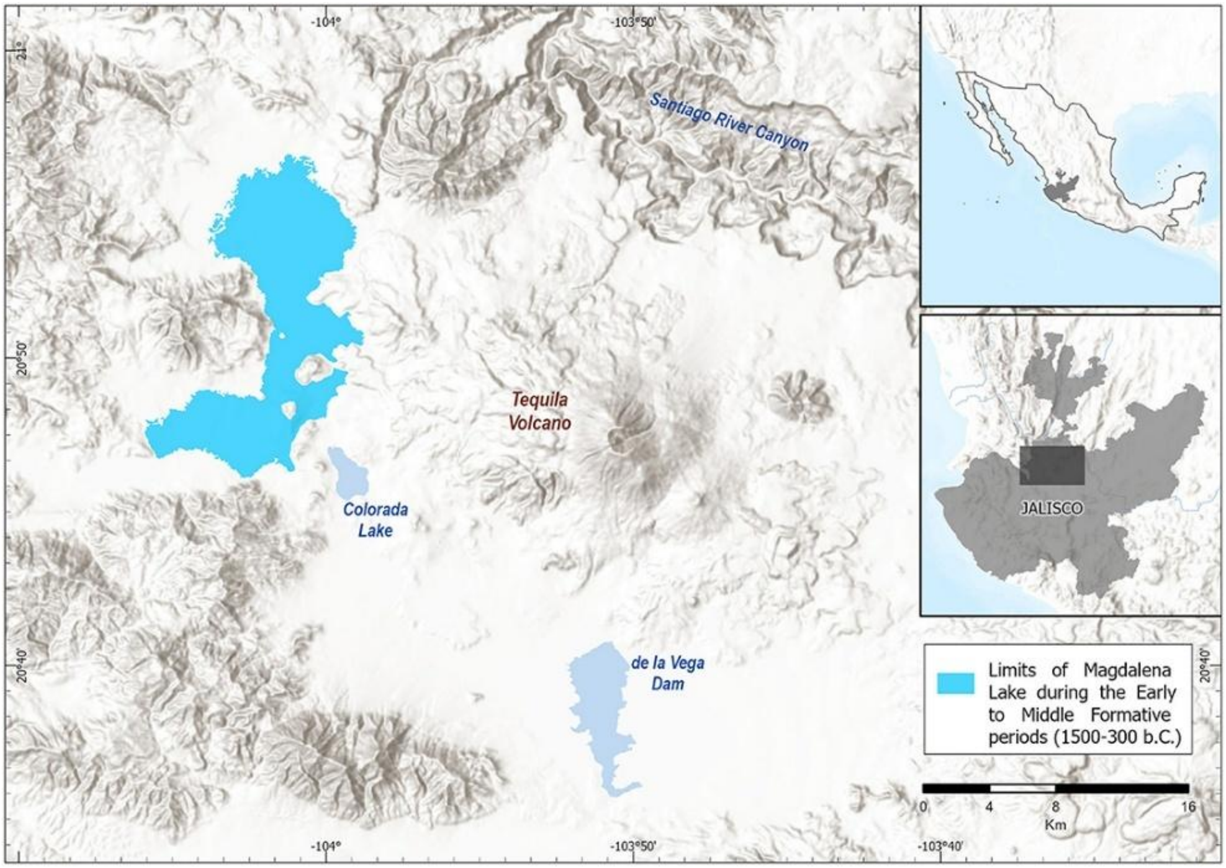

Figure 2 Map of Tequila Valleys (Heredia Espinoza 2022; Figure 2)

Figure 1 situates the study region within western Mexico, showing major Formative through Postclassic sites across Jalisco, Colima, and Nayarit. Figure 2 offers a more localized view of the Tequila Valleys, including the reconstructed extent of Lake Magdalena during the Early–Middle Formative period and major geomorphological features such as Tequila Volcano and the Santiago River Canyon. Together, these maps frame the cultural and environmental setting in which food production, settlement, and interaction unfolded.

This study focuses on significant transitions around 500, 900, and 1200 CE, periods marked by shifts in settlement patterns, trade networks, political organization, and culinary technologies. Around 500 CE, the decline of the Teuchitlan tradition and the rise of the El Grillo ceramic complex reflected new forms of community organization, including abandonment of guachimontón centers and the emergence of U-shaped civic-ceremonial architecture. Migrant groups appear to have played a central role in this transition, bringing institutional structures and contributing to new culinary practices such as ceramic molcajetes and ring-based cups used for grinding and ritualized drinking (Beekman 2019). By 900 CE, decentralized Postclassic political landscapes and distinctive Atemajac ceramics signal additional reorganization (Beekman and Christensen 2003:141). By 1200 CE, the region was increasingly integrated into broader Postclassic networks shaped by long-distance trade, elite marriage alliances, and the influence of larger political entities such as the Tarascan state and the Aztec Triple Alliance (Mathiowetz 2019; Pohl et al. 2012).

While previous scholarship has emphasized drought-driven migrations (Anderson et al. 2025; Beekman 2019), political consolidation in central Mexico (Jimenez 2020), and long-distance exchange (Mathiowetz 2019; Pohl and Mathiowetz 2022), there has been less attention to how these transformations affected daily life. Food—central to cultural identity (Twiss 2019)—is particularly neglected. This dissertation addresses that gap by examining how food practices shaped and reflected identity in the Tequila Valleys between 200 and 1200 CE, focusing on elite dining, women's labor, and the resilience of culinary traditions.

Using a chaîne opératoire approach, this study views food preparation and consumption as multistep processes reflected in ceramics and groundstone tools. Evidence shows continuity in quotidian cuisine—such as stable forms used for cooking liquids—paired with marked changes in elite dining after 500 CE, including the introduction of finely crafted decorated pottery. These shifts materialize emerging social distinctions and highlight food's role in status display, ceremonial life, and political negotiation.

Women's roles form another central component of this analysis. Shaft tomb sculptures, household assemblages, and broader patterns of material culture underscore women's importance in both everyday and ceremonial food production. The adoption of new culinary technologies—such as grater bowls around 900 CE and comales by 1200 CE—reflects women's agency in shaping cuisine, informed by cosmopolitan influences (Halperin 2017) and local adaptations. Their work structured daily sustenance and contributed to broader social cohesion, identity formation, and economic production.

Sustainability also emerges as a key theme. While ceramic styles and cooking technologies evolved, the continuity of staples such as maize and beans—and their associated processing tools—illustrates a balance between innovation and tradition. This combination of change and stability demonstrates the resilience of food systems in the Tequila Valleys and contributes to broader discussions of adaptation in ancient societies.

By integrating ceramic analysis, paleoethnobotany, and gender archaeology, this research provides a holistic understanding of ancient Mesoamerican foodways and shows how food shaped identity, mediated social change, and sustained cultural traditions during periods of transformation.

Central to this research is the question: How was food—its preparation, consumption, and associated practices—used to create and maintain identity in the Tequila Valleys between 200 and 1200 CE? By examining the interplay between quotidian and haute cuisines, representations of women in material culture, and the sustainability of culinary practices, this project sheds light on how the inhabitants of the Tequila Valleys navigated the challenges of cultural continuity and innovation.

By addressing these questions, this dissertation not only illuminates the role of food in the construction of identity in ancient West Mexico but also contributes to broader discussions on resilience, adaptation, and sustainability in human history. The findings of this study have implications beyond the archaeological record, providing valuable perspectives on the enduring relationship between food and cultural identity in the face of change.

1.2 Limitations

While this study aims to provide a comprehensive analysis, certain limitations must be acknowledged. The archaeological record, while rich, is inherently incomplete, and interpretations are constrained by the available material evidence. Preservation biases, particularly for organic materials like food residues, may limit the ability to fully reconstruct ancient diets and cooking techniques. The study relies heavily on ceramic and groundstone artifacts, which represent only part of the broader food system.

Temporal precision also poses a challenge. While the chosen chronological framework captures significant cultural transitions, establishing exact timelines for changes in food practices can be difficult due to limitations in dating methods and site stratigraphy. Interpretations of shifts in culinary practices are therefore based on broad patterns rather than precise temporal markers.

Finally, the study's focus on the Tequila Valleys means that its findings may not be fully generalizable to other regions of West Mexico or Mesoamerica. While comparative insights are drawn where possible, local environmental, social, and political contexts play a significant role in shaping food systems. As such, the conclusions of this research are most directly applicable to the Tequila Valleys and their unique historical context.

Despite these limitations, this study provides a valuable framework for understanding the complex interplay between food, identity, and social change, contributing to broader discussions in archaeology and anthropology.

1.3 Chapters

Ultimately, this synthesis lays the foundation for subsequent chapters, which will delve deeper into the ways cuisine functions as both a practical necessity and a medium of cultural expression. By drawing connections across art historical, archaeological, and botanical data, this study seeks to uncover the roles of food and its associated material culture in shaping and reflecting the identities of Mesoamerican communities, particularly in the Tequila Valleys. This integrated perspective not only enriches our understanding of past societies but also contributes to broader anthropological debates on the intersections of food, identity, and material culture.

Chapter 1 introduces the dissertation's central question: how food technologies and culinary practices shaped identity in the Tequila Valleys between 350 and 1200 CE. The chapter situates the project within wider debates about subsistence versus cuisine, foregrounds women's contributions to food production, and highlights the tension between continuity and innovation in culinary life. The chapter also outlines the interdisciplinary strategy that anchors the study, combining ceramic analysis, groundstone research, microbotanical residues, and art-historical evidence to reconstruct changing practices of preparation and consumption.

Chapter 2 establishes the theoretical foundations. The chapter surveys archaeological approaches to food, from ecological and evolutionary perspectives to phenomenology and gendered practice, and defines cuisine as a social technology rather than a list of ingredients. Concepts such as haute cuisine, quotidian practice, sensory assemblages, and the chaîne opératoire help explain how daily and special meals shaped identity. This chapter also explores ethnicity, status, and gender—especially women's agency—as key dimensions of belonging and differentiation.

Chapter 3 turns to prior research on West Mexican cultural history and foodways. The chapter charts major transitions around 500, 900, and 1200 CE, evaluates evidence for migration, trade, and feasting, and summarizes ceramic typologies and chronological schemes, providing the historical backdrop for the analyses that follow.

Chapter 4 explains the research methods, detailing how ceramic and groundstone assemblages were classified, how starch and residue analyses were performed, and how art-historical data were incorporated, linking technical procedures to questions of sustainability, practice, and gendered labor.

Chapter 5 presents the first body of analysis, examining material from the Tequila through El Grillo phases. The chapter reconstructs everyday meals and early expressions of "haute cuisine," using decorated serving wares, groundstone assemblages, and shaft-tomb imagery to show how feasting practices and vessel diversification intersected with emerging social hierarchies. Related to the Formative period, my analysis of Teuchitlan ceramics reveals an assemblage dominated by forms associated with liquid food preparation, alongside vesicular basalt groundstone for maize processing. Early indications of a nascent haute cuisine appear in decorated serving wares, though these remain limited in elaboration.

Chapter 6 follows with a study of transformations after 900 CE. The chapter highlights the appearance of grater bowls and new serving forms, and considers migration, exchange, and local agency as mechanisms of change that reshaped both daily and elite cuisine after the decline of Teuchitlán.

Chapter 7 explores sustainability and tradition in food systems. Evidence from groundstone tools, ceramic reuse, and microscopic residues reveals how households balanced innovation with continuity, maintaining staple-crop processing and shared meals even as political and environmental conditions shifted.

Chapter 8 synthesizes the evidence to show how cuisine operated as a medium for expressing ethnicity, status, and gender. Aztatlán-style ceramics, mortuary feasting, and the interplay of repetition and creativity in women's culinary labor illustrate the ways material choices in food preparation and presentation actively shaped social belonging.

Chapter 9 draws the arguments together, emphasizing the central role of cuisine in negotiating identity and resilience in the Tequila Valleys. The chapter shows how continuity in staple ingredients coexisted with selective adoption of new tools, dishes, and serving practices, illuminating the cultural work of food across a millennium.

Finally, Chapter 10 offers an epilogue that reflects on the broader implications of these findings. The chapter examines the manner in which lessons from ancient culinary resilience can inform present-day concerns with sustainability, heritage, and the social significance of food, and suggests directions for future research.

Chapter 2: The Significance of Food in Identity

This chapter establishes the theoretical frameworks that guide my study of cuisine in the Tequila Valleys. I begin by contrasting different archaeological approaches to food, from quantitative models that emphasize subsistence and ecological adaptation to qualitative perspectives that highlight phenomenology, gender, and sensory experience. Building from these debates, I define cuisine not simply as diet or sustenance, but as a cultural system of practices through which identity is created and negotiated. The discussion first considers the importance of the quotidian, showing how daily routines provide the foundation against which special or elite practices, such as haute cuisine, are distinguished. From there, I turn to the ways cuisine functioned as a medium of identity formation, exploring ethnic, hierarchical, and gendered identities, with particular attention to women's central role in food production and cultural continuity. Interludes woven into this section illustrate these themes through brief narrative vignettes. Finally, I examine how cuisine was recontextualized and adapted over time, emphasizing its role as both a medium of social change and a technology of cultural sustainability.

2.1 Introduction

Understanding ancient food consumption requires posing multifaceted questions and recognizing that approaches to food research vary widely depending on the archaeologist's theoretical framework. Food has been used as a tool to measure subsistence quantitatively (i.e. in caloric or nutritional counts and values), aligning with "new archaeology" and evolutionist models (Klarich 2010; Twiss 2012). At the same time, phenomenological, gender-based, and sensorial archaeologies have emphasized food's social and cultural dimensions. This methodological divergence reflects a tension in the field: while food has been a subject of extensive study, some archaeologists argue that it has been overlooked, particularly in quotidian contexts (Hamilakis 2014; Montón Subías and Sánchez-Romero 2008). From these contradictions emerges a reconceptualized approach to food studies—one that shifts focus from food as a caloric necessity to food as a vehicle for choice, experience, and identity. This shift introduces the concept of cuisine. By examining cuisine in the Tequila Valleys, this dissertation addresses how food was integral to identity formation, negotiation, and transformation.

Traditionally, food studies have emphasized sustenance, carrying capacity, and environmental adaptation, often tied to cultural evolution or state-level processes (examples of this type: Hodges 1984; Lyman 2003, McDonough et al. 2022) Advances in direct evidence analysis, such as pollen and macrobotanical remains, have reinforced this focus on environmental conditions. In contrast, studies of cuisine—shaped significantly by feminist archaeology—center lived experiences, daily practices, and social relationships (Halperin 2017; Twiss 2012; 2019; 2007; Hastorf 2017; Graff 2020). Some scholars blend these approaches (e.g., Hastorf's work at Catalhoyuk, which integrates seasonality and subsistence with daily life; Clark and Blake 1994, who link feasting to aggrandizer competition within cultural evolutionist models). However, as Twiss (2019) and Graff (2020) note, much research remains bifurcated between two poles—on one hand, a nutritional focus rooted in cultural evolutionism, and on the other, a cultural approach coming from post-processual perspectives.

The term cuisine itself is an umbrella concept that archaeologists rarely define explicitly, even when discussing foodways. Two primary trends in its interpretation prevail, stemming from the introduction of these terms in anthropological literature. Goody (1982) defines cuisine hierarchically, distinguishing between “low” and “high” cuisines, with haute cuisine marking the exclusionary eating practices of elites. Appadurai (1981: 494), on the other hand, emphasizes cuisine as “a highly condensed social fact,” often delineating cultural or ethnic boundaries. Both frameworks highlight cuisine’s multivalent nature, linking cuisine to politics, preparation methods, and family dynamics.

In this dissertation, I look to the work of Crown (2001), who provides a particularly useful distinction between diet and cuisine: “In distinguishing diet from cuisine, anthropologists define diet as the actual foods consumed, their proportions, and their nutritional values. In contrast, cuisines are cultural constructs that include rules for the appropriate manner of preparation of foods (recipes, tools, combinations of foods), the traditional flavorings of staples, the number of meals consumed per day, the manner of serving completed dishes, the use of food in ritual activities and the importance of food taboos” (Crown 2001:225).

While this dissertation does not address all facets of cuisine—such as food taboos, which are minimally evidenced—I integrate both Goody’s and Appadurai’s interpretations without reducing cuisine to questions of class or ethnicity alone. This dissertation will examine cuisine in terms of identity, practice, and choice. Acknowledging the scope of cuisine therefore leads us next to an examination of the quotidian.

2.2 Understanding the Quotidian in Cuisine

I focus on the quotidian because the characteristics of everyday life establish the standard for all other aspects of life. The quotidian serves as the baseline and the norm—daily food consumption is shaped within this context (Graff 2020; Bourdieu 1977; Crown 2001; Twiss 2007). Extensive research has been conducted on phenomena that deviate from the norm, particularly on topics such as feasting (see Dietler 2001, Dietler and Hayden 2001, Twiss 2007). However, to examine practices that hold the greatest significance as foundational structures of life and identity, it is essential to investigate norms and day-to-day activities. This approach is particularly beneficial for archaeological studies in West Mexico, where findings often consist of ordinary ceramics rather than elaborate palace artifacts. Given that these studies frequently involve cumulative collections of objects spanning extended periods, often based on sherds rather than intact vessels, analyzing the quotidian is feasible. The archaeological record in this context provides an accumulation of quotidian materials for examination.

In anthropological literature, cuisine and the meal have been deeply discussed (Joyce and Henderson 2007; Atalay and Hastorf 2006; Klarich 2010). Fewer archaeological examples of cuisine and the meal exist but those that do provide notable interpretations. Joyce and Henderson (2007), for instance, examined ceramic vessels and their residues from the Puerto Escondido Formative period Maya site in Honduras. They traced the change of ceramic forms into more specialized shapes, which they interpreted as a shift to more "haute cuisine." They argue that the introduction of elite and specialized foods did not emerge independently but rather as an adaptation from pre-existing culinary practices. To Joyce and Henderson, cuisine symbolized special foods, occasions, and elite status. However, the quotidian itself both remains and establishes the basis for distinguishing the non-quotidian.

2.3 The Concept of Haute Cuisine

2.3.1 Ceramics and the Sensory Dimensions of Haute Cuisine

The elaboration of ceramic assemblages offers a material window into the emergence of haute cuisine. If vessel forms become increasingly specialized and elaborate, this suggests more than just functional change. The specialization implies that people were paying attention to the taste, texture, and appearance of food, as well as to the experience of eating and serving food. In other words, the design of vessels reflects concern not only for efficient preparation, but also for the sensory qualities of cuisine and the social or ritual settings in which meals were shared. Specific associations between vessel types, preparation methods, and identifiable foodstuffs further signal codification and specialization within cuisine practices. King et al. (2018) briefly explore this connection by linking datura residues with decorated serving vessels, suggesting that both the substance and the ceramic form were components of specialized food production and consumption.

Comparative work in other regions of Mesoamerica further illustrates the role of ceramics in delineating cuisine practices. At Paso de la Amada, Lesure (1998) demonstrated a minimal diversity of vessel forms during the Formative period, reflecting generalized and unspecialized food uses. Similarly, Joyce and Henderson's (2007) study at Puerto Escondido, Honduras, connects changes in vessel forms to shifts in food consumption habits, particularly the serving of cacao:

"The changes in vessel forms noted after 900 B.C.E. must have entailed different habits of eating and drinking. Bowl and bottle forms imply new approaches to serving beverages...

Combining the results of residue analyses and vessel form changes, we can examine transformations in the ways that cacao was served at the site” (Joyce and Henderson 2007:649).

These examples highlight how vessel morphology and residue analysis together provide insights into changes in food consumption habits, including the emergence of specialized or elite foods. The transition from daily meals to “meal-as-event,” as Hendon and Joyce (2007:650–651) describe, reflects how elaborated foods and their associated vessels functioned not only to replicate social relations but also to reinforce social stratification. In this context, food and its preparation became a performative practice, negotiating identity and power. Goody’s (1982) distinction between “low” and “high” cuisines frames haute cuisine as an exclusionary practice, reserved for elites and marked by competitive displays of consumption. Hendon and Joyce argue that the growing complexity of cacao preparation—evidenced through increasingly specialized ceramic treatments—was central to social differentiation. This complexity emerged gradually, arising from quotidian practices of food processing and preparation.

Halperin (2017) extends this argument by foregrounding women’s agency in adopting new food practices as an exercise in cosmopolitanism. Halperin (2017) reframes “cosmopolitanism” in Mesoamerican archaeology through a feminist lens, emphasizing how inter-regional interactions in the Late Classic–Postclassic (ca. 600–1521 CE) were experienced unevenly and often through women’s practices rather than elite male networks. She critiques models privileging merchant-priests or “international styles,” arguing instead that cosmopolitan belonging could emerge in everyday, often gendered settings: markets, dress, and kitchens (Halperin 2017: 350–352).

Her analysis begins with market women, who, as petty traders and producer-vendors, informally linked resource zones and transmitted news, gossip, and values. These small-scale exchanges formed dense webs of articulation that paralleled, but were not dependent on, long-distance male merchants (Halperin 2017: 354–357). A second case concerns elite female clothing, notably the quechquemitl, whose spread across Mesoamerica signaled affiliation with broader political and ritual discourses. Portable figurines depicting women in this garment circulated widely, allowing diverse households to engage with ideals of femininity and authority even without travel—a process Halperin likens to "banal cosmopolitanism" in modern media (Halperin 2017: 359–364).

Most relevant to culinary practice is her discussion of the comal, a flat ceramic griddle used for toasting. Halperin treats cooking as a domain where foreign tastes and local identities were negotiated. Comales, long established in Central Mexico and Oaxaca, entered Maya kitchens in small numbers at the end of the Classic period (often < 2 % of assemblages) and became widespread only in the Postclassic (Halperin 2017; 362–363). They enabled new techniques—such as toasting cacao beans, seeds, or tamales—and, eventually, tortilla production (Fournier 1998; Taube 1989). Their distribution was patchy: present at Copán and Quiriguá by ca. 550 CE, appearing later at sites like Pusilhá and Xunantunich, but absent at contemporaneous centers such as Uxbenká or Lubaantun (Halperin 2017;365). In some regions (e.g., Xunantunich) they may have been confined to royal kitchens, whereas at Copán both elites and commoners used them ((Halperin 2017:363–365). Such variability shows that culinary cosmopolitanism was selective and context-dependent rather than a uniform adoption.

Halperin concludes that inter-regional entanglements were not only about goods or monumental art but also about mundane acts—trading pots, donning a garment, toasting on a comal. These practices illustrate how women and household actors helped craft "worldly" identities, often through everyday labor. Her insights frame the comal as more than a technical innovation: it indexes negotiations of taste, identity, and affiliation across regions, making culinary implements key evidence for tracing how communities mediated local and foreign traditions (Halperin 2017; 365–366).Through their labor and culinary choices, women mediated between local traditions and broader Mesoamerican trends, shaping the material and cultural practices that underpinned emerging forms of cuisine, particularly in the Postclassic period.

2.3.2 Sensory Assemblages and the Role of Psychotropic Substances

Hamilakis (2014) argues that sensory experiences are fundamental to understanding the past and proposes that "sensory assemblages" should be studied alongside material assemblages. Cuisine is inherently sensory: it engages taste, smell, sight, sound, and touch, making the sensory experience of food a critical aspect of its cultural and social significance. From this perspective, materials associated with cuisine—ceramic vessels, grinding tools, and food residues—can be conceptualized as part of a sensory assemblage, where food and its preparation serve as a medium for producing shared experiences and negotiating social relationships.

2.3.3 Haute Cuisine as a Sensory and Social Phenomenon

Ultimately, the emergence of haute cuisine in the Tequila Valleys can be understood as a sensory and social phenomenon that reflects both broader Mesoamerican trends and localized adaptations. The specialization of ceramic forms, complexity of food preparation, and the integration of sensory-altering substances all point to the deliberate creation of food practices that went beyond sustenance and progressed to engagement with identity, power, and community. These practices reinforced social stratification, as Goody (1982) and Hendon and Joyce (2007) argue, while also providing opportunities for negotiation and adaptation, particularly through women's labor and agency.

The examination of ceramic elaboration, groundstone technologies, and residue analysis thus provides a multi-faceted understanding of haute cuisine. The study highlights the dynamic interplay between food production, consumption, and social organization in the Tequila Valleys, emphasizing the importance of both daily and exceptional food practices in shaping the cultural landscape.

2.4 Cuisine and Material Proxies

In the absence of written records, these processes are accessed archaeologically through material proxies: the tools that ground maize, the jars that simmered stews, the bowls that served meals, and the residues that cling to their surfaces. These objects are not mere byproducts of subsistence but are active participants in the construction of cultural practice. Their forms and distributions reflect choices shaped by skill, habitus, and inherited practice—choices that were constrained by environmental resources yet deeply structured by social meaning. The chaîne opératoire of cuisine, encompassing the full sequence of technical and social actions involved in food preparation, offers a methodological framework for tracing these practices and their transmission across generations.

2.4.1 Ceramics and Groundstone as Evidence of Adoption and Adaptation

Ceramics offer a critical lens through which to interpret shifts in cuisine practices beyond the simple processing of maize. The difficulty of functional characterization of ceramic vessels has long been recognized (Rice 2015:414), yet trends in ceramic morphology, size, and variety provide valuable insights. Crown's (2001) work in the American Southwest is especially illustrative: she identifies a pattern in which early ceramic assemblages feature generalized forms that gradually transition into increasingly specialized vessel types over time. This diversification in form corresponds with broader changes in food preparation and consumption practices.

Crown (2001) also observed a trend toward increasing vessel size through successive periods, suggesting an intensified focus on both food preparation and communal consumption. Some vessel types clearly indicate specific functional uses. For example, Crown notes the adoption of comales among the Hohokam around 1250 CE (Crown 2001). The appearance of comales in this context highlights the technological and cultural adaptations necessary for processing maize in new ways, reinforcing the importance of ceramic evidence for identifying broader shifts in cuisine practices.

Groundstone tools such as manos, metates, mortars, and pestles serve as an important complement to ceramic evidence for reconstructing shifts in food preparation, labor organization, and the social life of cuisine (Adams 2002; Adams 2014). Adams provides a framework that emphasizes the "life history" of groundstone implements—from selection of raw material and initial manufacture, through use, maintenance or re-tooling, to discard or reuse (Adams 2002). Within this framework, changes in size, shape, number of grinding surfaces, and use-wear patterns can indicate intensification of processing tasks, shifts in what is being processed (for example, more maize vs wild plants), and perhaps increasing specialization or standardization over time (Adams 2014). Use-wear studies also make it possible to differentiate between domestic vs communal or specialized processing contexts.

In addition, Biskowski's work on maize preparation in Central Mexico shows how groundstone tools can illuminate changes in subsistence more precisely than some other artifact types (Biskowski 2008). For example, changes in the frequency of maize-grinding tools, paired with insights from use-wear, help document when maize becomes a more central dietary staple, not only in presence but in intensity of processing (Biskowski 2008). Furthermore, the production of metates in Central Mexico, technical choices (shape, raw material, workmanship) reflect adaptations to local resources and practices, suggesting that groundstone is sensitive to both environmental constraints and cultural preferences (Hamon et al. 2025).

2.5 Identity

The performative nature of food practices reinforces their role in identity creation and maintenance. Hamilakis (2014:87) similarly argues that repeated food behaviors serve as performative citations of identity. Twiss (2007:2) connects this explicitly to foodways, observing:

"Food is an unusually powerful symbol of identity because foodways involve both the performance of culturally expressive behaviors and the literal incorporation of a material symbol. Food acquisition or production, distribution, consumption, and discard practices are all intimately intertwined with ideological, political, and economic realities. They also offer a wide range of opportunities for group or self-identification."

Identity is a multifaceted construct that emerges at the intersection of individual experience, social structures, and cultural contexts. Anthropologists and interdisciplinary scholars have long emphasized the fluid and relational nature of identity, highlighting its role as both a product and a process of human interaction. Fredrik Barth (1969) established the foundational idea that identity is not inherently tied to fixed traits, but is negotiated through boundaries and interactions with others, particularly in contexts of ethnicity. Similarly, Judith Butler (1990) introduced the concept of performativity, arguing that gender identity is not a stable essence but is continually constituted through repeated social acts. These perspectives, along with Pierre Bourdieu's (1986) notions of habitus and social capital, underscore how identities are shaped by cultural norms, embodied practices, and access to resources, situating identity as both an individual expression and a reflection of broader social systems.

In examining ethnic, gender, and class identities, it is critical to account for the intersections of power, history, and materiality. Stuart Hall (1996) frames identity as a "process" that is never fully stable but is constantly reshaped by historical and cultural conditions, a perspective that is particularly useful for understanding the fluidity of ethnic identities in contexts of migration and cultural exchange. Hall conceptualizes identity not as a fixed essence, but as a "point of suture" between discourses and the subject—always in formation, historically contingent, and shaped by power relations (Hall 2011:5). Rather than emerging from some innate or unchanging core, identities are constructed within specific cultural and institutional contexts. Hall emphasizes that identity is always relational—it is defined not only by what it is, but by what it is not, often in opposition to an "other." This means that ethnic identities, for instance, are not merely inherited, but are continually renegotiated through encounters with colonialism, displacement, and cultural hybridization. These identifications are also structured by material and symbolic conditions that enable or constrain how people see themselves and are seen by others. For archaeology, Hall's framework underscores the need to interpret material culture not as static markers of bounded groups, but as part of the ongoing negotiation of identity—revealing how power, movement, and historical change shape the ways communities construct and express who they are.

These theoretical approaches to identity—emphasizing process, performance, and relationality (Hall 2011; Butler 1990, 1993)—provide a critical foundation for archaeological interpretation. In material terms, identity is not simply reflected in artifacts, but actively constructed through their production, use, and circulation. Just as food practices operate as embodied performances of identity (Hamilakis 2014; Twiss 2007), so too do the objects associated with those practices—ceramic vessels, grinding tools, and preparation technologies—serve as material citations of social belonging, difference, and transformation. Archaeologists can thus investigate how shifting patterns in food-related material culture reveal changing social affiliations, cultural boundaries, and expressions of ethnicity or class (Crown 2001).

The material culture of cuisine— in the case under consideration here ceramics and groundstone—provides a lens through which to examine identity expression. This dissertation focuses on the timeline of adoption of forms and decoration of ceramic and groundstone to explore identity formation. Identity, as discussed above, is not static but continually reshaped through historical processes and cultural encounters (Hall 2011; Butler 1993). Material changes in food-related tools can thus signal shifting social alignments, cultural affiliations, or moments of resistance. This dissertation explores the time and manner of culinary material adoption as one way to trace these identity transformations. If new material forms connect stylistically or morphologically with other regions, this suggests external influences, such as (but not necessarily) migration (Beekman 2019). If new culinary material appears as "full packages," it supports interpretations of migration and identity adoption. By contrast, gradual or selective uptake of new culinary technologies may reflect more conservative food practices, generational continuity, or the careful negotiation of emerging identities within existing traditions (Crown 2001). A combination of these trends points to broader cultural interactions and the negotiation of identity. Attending to these temporal patterns allows archaeologists to move beyond static typologies and instead consider how identity is actively constructed through ongoing engagement with material culture.

2.5.1 Defining Ethnic Identity in Archaeology

The concept of ethnic identity in archaeology has undergone significant transformation over the past century. Once assumed to be discoverable through typological analysis of material culture, ethnicity is now widely understood as a dynamic, situational, and relational process rather than a stable or biologically inherited trait. This shift has been driven by critical reassessments of the theoretical underpinnings of archaeological interpretation, particularly those that once equated discrete material assemblages with fixed ethnic groups. Scholars such as Díaz-Andreu (2015), and Curta (2014), have argued forcefully against the essentialist frameworks of earlier models, instead emphasizing that ethnic identity is produced through interaction, performance, and negotiation in specific historical contexts.

This perspective builds on foundational work by Fredrik Barth (1969), who reframed ethnicity not as a set of shared cultural traits but as the maintenance of social boundaries through processes of inclusion and exclusion. Following Barth, scholars such as Curta (2014) and Shepherd (2014) underscore that ethnic identity emerges through strategic social positioning and is often expressed through emblemic styles and code-switching in material culture. These forms of expression are neither random nor inherently ethnic in meaning but are contingent on context and power relations. In funerary practices, for instance, Brück (2004) and Shepherd (2014) demonstrate how the dead are not simply represented in death but are actively reconfigured through mortuary display, allowing for strategic manipulation of identity signals, including those associated with ethnicity.

The critique of the culture-historical model has been central to rethinking ethnicity in archaeology. Curta (2014) details how interpretations of "Slavic pottery" and emblemic items like brooches or belt buckles once used to demarcate ethnic boundaries are better understood as products of trade, elite competition, and social signaling rather than ethnic markers per se. Similarly, Díaz-Andreu (2015) cautions against the uncritical use of "ethnic group" in archaeological discourse, advocating instead for the term "community" to reflect the fluid, constructed nature of social identity in contexts lacking written records. These interventions push archaeologists to move beyond typological identification and toward an examination of how identity was performed and experienced through material engagements.

Material culture remains a critical medium for understanding how ethnicity is articulated in the archaeological record, but artifacts must be analyzed with an awareness of their symbolic and political functions. Drawing from Bourdieu's concept of habitus, contemporary theorists argue that ethnic identity is embodied in daily practice—ritual, consumption, dress, architecture—and reproduced through durable dispositions shaped by historical and social conditions (Curta 2014; Orser 1996). Yet as Flexner (2014) and Joyce (2004) illustrate, such expressions are often hybrid, negotiated, and embedded in broader power relations.

For example, elite groups often deploy emblemic styles in burial or public ritual to signal lineage or regional ties, while in domestic contexts, people may emphasize shared practices that transcended ethnic divisions (Brück 2004; Flexner 2014). These cases suggest that adaptation to migration and multicultural settings did not erase ethnic consciousness but prompted its rearticulation. As Orser (1996) notes, material conditions, power asymmetries, and historical contingencies all play roles in shaping how ethnicity is expressed, muted, or transformed over time.

Ultimately, the archaeological study of ethnic identity must remain attentive to the plurality, mutability, and contextual specificity of identity itself. As Casella and Fowler (2005) argue, identity is not a thing possessed but a process enacted—something people do through their interactions with others and the material world. Ethnicity, in this light, is one of many possible identity axes, and its visibility in the archaeological record depends first, on the ways people choose to manifest their ethnicity and second, the interpretive frameworks archaeologists bring to their analyses.

2.5.2 Hierarchical Identity Over Time & Material Expressions of Status

Material culture plays a central role in articulating and maintaining class distinctions in archaeological contexts. Rather than treating class as a static structural category, scholars now examine how social hierarchies are enacted through spatial practices and the differential access to objects, labor, and symbolic capital. Casella's (2005) work in institutional settings like prisons illustrates how material constraints and bodily regulation were used to enforce classed boundaries, even in spaces of confinement. In domestic assemblages from historical New England, Beaudry (2004) demonstrates how household goods—particularly those involved in food preparation and display—encode not only economic standing but also aspirational values and negotiated respectability. These examples underscore that material expressions of status often operate through subtle cues embedded in routine environments, revealing class distinctions that may not be captured in formal inventories of wealth or property.

Funerary and ritual assemblages provide especially vivid evidence for the strategic display of social rank. Brück (2004) argues that burial contexts are not passive reflections of lifetime status but stages where social roles can be elevated, contested, or reconfigured. The selection, placement, and elaboration of grave goods operate as deliberate choices that communicate prestige, often to reinforce the legitimacy of emerging elites or to stabilize authority during times of transition. Similarly, Shepherd (2014) shows that elite burials in Archaic Sicily utilized imported styles and hybridized forms to distinguish social standing while avoiding rigid ethnic signals. These acts of material signaling—whether through costume, architecture, or imported goods—function not only to express wealth but to cultivate exclusivity and reinforce social boundaries within competitive environments. Across contexts, status is less a possession than a performance—materialized through the strategic deployment of symbols legible to a socially attuned audience.

Population movement has long been recognized as a driver of cultural transformation, but contemporary archaeological theory urges caution in interpreting migration solely through material change (Dores Cruz 2011, Deboer and Nelson 1985, Croucher and Wynn-Jones 2006). Rather than assuming that mobility disrupts group identities or replaces one set of ethnic markers with another, recent scholarship highlights how migration can foster the emergence of new, hybrid identities and socially negotiated affiliations. Drawing on Barth's concept of ethnicity as boundary maintenance and Curta's emphasis on emblemic style, ethnic identity is increasingly seen as something reconfigured through contact rather than erased by it (Curta 2014). The Epiclassic period in Mesoamerica, marked by widespread demographic shifts and political fragmentation, provides fertile ground for exploring this dynamic. As groups moved into new regions, they did not simply adopt local practices wholesale or abandon their own. Instead, they selectively adapted material symbols to assert belonging or differentiate themselves, depending on context. This flexibility—what Shepherd (2014) terms "code-switching"—allowed migrants to participate in new social orders while maintaining a sense of group cohesion and distinction.

2.5.3 The Role of Women

Crown (2001), in her discussion of cuisine and food production in the American Southwest, shows that adoption processes are neither simultaneous nor universal; instead, adoption sequences vary by region and occur at differing rates. These postulations are particularly relevant to the Tequila Valleys, where migration and external influences may have interacted with local traditions over time.

At the core of these processes lies the central role of women in food production and domestic life. Feminist archaeology has emphasized the importance of maintenance activities—such as food preparation and cooking—in shaping and maintaining social relations. Gonzalez-Marcen, Montón-Subías, and Picazo (2008) argue that the repetition of domestic tasks creates enduring social connections, transforming quotidian spaces into sites of agency, identity construction, and labor negotiation.

Many archaeologists have drawn on ideas of practice and individual agency to better understand how cuisine is shaped, enacted, and transmitted through daily life. Pierre Bourdieu's (1977) concept of habitus—the internalized dispositions that shape everyday behavior, including food preparation and consumption—has been widely applied by archaeologists to interpret culinary practices (see Atalay and Hastorf 2006; Logan et al. 2012; Sunseri 2015). Habitus helps explain how culinary practices become embodied routines that reflect and reproduce social structures over time. For example, Logan et al. (2012) shows how Andean food practices reinforced social identities and political relationships through repetition and memory. Similarly, Atalay and Hastorf (2006) emphasize that foodways are not just practical responses to subsistence needs but culturally meaningful acts shaped by history and power. The material remains of cuisine—such as cooking vessels, grinding tools, and preparation spaces—can be read as traces of socially embedded knowledge and action, making habitus a powerful concept for understanding the relationship between identity and food in the archaeological record.

A number of feminist scholars working in Mesoamerica have advanced this direction of inquiry, often foregrounding women's labor and economic production. Brumfiel (1991), for example, demonstrated that changes in domestic labor in central Mexico can be traced through shifts in ceramic assemblages. Different proportions of ceramics used to prepare tamales versus tortillas reflected changes in daily practices and responses to economic pressures (Brumfiel 1991). Brumfiel's work highlights the close relationship between gendered labor divisions, material culture, and economic circumstance.

The role of women in food production highlights the centrality of gendered labor in shaping both quotidian and ceremonial life. Changes in ceramic forms, food processing tools, and preparation techniques reflect not only external influences but also local agency and adaptation. Feminist approaches to archaeology (Montón-Subías and Sánchez Romero 2008; Atalay and Hastorf 2006; Diaz-Andreu and Lucy 2007; Gero and Conkey 1991), particularly those emphasizing maintenance activities and habitus, provide a powerful lens for understanding these processes. Women's labor was fundamental to the adoption, transformation, and preservation of culinary practices, making it a key driver of cultural continuity and change. Migration and long-distance connections introduce opportunities for new material culture, yet they do not inherently explain the adoption or rejection of new cuisine types. Beekman's work acknowledges this, suggesting that while migration might bring new vessel forms and processing techniques, it is ultimately local choices and circumstances that determine whether these innovations are embraced, adapted, or ignored (Beekman 2020).

2.5.4 Cuisine as a Technology of Gender

Cuisine, in its broadest sense, is not simply a reflection of social structures—it is an active medium through which identities are formed, reinforced, and transformed. In this section, I argue that culinary labor, particularly as practiced by women in ancient West Mexico, functioned as a core technology of gender. Drawing on materiality theory, feminist archaeology, and the chaîne opératoire framework, I suggest that the repetitive, skilled, and embodied actions of food preparation not only reflected gendered expectations but actively produced them. The "kitchen"—understood not as a bounded room, but as a socially constructed space of food production—operated as a critical site of social reproduction, in which women forged family memory, community cohesion, and cultural continuity.

The chaîne opératoire of cuisine—from grinding, cooking, and seasoning to serving and cleaning—demands intimate bodily knowledge, acquired over time through apprenticeship, repetition, and observation (Porqueddu et al. 2023). Feminist theorists such as Joan Tronto and Judith Butler have long emphasized that the daily acts of care and reproduction are not neutral or peripheral, but are central to the maintenance and creation of social worlds (Butler 1990; Tronto 1993). Within Mesoamerican contexts, the gendered division of labor positioned women not only as laborers but as cultural agents—makers of people and traditions. As Bourdieu (1977) notes in his theory of habitus, such embodied practices inscribe social structures into the body itself; food preparation is not just labor, but pedagogy, socialization, and identity formation.

These themes are echoed in colonial-era textual sources. In the Florentine Codex, compiled by Fray Bernardino de Sahagún and his Indigenous collaborators in sixteenth-century Central Mexico, women are consistently described as caretakers of the hearth, instructors in household labor, and experts in food preparation. The codex details not only the kinds of foods women prepared—maize tortillas, stews, tamales—but also the values attached to this labor: patience, skill, and moral rectitude (Sahagún 1577: folio 148r, Anderson and Dibble 1969). Although these records are geographically distant from West Mexico, they reflect broader Mesoamerican patterns in which cuisine was a woman's domain, and culinary labor a site of meaning-making. While colonial descriptions must be read critically—as they often reflect Spanish gender ideologies projected onto Indigenous societies (Joyce 2000:475)—they nevertheless reveal the centrality of women in the culinary sphere, particularly through their association with maize, grinding stones, and cooking implements. Moreover, contemporary ethnographies from Indigenous communities in western and central Mexico reaffirm that knowledge of cuisine is often passed down matrilineally, with women serving as guardians of taste, technique, and tradition (Baker 2006).

Importantly, cuisine is not merely a domain of maintenance or preservation—it is also a space of innovation and creativity. Women's choices in ingredient selection, preparation methods, and presentation reflect broader social dynamics, including responses to environmental shifts, migration, and economic change. These choices—though often unrecorded in text—leave material traces. Ceramics, grinding stones, and cooking platforms are not neutral tools; they are technologies that structure movement, time, and labor. The ways in which these tools were used, altered, or retained across generations reveal how women shaped cuisine as a cultural and technological system.

The interludes woven through this dissertation are brief narrative experiments, attempts to bring to life the social worlds that lie behind the artifacts. They are not meant as digressions, but as complements to the analysis, giving voice to the women of the Tequila Valleys whose labor with food shaped both daily survival and ritual practice.

These vignettes draw on the same evidence that informs the chapters—ceramics, botanical remains, ethnohistoric accounts, and ethnographic comparisons—but they work differently. By sketching small moments of preparation or exchange, they aim to suggest how cuisine may have been experienced in practice: tactile, rhythmic, and bound up with memory and identity. The interludes highlight the centrality of women's work in shaping cuisine, a perspective too often left implicit in archaeological narratives.

2.6 Recontextualizing Cuisine: Social Shifts and the Repurposing of Food Traditions

Recontextualization offers a useful lens for understanding how material symbols acquire new meanings and may be repurposed. Robb (1998) emphasizes the multiplicity of symbolic systems in archaeology and the ways in which symbols operate across different social and cognitive domains. His discussion of how symbols can be reinterpreted as they move between structural, processual, and phenomenological frameworks highlights the flexibility and layered meanings of material culture—making recontextualization not just possible, but inevitable. Rooted in semiotic and practice theory, recontextualization emphasizes how material forms retain surface-level stability while acquiring new meanings and functions through shifting social contexts (Robb 1998; Hodder 1982; Dietler and Hayden 2001; Stahl 2002). As Bourdieu (1977) notes, the alteration of daily practices often serves as the very mechanism through which social change unfolds—especially when those practices are invested with symbolic weight or linked to emerging power relations.

In studies of foodways, this recontextualization is particularly evident. Dietler (2010), for instance, emphasizes that cuisine is not merely a passive reflection of ecological conditions or subsistence needs, but a form of embodied cultural practice through which social identities are created, negotiated, and contested. In his analysis of commensal politics, he argues that food operates as a potent medium of social reproduction and transformation, capable of expressing affiliation, distinction, and authority. Similarly, Hastorf (2016) has shown how staple foods like maize can shift in meaning depending on their culinary presentation and context of consumption, becoming either mundane or elite, domestic or public, depending on how they are deployed.

2.6.1 Tradition, Adaptation, and the Archaeology of Cuisine

This line of thought dovetails with my broader interest in sustainability, particularly in how sustainable food systems are those flexible enough to reflect diverse cultural needs. At the heart of this inquiry is an understanding of sustainability not only in terms of ecological balance or resource management, but as an ongoing cultural process (see Guttman-Bond 2019; LeFebvre et al. 2022; Silva et al. 2022). Sustainability, in this sense, reflects society's ability to maintain a coherent identity while creatively adapting to internal changes and external pressures.

Food is one of the most enduring threads that connect people across generations. Yet, what and how we eat is never static. The archaeological record, particularly ceramics, groundstone tools, and microbotanical remains, offers key insights into this balancing act. By analyzing changes in vessel form, evidence for food processing and serving, and the microscopic residues of meals long past, we can begin to reconstruct how people made choices about what to hold onto and what to let go. These decisions were never purely practical; they were embedded in systems of meaning, identity, and social reproduction (Robb 1998; Joyce 2015). This dissertation frames cuisine as a cultural technology of sustainability, revealing how food practices allowed people to maintain ties to the past.

Chapter 3: Prior Research Reinterpreted

3.1 Historical Context: Shifts in West Mexico (Tequila, El Grillo, Atemajac)

To contextualize cuisine in the Tequila Valleys, it is essential to examine the broader archaeology of the region, particularly previous food-related investigations. The Tequila Valleys, situated within the diverse area of West Mexico, are part of a region encompassing Nayarit, Colima, Jalisco, Zacatecas, Michoacán, and Guanajuato. This designation often oversimplifies an area of significant geographic and environmental variation, including rugged highlands, lowlands, and coastal zones (Stuart 2003). The Tequila Valleys occupy their own ecological niche, shaped by the imposing Tequila Volcano, abundant obsidian resources, and historically rich lacustrine environments, such as the now-dry Laguna de Magdalena, as shown in Figure 2 (Stuart 2003, Anderson et al. 2025, Vasquez et al. 2017).

Table 1. Archaeological sequence for the Tequila Valleys after Beekman and Heredia (2024; Table 1).

Period names for Mesoamerica	Phase names in the Tequila Valleys, Jalisco	Proposed Dates
Late Postclassic and Early Colonial	Atemajac III	1500-1600 CE
Late Postclassic	Atemajac II	1350-1500 CE
Early and Middle Postclassic	Atemajac I	850-1350 CE
Epiclassic/Late Classic	El Grillo	450/500-850 CE
Early Classic	Tequila IV	200-450/500 CE
Terminal Formative	Tequila III	50 BCE- 200 CE
Late Formative	Tequila II	350-50 BCE
Middle Formative	Tequila I	ca.1000-350 BCE
Early Formative	Magdalena	ca.1500-1000 BCE

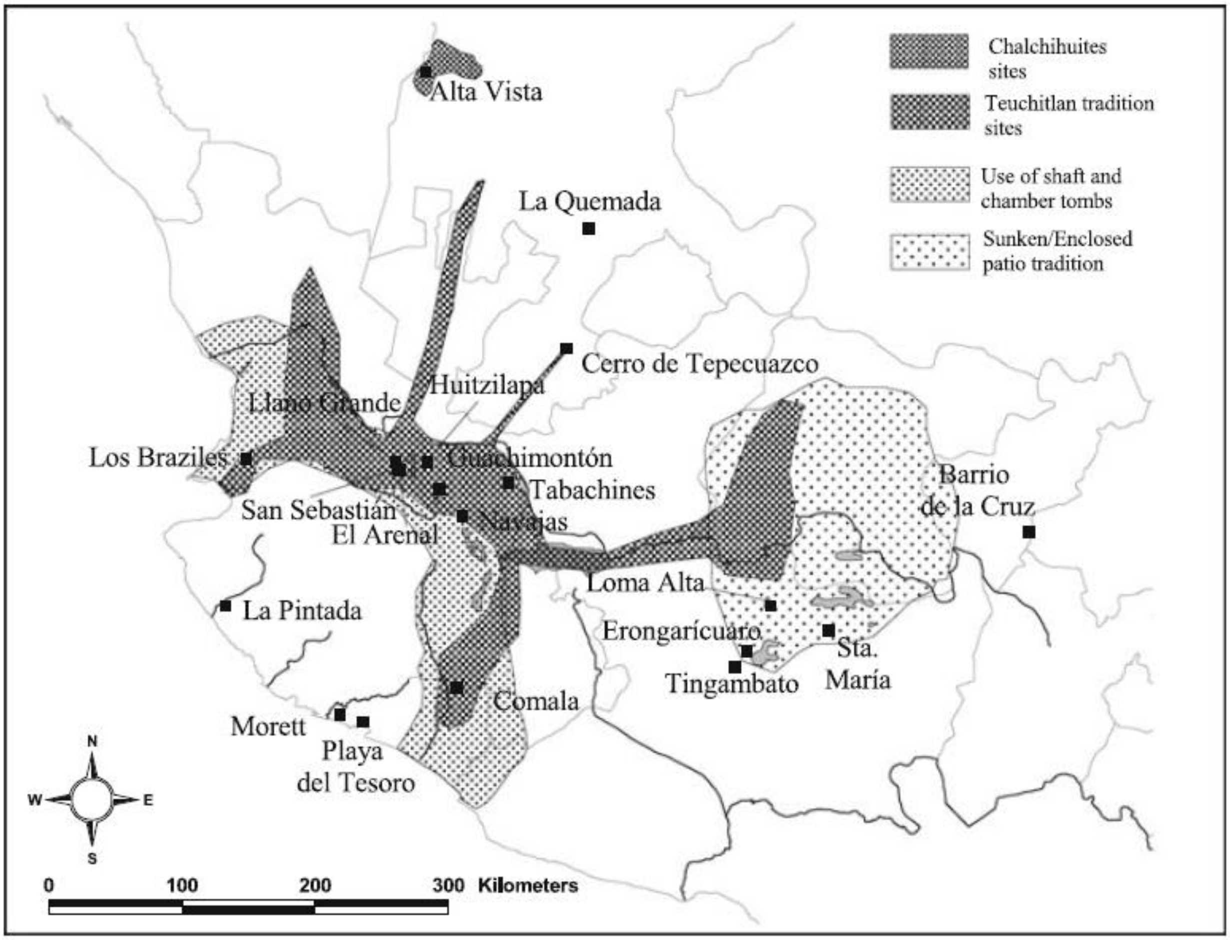

Figure 3 Late Formative and Classic Period sites in Western Mexico (Beekman 2010: Figure 4)

The Tequila Valleys are most notably associated with the Teuchitlan culture (or Teuchitlan tradition), characterized by shaft-tomb burials, ceramic figurines, and distinct circular architectural complexes known as "guachimontones." The Teuchitlan culture thrived during the Formative period (300 BCE–500) until the early Epiclassic period (500–900 CE) throughout what are now the contemporary states of Jalisco Nayarit and Colima- see Figure 3 (Beekman 2019:152). The nature of Teuchitlan political and social organization has been debated: while Weigand and Beekman proposed a segmentary state mode (Beekman 1996; Beekman et al. 2016), Verenice Heredia argued for a looser, cooperative political system (Heredia 2016). Both

Heredia and Beekman suggest political diversity, citing variations in settlement and architectural patterns (Heredia 2016, 2017, 2020; Beekman 2016, 2020).

3.1.1 El Grillo Phase Shifts (500–900 CE)

The El Grillo phase marks a critical shift in material culture and settlement patterns. The El Grillo ceramic complex, emerging around 500 CE, represents a departure from the earlier Teuchitlán tradition. While Teuchitlán ceramics and circular ceremonial centers were abandoned, new settlements and architectural forms—such as U-shaped civic-ceremonial structures—appeared, reflecting political and social transformations (Beekman 2019:123; Williams 2020:159–160). Eduardo Williams situates these developments within broader regional dynamics, noting that West Mexican communities participated in extensive interaction networks linking central Mexico, the Bajío, and Michoacán. These shifts, visible in the appearance of new vessel forms such as ceramic molcajetes and ring-based cups, reflect broader transformations in food preparation and ritualized consumption (Beekman 2019:130–131; Holien 1977; Williams 2020:173–175).

These transformations in material culture underscore the negotiation of identity during the Classic period. Beekman interprets the El Grillo complex as evidence of rapid cultural integration following migration, suggesting that new material forms represented the blending of migrant and local traditions into shared expressions of community identity (Beekman 2019:135). Williams (2020:158–160) likewise emphasizes the dynamic and interconnected nature of West Mexican societies, where changing settlement forms, trade, and ritual practices signaled a shift toward new political configurations and regional integration.

The Epiclassic period introduces substantial changes, with El Grillo ceramics reflecting novel vessel forms for food preparation and drinking. These “full package” adoptions align with Beekman’s (2019) interpretation of migration and cultural integration. Ritualized drinking, indicated by large ceramic vessels and ring-based cups, suggests the emergence of new communal and symbolic consumption practices. The occurrence of miniature paired cups and ollas, often referred to as the *copa–olla complex* following Holien’s (1979) analysis, reflects a distinct set of practices that extend beyond everyday culinary use. These small, carefully crafted vessels frequently appear in ritual or mortuary contexts, suggesting their role as symbolic or ceremonial objects rather than utilitarian containers. Their diminutive size and deliberate funerary association point to a concern with representation and performance, where vessels stood in for acts of drinking and serving that carried social, ritual, or cosmological meaning.

3.1.2 Atemajac Phase Period Developments (Atemajac I-III)

The Postclassic period in the Tequila Valleys, marked by Atemajac ceramics, remains less clearly defined. Sites such as Etzatlán and Tala, identified in historical documents as political “headtowns” (Weigand 1993, 2013), suggest localized centers of power. Heredia (2017) notes distinct settlement patterns north and south of the Tequila Volcano, indicative of varied political organization within the region. Broader regional studies, however, provide insights into the interconnected nature of Postclassic Mesoamerica. Pohl et al. (2003) describe Eastern Nahua, Mixtec, and Zapotec marriage alliances linking elite palace systems, while Mathiowetz (2019:292–293) identifies expansive trade networks within the Aztatlán culture of northwest Mexico. In later periods, the valleys were bounded, but not controlled, by competing Caxcan polities from the north and Tarascan empires (Mathiowetz 2019; Beekman 2019; Weigand 2013).

In the Atemajac II phase, the introduction of comales—ceramic griddles used for tortilla production (Fournier 1998; Katz 2019)—signals the adoption of new cooking practices, including dry-heat preparation. At the same time, large vessels interpreted as equipment for brewing tejuino (Novillo 2015) highlight the importance of fermented beverages in feasting and communal events. Although direct evidence for cacao consumption is lacking, the presence of vessel forms comparable to cacao-serving types elsewhere in Mesoamerica points to possible participation in long-distance exchange networks.

3.2 Evidence of Food Practices and Environmental Context

Direct evidence of foodstuffs is limited by preservation issues and excavation gaps. Early studies, such as Glenn Stuart's analysis of pollen from possible wetland agricultural features, suggest intensive agriculture during the Epiclassic (Stuart 2003).[1]

Subsequent studies have also faced challenges. Schoenwetter (2004) recovered minimal macroremains from the site of Llano Grande, while phytolith analysis identified maize alongside fruits like Prunus and Celtis (Thompson 2003). Cardemil (2012) similarly found limited evidence at Los Guachimontones. In the absence of robust botanical evidence, ethnohistoric and ethnographic studies have thus provided critical supplemental insights into West Mexican foodways.

[1] Chronological uncertainty complicates these findings, as Stuart's radiocarbon dates may have been affected by modern landscape alterations.

Eduardo Williams (2014, 2015) argued for the historical importance of lacustrine resources, particularly the now-drained Laguna de Magdalena. Drawing from ethnohistoric sources, Williams highlighted aquatic foods such as frogs, snails, and fish, linking these with observations of modern lacustrine systems in Michoacán. Zizumbo-Villareal et al. (2014, 2016) further documented indigenous recipes based on pre-Hispanic foodstuffs, identifying maize, squash, beans, chilies, and other staples as components of quotidian, ceremonial, and feasting cuisines. These works, while valuable, often risk presenting food practices as temporally static; however, their documentation of preparation techniques, such as pit cooking, lime soaking, and grinding, provides crucial analogues for archaeological interpretation.

3.3 Migration, Invasion, Displacement, and Long-Distance Trading

The adoption of culinary materials in other regions of Mexico often reflects the influence of long-distance trade, warfare, or centralized imperial control. However, these models face challenges when applied directly to the Tequila Valleys. Hassig's (1992) argument that comales were adopted as part of strategies related to war and long-distance trade (looked through a lens of women labor in Brumfiel 1991)—does not align with the political and social context of the Tequila Valleys, which were never subsumed by large empires but as a deliberate negotiation of identity within emerging market economies and hierarchical social systems. [2] Instead, John Pohl el al. (2003) concept of mercantile alliances offers a more pertinent framework. Pohl and Mathiowetz (2025:18-19) highlight the Aztatlán phenomenon to the west of the Tequila Valleys, where long-distance trade networks connected regional economies, facilitating the exchange of

[2] Though see Blanton and colleagues argue that comales in the Valley of Oaxaca appear during times of agricultural intensification in the formative period Blanton et al. 1999:95-96; Feinman et al 2021:228; Feinman 1986)

prestige goods (Mathiowetz 2018). This interpretation is further complemented by Halperin's (2017) discussion of cosmopolitanism, which reframes the adoption of foreign materials not as coercion or agricultural intensification.

Detailed local analyses provide critical nuance. Biskowski and Watson's (2013) study of groundstone materials at Epiclassic Cerro Portezuelo in central Mexico illustrates this point. They distinguish between "active" handheld grinding tools, such as manos and pestles, and "passive" grinding tools, including metates and mortars. By analyzing the morphology and surface openness of metates, they reveal broader patterns in food preparation that reflect significant economic and cultural changes. Their study traces a clear transition in maize grinding technology between the Classic and Postclassic periods. In their work they state that trough metates are better suited for populations with moderate grinding needs. According to Biskowksi and Watson, by the Late Postclassic, heavy workloads and the shift to grinding wet kernels like nixtamal drove the preference for open-surface metates at Otumba and other Aztec sites (Biskowski and Watson 2015:220). However, during the Epiclassic and Early Postclassic periods, this type of grinding work seems to have been less significant (Biskowski and Watson 2015:220). These observations demonstrate that shifts in food processing technologies could vary across sites, and they reflect a situation where sites were shaped by localized economic demands and cultural practices. Changes in vessel form and function reflect not only shifts in food preparation techniques but also broader patterns of social interaction, migration, and identity negotiation. For example, the adoption of ring-based cups and molcajetes during the El Grillo phase signals changes in drinking and food-processing practices that correspond with

Beekman's (2019) interpretation of migration-driven social transformations. Such innovations suggest the influence of external traditions being integrated into local foodways.

3.4 Modes of Interaction

The patterns observed in both groundstone and ceramics reflect broader processes of migration and displacement that shaped the cultural landscape of the Tequila Valleys. Beekman (2019) argues that the emergence of the El Grillo ceramic complex in the Epiclassic/Late Classic period signals the establishment of "complete institutions" or communities brought by migrants. The "full package" appearance of this ceramic assemblage suggests a decisive break from earlier traditions, reflecting rapid adoption of new material and social practices. These changes align with broader Mesoamerican trends, where the integration of migrant and local populations often resulted in the negotiation of shared material cultures.

In contrast, the early Atemajac phases reflects a different mode of interaction, characterized by increased participation in long-distance exchange networks. Mathiowetz's (2019) discussion of the Aztatlán culture highlights expansive trade routes that connected Northwest Mexico to broader Mesoamerican and even Southwestern economies. These trade networks facilitated the circulation of prestige goods, fostering connections between distant regions while allowing for localized expressions of identity. In the Tequila Valleys, this long-distance interaction is reflected in shifts in cuisine practices, such as the adoption of comales and other ceramic forms associated with tortilla production and dry cooking.

Historical sources for the Atemajac and Postclassic period in the Tequila Valleys provide evidence for a multi-ethnic and multilingual society, particularly in major centers like Etzatlán

(Weigand 2013). This cultural diversity reflects both migration and long-distance connections. Unlike the earlier El Grillo complex, where material culture appears to emerge rapidly and independently, Atemajac forms and practices often appear in other regions before arriving in West Mexico (e.g. comales, tripod footed bowls Fournier 1998; Katz 2019) This integration positions West Mexico as part of the broader consolidation of Mesoamerica during this period. The adoption of comales and related food processing changes, alongside shifts in ceramic decoration styles, demonstrates the incorporation of external innovations into local lifeways (Pohl 2003, 2012). These changes point to an increasingly interconnected Mesoamerican world (Smith and Berdan 2003), where food preparation and material culture reflect both regional identities and transregional influences.

In this context, changes in vessel types and groundstone technologies reflect broader shifts in women's daily labor. The adoption of comales during the Atemajac II period is a clear example. Associated with tortilla production, comales represent a shift in food preparation techniques that required the labor of women to incorporate both technological and culinary innovations into their routines. This adoption, in turn, reflects how women's labor shaped—and was shaped by—economic and social transformations.

In the Tequila Valleys, larger vessel sizes and new forms, such as ring-based cups and molcajetes, indicate not only technological adaptations but also changes in the scale and context of food preparation, including feasting and ritual consumption. These transformations suggest that women's labor extended beyond domestic tasks to play an active role in community and ceremonial life, where food production was a performative expression of social relationships.

In the Tequila Valleys, characterizing quotidian food practices—what can be termed "normal" foodways—provides a baseline for identifying elaborated or ritualized forms of consumption. Women's roles in food production would have been central to both. While ethnographic and historical sources (Weigand 2013; Lumholtz, Carl 1902; Weigand and de Weigand 1996)suggest that daily food preparation was typically performed by women, exceptions existed for celebratory or communal meals, which often involved additional labor or distinct gender roles. Food consumption itself was also gendered in many Mesoamerican contexts, further complicating producer-consumer relationships (Brumfiel 1991). These gendered divisions, though less certain in prehistoric contexts, provide an important framework for interpreting how culinary practices articulated with social structure.

Historically, a focus on psychotropic substances, such as peyote and datura, in West Mexican studies reflects a broader obsession with shamanism and ritual practices (Furst and Myerhoff 1966; Furst 1972). However, this focus has often overshadowed the role of these substances within broader food systems. Rather than isolating peyote or datura as exceptional or exclusively ritual items, it is more productive to consider them as part of a suite of consumed substances used to alter sensory experiences. This approach avoids reductive interpretations of their sacredness and instead contextualizes their use alongside other consumables, such as maize. Ethnographic evidence illustrates this point clearly: maize, despite its sacred and ritual associations, remains fundamentally a daily foodstuff (Blake 2015). Similarly, psychotropic substances—while marked as "special"—cannot be wholly separated from broader foodways (see Goodman et al. 2014).

The intentional alteration of sensory experiences through the consumption of hallucinogenic substances, such as datura and peyote, provides a compelling avenue for exploring power negotiation, esoteric knowledge, and the social roles embedded in food practices.

3.5 Understanding Pre-500 Culinary Practices in the Tequila Valleys

In the Tequila Valleys before 500 CE, the Teuchitlán culture was organized in a way that allowed for the presence of elites, but their authority was constrained: families could not claim an exclusive monopoly over the sources of power (Beekman 2008). As Heredia Espinoza (2017, 2022) emphasizes, collective structures meant that elites gained prestige and material benefits not through domination, but by engaging in productive activities that served the broader community.

Evidence of social differentiation and related culinary practices can nevertheless be seen in mortuary contexts. Three sites—Huitzilapa, El Arenal, and Los Guachimontones—illustrate disparities in grave goods. Huitzilapa remains the most extensively documented burial site in the region, with large shaft tombs (Ramos de la Vega and López 1996, 2006). In contrast, only pit burials have been documented at Los Guachimontones. This may be partly explained by geological conditions, since the bedrock lies very close to the surface and may have prevented the construction of shaft tombs (personal observation; Alatorre-Zamora et al. 2025). It is also possible that such tombs remain undiscovered, or that they were never constructed at this site due to its corporate ethos. The El Arenal shaft tomb, meanwhile, had already been partially looted by the time it was studied, limiting what can be known of its contents (Long 1966; Corona Nuñez 1955).

The Huitzilapa tomb yielded a rich assemblage, including numerous ceramic vessels, figurines, marine shell ornaments, conch shells, and grinding tools (Benz and Ramos de la Vega 2006). Each chamber housed three individuals. The northern chamber contained two men and one woman; the southern, one man and two women. The primary individual in the north chamber—a man around 45 years old—was adorned with shell bracelets, nose rings, earrings, greenstone beads, pendants, and a cloth embroidered with thousands of shell beads. He was also buried with three decorated conch shells and atlatl hooks (for hunting or warfare). A woman aged about 50, was buried with shell jewelry and spindle whorls near her feet and hand. A second man, aged 30–40, had similar ornaments to the first, including shell and greenstone jewelry, as well as atlatl hooks near his right hand.

In the southern chamber, a man was similarly adorned with shell jewelry, atlatl hooks, and a centrally placed conch shell. Additional items near his feet included a shell bead strand, a slate disc, and a quartz crystal. One woman aged 20–40, lay atop a layer of unidentified organic material placed on two large metates; the other, aged 16–20, was wrapped in a mat. Both had simple shell adornments.

In contrast, tombs outside of the Tequila Valleys but with parallel material described by Galván (1991), Cabrero García (1991), and Cabrero García and López Cruz (1998) suggest more modest interments. Though they also contain ceramics, shell ornaments, and figurines, these tombs generally yield far fewer grave goods than the burial at Huitzilapa. This suggests that some individuals had greater access to wealth and elite status, both in life and death, which likely influenced their culinary habits.

Beekman (2016) surveys how shaft tombs and their offerings were distributed across the Atemajac and Tequila valleys. Excavations reveal both cemeteries and isolated burials: Tabachines yielded 21 tombs containing vessels, shell, jade, and occasional hollow figures, while other finds come from Las Cuevas, Ciudad Granja, and Bugambilias (Beekman 2016:86–87). At Estolanos, looters reported hollow figurines alongside household debris, indicating that some tombs were part of small settlements. Not all figures were mortuary: fragments occur in rural deposits, middens, and informal caches, suggesting they circulated in domestic and ritual settings before burial (Beekman 2016:90). Smaller solid figurines and decorated vessels accompany the large hollow pieces, hinting at a range of ritual paraphernalia beyond elite display items.

Within ceremonial centers, tomb assemblages become especially rich. At Huitzilapa, archaeologists recorded eight El Arenal Brown–style figures with six interments, together with obsidian blades, shell ornaments, and fine serving vessels (Beekman 2016:88). Looted collections from San Sebastián and El Arenal include multiple styles of shaft tomb figures, greenstone beads, spindle whorls, and decorated bowls, indicating complex funerary performances that mixed prestige goods with everyday implements (Beekman 2016:88–89). Excavations at Los Guachimontones and Navajas also uncovered figure fragments, miniature scenes, and household refuse in patios and residential platforms, demonstrating that imagery and offerings tied to ancestors and feasting were not confined to tombs (Beekman 2016:90).

3.5.1 Shaft Tomb Figures as Evidence

Despite competitive impulses, it seems that most societal members had some level of access to elite culinary practices. The significance of these specialized vessels is underscored by their prominent depiction in shaft tomb figures, which highlight their role in staged social events like feasts (Von Winning, Hasso 1974; Butterwick 1994; 2004). Elaborate representations show scenes of feasts and celebrations—specific moments or sequences of time that are clearly "events." These scenes seem to show important events rather than a direct reflection of household life- for example other normal objects like the hearths that might be used to cook, are not shown. The inclusion of vessels in this case suggests that these vessels are part of the events depicted (see Figure 4).


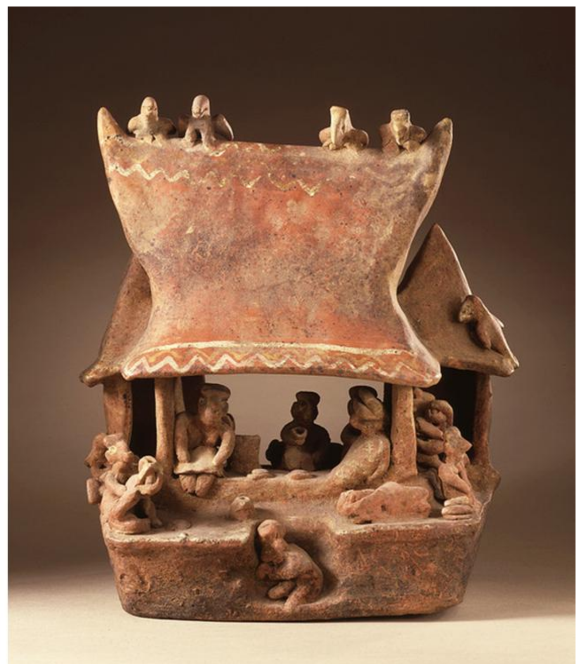

Figure 4 Left, Ceramic house model with communal scene, Nayarit (LACMA M.86.296.38). This elaborately decorated ceramic structure features a steep, patterned roof and a densely clustered group of figures engaged in what appears to be a communal gathering. Several individuals hold cups or vessels, emphasizing the significance of serving and consumption. The absence of cooking features like hearths suggests the scene centers on ritualized or social performance rather than domestic life. Late Formative to Early Classic period, ca. 200 BCE–500 CE. Image Courtesy Los Angeles County Museum of ArtRight, Ceramic house model with flared roof, Nayarit tradition (LACMA M.86.296.30). This open-walled house model showcases a group of seated figures arranged around the interior, many of whom hold vessels or engage in expressive gestures. Image Courtesy Los Angeles County Museum of Art

Female figures are frequently depicted holding specialized vessels, linking their gender roles to the presentation of "event" foods (see Figure 5). Two ceramic sculptures from Nayarit, for example, both show standing women raising cups in formal, deliberate gestures. In one case, the woman's elaborate headdress and jewelry underscore her ceremonial role, while the cup she holds emphasizes her active participation in ritual or feasting contexts (LACMA M.86.296.17). A second figure, similarly posed with a raised vessel, conveys the importance of women as presenters or participants in staged acts of consumption (LACMA AC1998.209.9). These depictions closely parallel actual vessels found in archaeological contexts, such as a polished ceramic cup from Los Guachimontones (Special Inventory INV–TEU–16), whose smooth red-slipped surface and rounded profile resemble those held by the sculptures. Together, these examples highlight the symbolic and material connections between women, vessels, and the performative aspects of food and drink presentation.

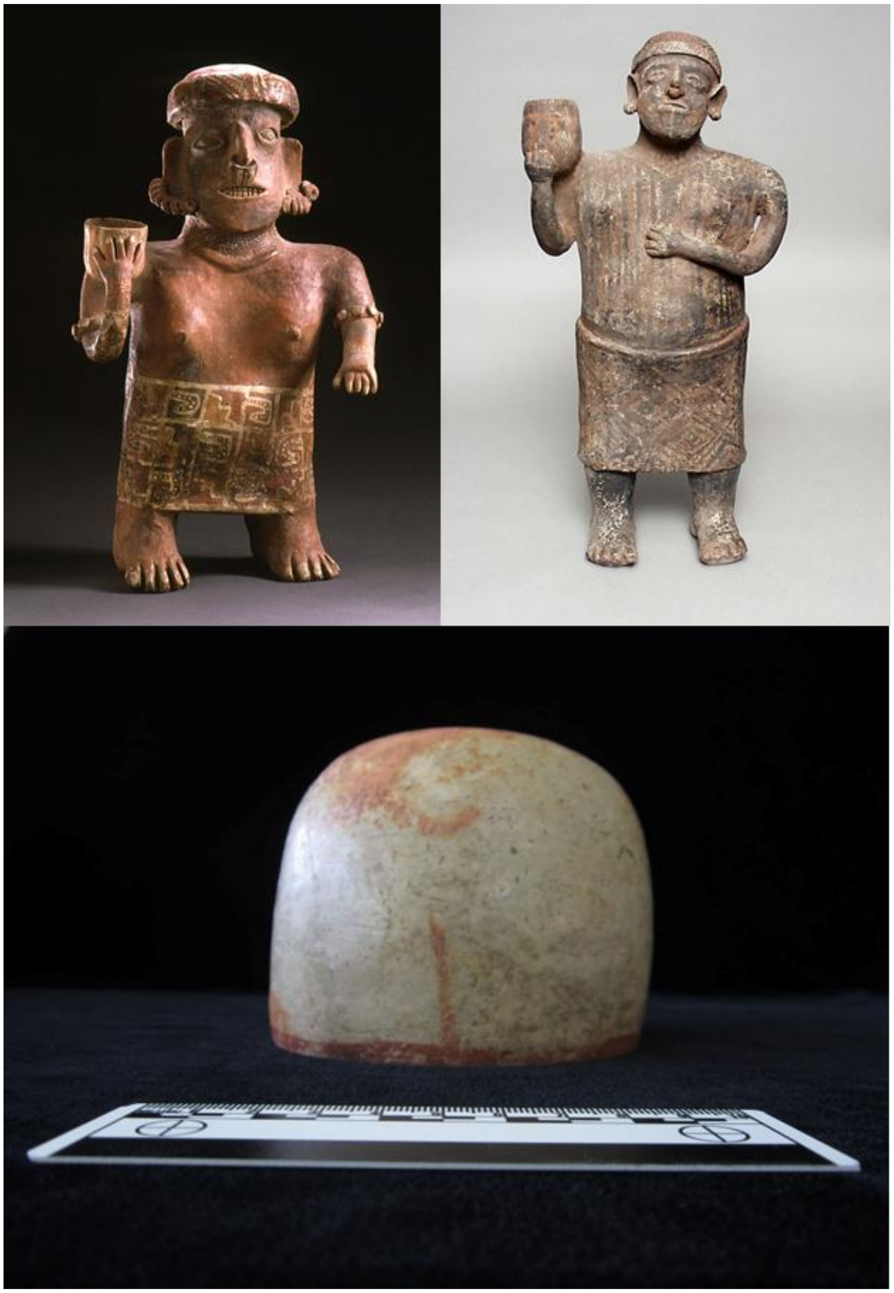

Figure 5 Top left Standing female figure with cup, Nayarit (LACMA M.86.296.17). This ceramic sculpture depicts a woman holding a raised cup in her right hand, suggesting active participation in a ritual or feasting context. Her headdress and jewelry indicate a formal or ceremonial role. The cup's prominent placement reinforces the symbolic connection between women and the presentation of food or drink in staged events. Image Courtesy Los Angeles County Museum of Art. Top right Standing female figure with vessel, Nayarit (LACMA AC1998.209.9). This figure, similarly depicted with a raised cup, is posed in a formal stance. The detailing of the cup and the figure's composed posture again emphasize women's roles as presenters or participants in ceremonial consumption. Image Courtesy Los Angeles County Museum of Art. Bottom. Polished ceramic cup, Los Guachimontones (Special Inventory INV–TEU–16). This finely finished vessel, with a smooth, rounded profile and traces of red slip, resembles the types of cups shown in female sculptures. Image Courtesy of Proyecto Arqueológico Teuchitlán

In addition to grave goods such atlatl hooks related to hunting, and serving vessels related to the presentation of food, shaft tomb sculptures also identify specific elite foods. Zizumbo-Villareal hypothesized that agave was a major crop (Zizumbo-Villarreal and Colunga-García Marín 2010). (Butterwick 1994; 2004) This is supported not by direct botanical remains, but their identifiable appearance in shaft tomb sculpture. Otto Schöndube (1998:212–213) identified a group of western Mexican shaft-tomb figures that depict roasted maguey or agave hearts arranged in bowls (see Figure 6). He noted that these pieces are not generic food symbols but literal renderings of maguey after pit-roasting. Schöndube argued that such sculptures complement sparse archaeobotanical remains, demonstrating that agave roasting and presentation were important enough to be immortalized in mortuary offerings.

Figure 6 Roasted Maguey in bowl. Colima, LACMA (AC1996.146.27) Image Courtesy Los Angeles County Museum of Art

3.5.2 Ethnographic Analogies and Paleothnobotanical Evidence

Further exploring culinary options, Zizumbo-Villarreal et al. (2014) used ethnographic analogies, creating contemporary recipes from indigenous peoples using only pre-Hispanic ingredients. While these recipes are from a millennium later, they offer intriguing insights into potential dishes and food practices of the era. The contemporary use of locally sourced greens, animals, and other consumables, which are not part of the commercial agricultural market, provides insight into the diverse range of resources available in the Tequila Valleys and surrounding regions (Zizumbo-Villarreal et al. 2014). This variety underscores the richness of the area's consumable resources.

Whereas Zizumbo-Villarreal and colleagues explore the potential breadth of ingredients through experimental reconstructions, the more fragmentary zooarchaeological record offers a partial glimpse into how these resources were actually utilized in local diets. Although Judith Porcasi's zooarchaeological study focuses primarily on the pre-Hispanic to colonial transition—a period slightly later than the main chronological scope of this dissertation—her analysis of 1,617 faunal specimens from four sites in the Etzatlán Basin provides valuable comparative insight into local dietary patterns (Porcasi 2012). Employing stratigraphic sequencing, allometric biomass estimation, and ceramic-based chronology, Porcasi found that pre-Hispanic diets relied heavily on large mammals such as deer, while colonial-era deposits showed a broader dietary spectrum, including increased use of birds, small mammals, reptiles, and introduced taxa like cattle and sheep. The most robust assemblage, from Las Cuevas, revealed a sharp decline in large-mammal consumption over time, interpreted as a response to shifting environmental and sociopolitical conditions under colonial rule. While these patterns fall outside the primary timeframe considered here, they underscore how faunal remains can register broader transformations in lifeways. In earlier periods, sites such as Los Guachimontones have yielded some evidence for deer exploitation, but not in quantities sufficient to support strong conclusions about their dietary importance (Porcasi 2012; also personal discussion with Leonardo Valdez). The overall scarcity of faunal remains may reflect both limited reliance on terrestrial animals and taphonomic factors that hinder bone preservation in the region (Porcasi 2012).

Paleobotanical materials are scarce in the Tequila Valleys, but several notable finds offer rare insights into early subsistence practices. For example, the recovery of an entire fish within a bowl and a preserved maize cob in the Huitzilapa shaft tomb provides direct evidence of dietary components during the Formative period (Benz et al. 2006).[3] Despite limited direct evidence, the widespread distribution of maize and beans across Mesoamerica during the Formative has supported their long-standing identification as staple crops. Phil Weigand has proposed alternative staples, notably emphasizing the importance of amaranth in Western Mexico (Weigand 1972). Recent paleobotanical research supports this possibility: pollen data from lake cores in western Mexico indicate a consistent presence of Amaranthus from the Late Archaic onward, with a marked increase during the Atemajac phases, even as maize levels remained relatively low—suggesting a heavily modified anthropogenic landscape and ongoing reliance on diverse plant resources (Anderson et al. 2025).[4] These lines of evidence—ethnobotanical,

[3] A few maize cobs are present from the site of Los Guachimontones, but they have not been examined by a paleoethnobotanist and placing them in chronological sequence is as of yet uncertain (personal conversation Beekman 2025).

[4] Though caution is warranted given the nature of pollen dispersal; Amaranth pollen is abundant and highly dispersive, appearing consistently across pollen profiles, whereas maize pollen is comparatively heavy and typically settles within only a few meters of its source.

zooarchaeological, and iconographic—underscore the complexity of subsistence in the Tequila Valleys, even as many questions remain unresolved.

Shaft tomb sculptures, depicting scenes of feasting, further reinforce this narrative. These sculptures often feature miniature vessels resembling fine dining ware, indicating a cultural emphasis on consumption and culinary presentation (see also Butterwick 1994, 2004). Butterwick (1994) offers the most extensive discussion of commensality in shaft-tomb art from the Teuchitlán tradition. She analyzes 82 ceramic architectural models and associated figurines, noting that many depict jars, bowls, plates, and other serving wares arranged in domestic or patio settings, often around prone or seated figures (Butterwick 1998:191–218). Butterwick argues that these scenes portray structured ritual banquets rather than household meals, pointing to the concentration of vessels and the formal composition of groups (Butterwick 1998:213–223). She distinguishes models with food depictions—such as tamales, beans, or agave hearts—from those with empty serving vessels or drinking jars, suggesting that both types index episodes of ritual consumption tied to mortuary practice (Butterwick 1998:205–210, 218). This emphasis on feasting situates the ceramic tableaux within broader strategies of ancestor veneration, where food offerings and ceremonial drink created bonds between the living and the dead.

Butterwick also integrates data from the Huitzilapa shaft tomb, where seventy-seven ceramic vessels accompanied two principal burials and their attendants (Ramos de la Vega and López Mestas Camberos 1996; Butterwick 1998:285–288, 297–303). She interprets the presence of large jars, serving bowls, and pulque containers as evidence of private mortuary feasts followed by periodic commemorations at household altars (Butterwick 1998:295–330). Her discussion links these practices to the exploitation of Agave tequilana (Blue Agave) in the

Tequila Valleys, arguing that control of this resource enabled elites to sponsor drinking events—pulque, mescal, or related beverages—that reinforced descent-group authority (Butterwick 1998:89–100, 322–324). By grounding iconographic scenes in archaeological deposits and resource studies, she demonstrates that feasting was not merely a symbolic motif but an activity embedded in the political economy of Late Formative Jalisco. Butterwick (1994, 1998, 2004) further highlighted feasting as a central social and political practice, with ceramic sculptures potentially illustrating ancestor veneration alongside communal food consumption.

3.6 500 CE: A Dramatic Change in the Tequila Valleys

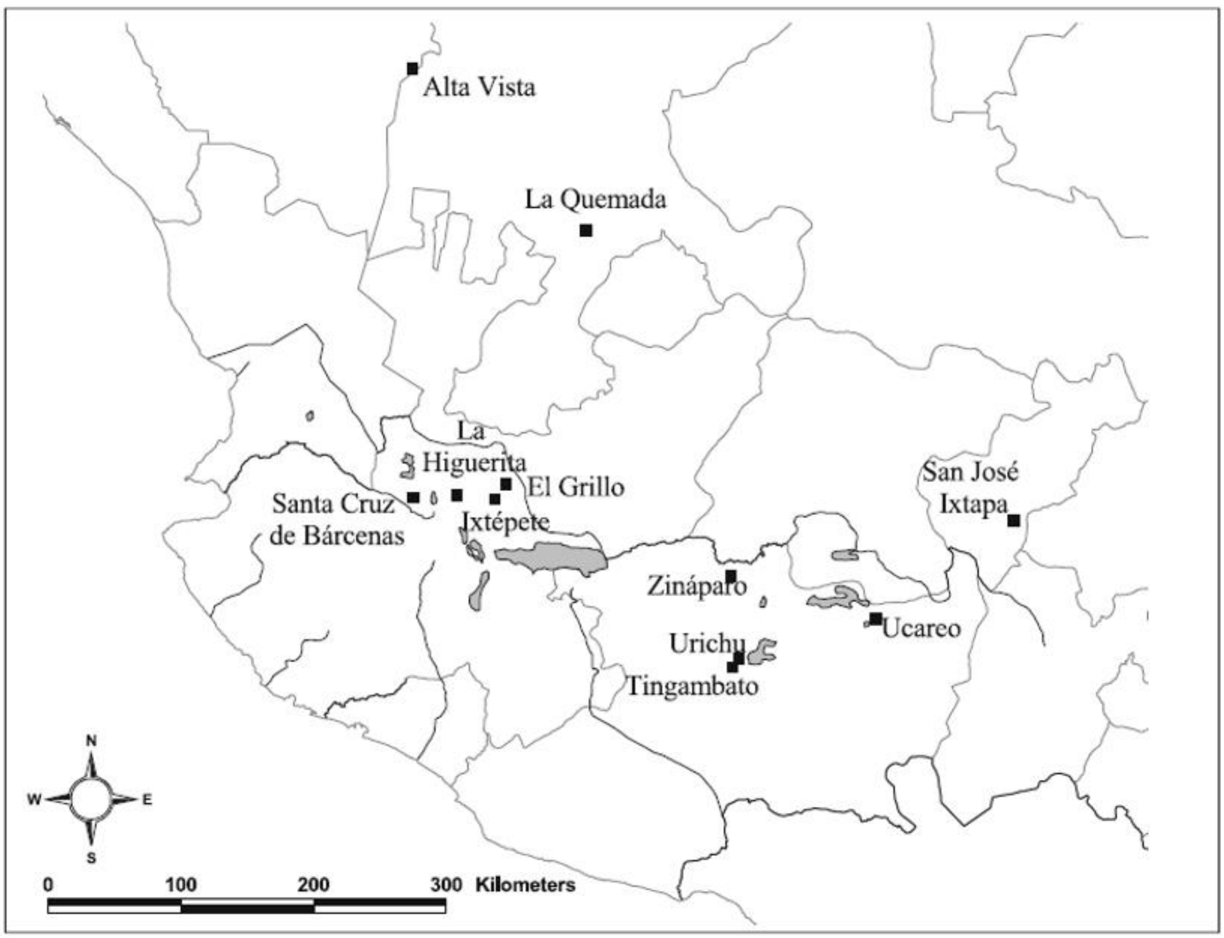

Figure 7 Map of Epiclassic Period sites in Western Mexico (Beekman 2010; Figure 5)

The years surrounding 500 CE mark a profound transformation in the Tequila Valleys. This period saw the complete disappearance of the types of monumental architecture prevalent earlier, along with the cessation of the previously described ceramic types and the shaft tombs with their associated burial goods. This indicates a significant, dramatic shift in the region, including the major sites as shown in Figure 7 (Beekman 2012; López and Montejano 2009; Heredia Espinoza 2022).

Jiménez (2020) examines the decentralization of the Mesoamerican world-system following the collapse of Teotihuacan around 550–600 CE, arguing that this transition marks a shift from a centralized core–periphery model to a multicentric configuration of local and regional spheres (Jimenez 2020: Chapter 5). With the disintegration of Teotihuacan's influence, interaction networks across West Mexico underwent significant restructuring. Jiménez frames this transformation through the lens of world-systems theory, particularly the concept of "pulsation" (Chase-Dunn et al. 1997), in which periods of interregional connectivity are followed by phases of fragmentation, localized autonomy, and the intensification of regional identities.

In the absence of a dominant core, Jiménez identifies several distinct cultural spheres that emerged across inland West Mexico during the Epiclassic period (600–900 CE). These include the Suchil-Guadiana sphere, centered at Alta Vista and La Ferrería in Durango, which was notable for its mining and prestige-goods production; the Malpaso sphere anchored by La Quemada, known for its resist-painted ceramics and extensive causeway system; the Valle San Luis sphere, defined primarily by its diagnostic polychrome ceramics; the Southern Zacatecas/Northern Jalisco sphere, marked by annular-based resist-painted bowls and ceramic plaques with possible obsidian exchange connections; and the Grillo-Sayula sphere in central

Jalisco, where salt production and shell ornament manufacture point to localized specialization. Jiménez argues that the Epiclassic period represents not collapse but reconfiguration—one in which material culture helps trace new forms of interaction and identity formation in the absence of a unifying political core.

As regards migration, Beekman (2015) frames Epiclassic migration as both a cause and a consequence of social and environmental disruption. He argues that severe drought (Metcalfe and Davies 2007:169) created pressures in the Bajío and adjacent regions, prompting organized, elite-led migrations into areas such as central Jalisco. In the Atemajac Valley, Beekman (1996) identifies a marked departure from earlier Teuchitlán traditions, reflected in new ceramic forms, funerary customs, and U-shaped architectural layouts. These changes appeared abruptly and suggest a regional transformation with strong ties to the Bajío and Guanajuato rather than the central Mexican highlands. Beekman emphasizes that this shift was not simply the result of influence from powerful highland centers like Teotihuacan but rather reflects internally driven reorganization and strategic expansion. These movements involved not only farmers but also specialized craft workers and political elites who rapidly established new polities and introduced distinctive material culture (Beekman 2012).

In a broader framework, Beekman and Christensen (2003) examine the spread of Nahuatl-speaking populations into central Mexico, arguing that Nahuatl likely arrived after the fall of Teotihuacan, carried by migrants from northwestern and western Mexico. They highlight that migration during the Epiclassic was complex and multi-scalar. Coca and Tecuexe speakers in Jalisco, for example, are described as possibly arriving through northeast-to-southwest migrations during the Epiclassic or Early Postclassic periods (Weigand and García de Weigand

1996). The Caxcanes, with linguistic ties to central Mexican Nahuas, are said to have launched military expansions from southern Zacatecas, displacing Tecuexe and other groups into the rugged terrain of northwestern Jalisco and Nayarit (Tello 2022). Although historical and archaeological records for the region remain limited, Beekman and Christensen (2003) note the coexistence of Nahuatl-speaking barrios within otherwise non-Nahua-speaking communities in early colonial sources from Jalisco (Yáñez 1994). They ultimately argue for a model of Epiclassic Mesoamerica characterized by decentralized realignment, in which migration, environmental stress, and cultural innovation were deeply interconnected.

The specifics of who migrated and whether these movements were amicable or a form of social conquest remain unclear. However, the abandonment of previous forms of monumental architecture and the drastic shift in ways of life suggest, at the very least, a significant change in power from the existing political structures. This could be interpreted as a loss of faith in religious and civic ceremonial practices, as suggested by Beekman (2020) Beekman and Christensen (2003) and Heredia Espinoza (2022) in the face of drought, or possibly as a result of conquerors and colonization from the north. Regardless, this period heralded the creation of a new social order, evident in changes in monumental architecture and, crucially for this discussion, a shift in cooking practices and goods.

3.7 The Post-500 Landscape

According to Beekman (2012), the El Grillo ceramic complex, emerging in the Epiclassic period (ca. 500–900 CE), marks a moment of profound transformation in community organization, material culture, and regional interaction. Material associated with this era has been identified across eastern and central Jalisco, with evidence coming from both funerary and domestic contexts (Aronson 1993, 1996; Galván 1976; Schöndube and Galván 1978; López Mestas Camberos and Montejano 2003; Montejano 2007).

Sites associated with the El Grillo complex—such as El Grillo itself, Ixtépete, and Coyula—feature U-shaped architectural arrangements with central pyramids and flanking platforms or structures, replacing the earlier circular patio-pole ceremonial centers. These forms resemble the patio-pyramid-altar configurations found in the Bajío and Querétaro, suggesting participation in a broader Epiclassic interaction sphere tied to that region (Beekman 1996a; Weigand 1990). This transformation in architectural layout likely reflects changes in governance and ritual practice, possibly related to shifts in authority and cosmological ordering.

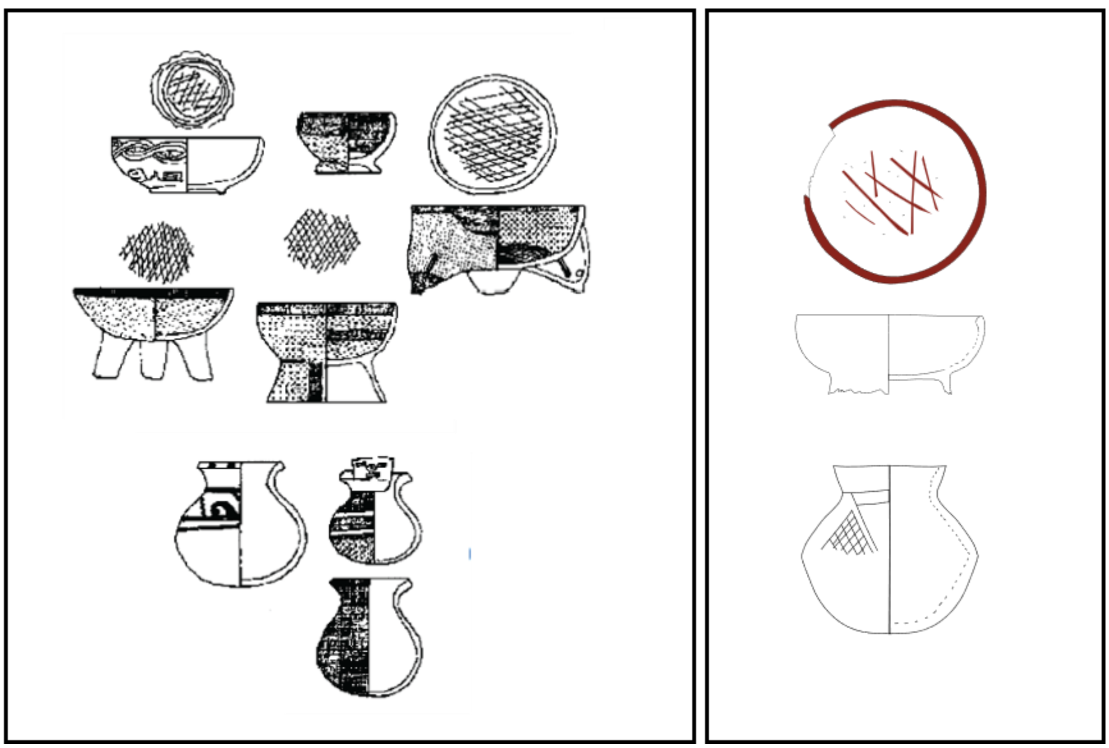

Figure 8 Left, El Grillo style vessels (after Galván 1976 plate 1); Right, vessels from site of Las Cuevas drawings by author.

This period of transformation was not entirely uniform. In the Tequila Valleys these sites were often located in areas not previously occupied during earlier phases, such as in the sites of La Higuerita, Santa Cruz de Barcenas and Oconahua (Beekman 1996b, 959–960). Some previous Teuchitlán sites, such as the site of Los Guachimontones, appear to have experienced dramatic drops in use/population. The El Grillo period saw the widespread adoption of rectangular architectural forms, flexed burials in stone-lined box tombs, and a strikingly different ceramic assemblage, signaling not only aesthetic changes but a reorientation in political and social structures (Beekman 1996b; Blanco Morales et al. 2020; Smith Márquez 2018). Alongside architectural changes, the mortuary record also underwent a major shift. Shaft tombs—ubiquitous in the preceding Teuchitlán tradition—were replaced by box tombs and simpler flexed interments, often accompanied by miniature ceramic offerings (see Figure 8).

3.8 Chronological Sequences from Relevant Regions of Western Mexico, 850-1600 CE

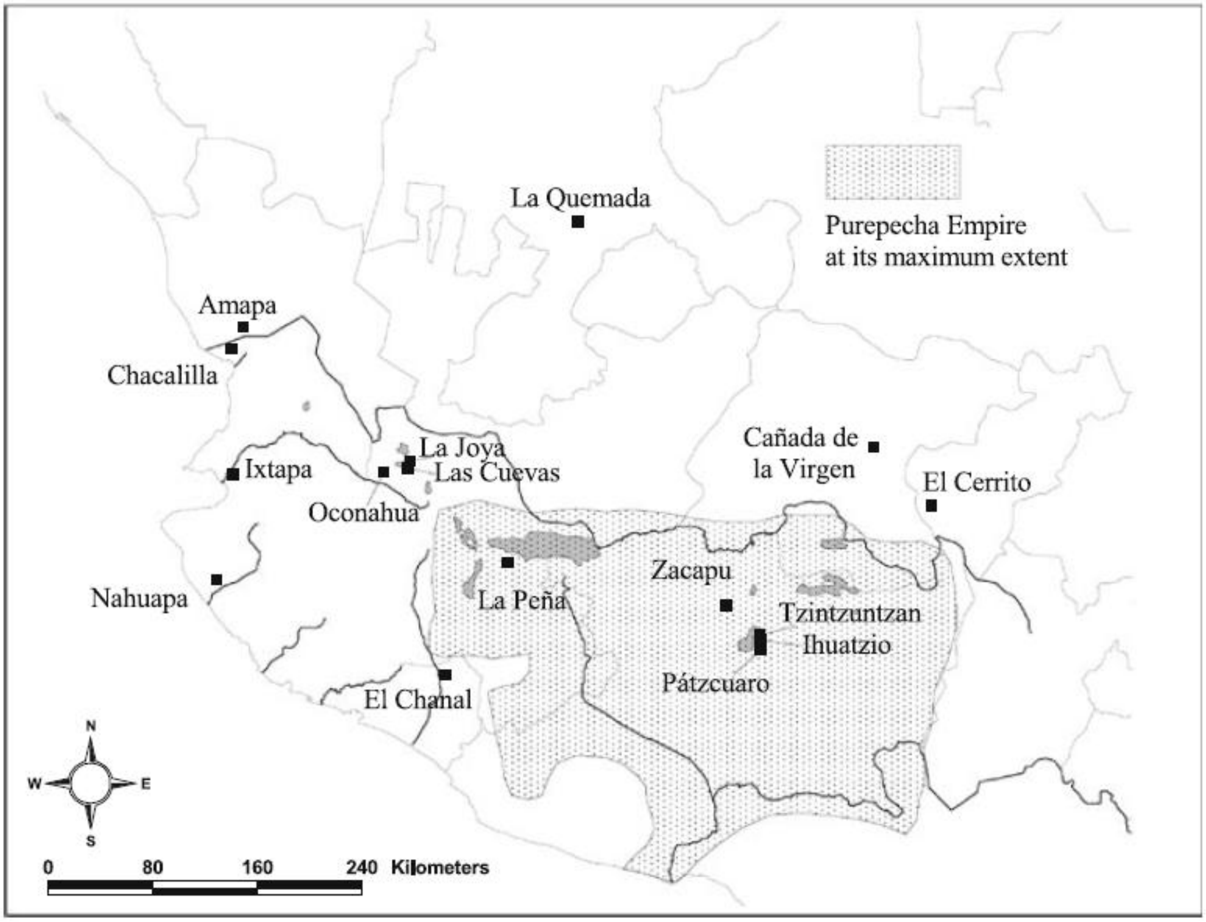

Figure 9 Map of Postclassic sites in Western Mexico (Beekman 2010: Figure 5)

Understanding the Postclassic period in the Tequila Valleys requires situating the region within the broader cultural and political landscape of West Mexico, as shown in Figure 9. Between approximately 900 and 1400 CE, this region was part of a dynamic and transformative era commonly associated with the Aztatlán Tradition—a cultural system frequently characterized as a constellation of city-states linked through extensive long-distance interaction networks (Solar Valverde and Nelson 2019; Solar Valverde 2025; Solar Valverde and Nelson 2019; Mountjoy et al. 2020; Publ 1986).

The Aztatlán Tradition, flourishing during the Early to Late Postclassic periods (ca. AD 850–1350), encompassed a wide geographic swath of western Mesoamerica (Solar Valverde and Nelson 2019; Solar Valverde 2025; Solar Valverde and Nelson 2019; Mountjoy et al. 2020; Publ 1986, Pohl and Mathiowetz 2025:). Its reach extended from modern-day Nayarit and southern Sinaloa into parts of Jalisco, Sonora, Durango, and Zacatecas. This tradition is marked by a distinct material culture, emergent socio-political formations, and robust trade routes that tied western Mexico to both the broader Mesoamerican world and the American Southwest (Pohl and Mathiowetz 2025:1–3).

Originally defined by Sauer and Brand (1932) based on polychrome ceramics found in Sinaloa and Nayarit, the concept of Aztatlán has evolved significantly over the past eight decades (Kelly 1938). Subsequent scholars, including Meighan (1976), expanded the definition to include a broader set of shared material traits and architectural forms (Mountjoy et al. 2020). Recent research (Solar Valverde and Nelson 2019; Mountjoy et al. 2020) emphasizes the early Postclassic origins of Aztatlán materials (ca. 900–1350 CE), while also recognizing their roots in earlier Epiclassic interactions across interior and coastal regions (Solar Valverde and Nelson 2019; Mountjoy et al. 2020).

Aztatlán sites are defined by a suite of diagnostic features: red-on-buff and polychrome ceramics with thin walls, decorated spindle whorls, marine shell jewelry, copper bells, and evidence of long-distance exchange (see Figure 10). Architectural forms include semisubterranean rectangular residences and public buildings such as platforms, plazas, and ballcourts (Mountjoy et al. 2020). Key sites that exhibit these traits include Mazatlán and Las Labradas in Sinaloa, Ixtlán del Río and Amapa in Nayarit, and sites in southern Durango and northern Jalisco. Cemeteries with flexed and extended burials and ceramic offerings also serve as hallmarks of the tradition (Valdéz et al. 2005). Inland centers like El Remolino in Zacatecas and El Piñón in Durango provide additional evidence of early Aztatlán-related developments in the Epiclassic, suggesting long-term processes of interaction and cultural synthesis (Beltrán Medina 2007; Beltrán Medina 2019).

Recent contributions by Garduño (2015) have proposed further refinements to the Aztatlán inventory, including the presence of incensarios, effigy vessels, and specific ceramic forms that link sites across different ecological zones. These findings support the idea that Aztatlán was not a homogeneous culture but rather a dynamic tradition shaped by mobility, exchange, and regional negotiation. This newer scholarship reframes Aztatlán not as a single "culture" but as a broader tradition or interaction sphere characterized by shared material traits, economic ties, and social practices.

Archaeologically, the Aztatlán horizon is identified through its characteristic polychrome and incised ceramics, many of which bear codex-style iconography and ritual motifs closely aligned with the Mixteca-Puebla international style. The Mixteca-Puebla style conceptualized by Vaillant (1940) as a "culture" or "civilization," was later refined as a horizon style characterized by a narrow temporal span, wide spatial distribution, and distinctive iconographic complexity (Vaillant 1940; Nicholson 1960:255-256). Its material signature centered on elaborately painted polychrome ceramics, including codex-style vessels whose surfaces displayed standardized arrangements of signs—solar bands, deities, and other ritual symbols—created primarily for feasting or ceremonial use rather than mundane dining (Hernández 2010:254-261).

The diffusion of this imagery is often framed as part of an “International Style,” a system of long-distance interaction that moved both prestigious goods and visual symbols. McCafferty and Steinbrenner (2005:282-287) argue that traveling merchants (pochteca) operating under the aegis of Quetzalcoatl’s cult circulated Mixteca-Puebla motifs alongside commodities such as cacao, jade, and quetzal feathers. Rather than a mass tradition, the style functioned as an elite language of status and diplomacy, a medium through which distant regions could engage with shared religious and political ideals while affirming their place within a wider exchange network.

Local elites adopted or referenced Mixteca-Puebla imagery to negotiate prestige and align themselves with powerful ritual traditions (Pohl 2025), demonstrating how even distant communities were drawn into the ideological and economic circuits that defined the Late Postclassic world. These material features, along with recurring architectural patterns and symbolic representations, point to a widespread, if locally diverse, ideological system (Mountjoy 2025; Pohl and Mathiowetz 2025:2). Despite shared elements, regional variation in vessel forms, production techniques, and decorative styles reflects the endurance of deep-rooted local traditions dating back to the Preclassic (Pohl and Mathiowetz 2025:2–3).

Figure 10 Artifacts of the Aztatlán Complex. Mazapán-style figurine (Museo Regional de Tepic); cylindrical seal (Museo Regional de Tepic; Gifford 1950); ceramic pipe and spindle whorls (Museo Nacional de Antropología); ceramic whistle, copper bells, and copper bells, and copper tweezers (Cerro del Teul Archaeological Project Collection). After Jiménez (2020: Figure 6.2), showing what he calls the distribution of the Aztatlán network—core zone (light gray) and expansion between 850 and 950 CE (dark gray).

Rather than constituting a centralized polity, the Aztatlán tradition consisted of a co-tradition of peer polities. These maintained local autonomy while engaging in overlapping religious, economic, and political networks. Ritual practices, intermarriage alliances, and shared ceremonial symbols connected these groups in a manner comparable to Mixtec and Zapotec lordships of southern Mesoamerica (Pohl and Mathiowetz 2025:14–17; Cabrero García 2009). Important regional centers like Ixtlán del Río and San Felipe Aztatán in Nayarit and La Peña in

Jalisco exhibit dense occupations, ceremonial architecture, and evidence of elite activity during this time (Garduño 2015; Ramírez Urrea 2025).

Economically, the Aztatlán world was deeply embedded in interregional trade. The introduction of metalworking around AD 850/900, along with salt production and obsidian exchange, facilitated connections that extended to Central America and northern Mexico. Sites like San Felipe Aztatán traded with regions as far-flung as Chiapas, Guatemala, and the Toltec heartland, as evidenced by the presence of Plumbate wares and Mazapan-style figurines (Pohl and Mathiowetz 2025:15; Solar Valverde and Nelson 2019). These exchanges also reached northward into the U.S. Southwest, forming what some scholars term the Aztatlán Mercantile System (Mathiowetz 2019,Vidal Aldana 2025; Carpenter and Sánchez 2025).

These far-reaching networks circulated prestige goods among elite groups. These included elaborately decorated ceramics bearing Mixteca-Puebla-style iconography, tripod-footed vessels, and Mazapan flat figurines depicting narrative scenes. Examples include a Mazapan-style figurine and cylindrical seal from the Museo Regional de Tepic (Gifford 1950), as well as ceramic pipes, spindle whorls, whistles, copper bells, and tweezers held in collections such as the Cerro del Teul Archaeological Project and the Museo Nacional de Antropología (see Jiménez 2020 Figure 6.2).

In Jalisco, Aztatlán material culture is first found in the Atemajac I phase (ca. AD 850/900–1100). The Sayula and Chapala basins, in particular, experienced significant population growth and the rise of regional centers. Surveys by Ramírez Urrea (2025) have identified La Peña as a major political and ceremonial center, surrounded by subordinate sites engaged in the production and trade of prestige goods, including metallurgy and salt (Pohl and Mathiowetz 2025:14). While Aztatlán polychromes and ceremonial symbols were adopted in Jalisco, local vessel forms and production techniques persisted, reflecting an adaptive engagement with Aztatlán ideology rather than top-down imposition. Jalisco, then, represents a hybrid zone where enduring local traditions interfaced with wider cultural currents.

Figure 11 Map showing boundaries of Aztatlán network suggested by Solar Valverde- red dot placed by author showing location of Tequila Valleys (After Solar Valverde 2025: Figure 2.1)

Some interpretations place the Tequila Valleys within this broader Aztatlán sphere (see Figure 11) Aztatlán, with red dot indicating the Tequila Valleys). For others, though, this remains a matter of debate.

While sites like Los Guachimontones, Las Cuevas, and El Grillo show no evidence of functioning as major Aztatlán power centers, they do exhibit signs of influence. Aztatlán-style ceramics—particularly polychromes with codex-style iconography and incised motifs—appear sporadically, especially in nearby regions like the Sayula and Chapala basins (Ramírez Urrea 2025:92–94). These occurrences suggest symbolic or ideological engagement rather than direct integration. A similar pattern is visible at Isla de Atitlán, where Blanco and Pérez Martínez (2022) identify ceramics associated with what they call the Grillo, Aztatlán, and Huistla traditions (Blanco Morales and Pérez Martínez 2022). In this context, "Aztatlán" serves as both a stylistic and chronological category, with the site's main period of activity—from ca. 500 to 1500 CE—overlapping the Aztatlán phases (ca. 850–1350 CE) (Solar Valverde 2025; Carpenter, John P. and Sánchez 2025). The presence of Aztatlán-style ceramics suggests participation in broader regional interaction networks and situates these sites—though not political centers themselves—within the stylistic and cultural sphere of the Aztatlán tradition.

3.9 Chronological Framework and Ceramic Typologies

Efforts to classify Postclassic ceramics in West Mexico have evolved considerably over the last several decades. Glassow's (1967) study at Huistla provided one of the earliest typological frameworks, but later work has shown that the assemblage he described blends materials now separated into Atemajac I, II, and III as well as elements of the Late Ixtlán tradition (Beekman 2020, Beekman and Roddy 2025). Mountjoy (2025:46), drawing on

Glassow's results, proposed narrowing the term "Aztatlán polychrome" to a localized, perhaps late, variant of a wider ceramic tradition, noting its association with Aztatlán Banded Red-on-Buff and Band-Incised-Buff wares.

Building on Glassow's typology, Nance et al. (2023) undertook a reanalysis of Long and Glassow's ceramic collections from Anona, Las Cuevas, Tiana, and Santiaguito. While he retained many of Glassow's type names, Nance emphasized decorative elements and specific design attributes, often breaking down previously established "types" into discrete modes. These modes were defined by decorative motifs or morphological characteristics.

Nance's work also advanced regional synthesis by comparing ceramic assemblages from Huistla (Glassow 1967) with those from sites in the Magdalena Lake Basin (Nance et al. 2013). Correspondence analysis of the assemblages by Nance et al. (2013) demonstrated a continuum of variation in ceramic styles. While Nance himself distinguishes primarily between earlier and later clusters of material— interpretation suggests that the quantitative scores can be heuristically organized into three broad phases, each corresponding to significant cultural and chronological developments in the region (Beekman and Roddy 2025). These phases include an initial Atemajac I assemblage corresponding to both early and late Aztatlán, a subsequent Atemajac II phase with materials of northern origin, and an Atemajac III phase that features continuity of some ceramics with Spanish ceramics from the early Contact period (Beekman and Roddy 2025).

This ceramic sequence broadly mirrors the chronological framework documented at Ixtlán del Río, a site located to the northwest of the Tequila Valleys (Beekman and Roddy 2025).

As described by Gifford (1950), the ceramics at Ixtlán del Río fall into three cultural stages—Early, Middle, and Late—with the Middle and Late phases offering important points of comparison for understanding Atemajac phase dynamics.

The Middle Period is marked by the emergence of the Aztatlán ceramic complex and corresponds to the Atemajac I phase. This includes fine incised wares, brown-on-buff and red-on-buff painted pottery, as well as technological innovations such as tripod molcajetes, nubbin and flanged wares, and three-quarter grooved axes (Gifford 1950:188-189). These materials consistently postdate a distinctive volcanic pumice layer and are typically recovered from surface or upper strata of sites that also contain Early period occupations. Key Middle Period sites include the upper levels of Jala (Site 4), and Sites 5 through 7, 10 through 12, 14, and the upper levels of Site 15 (Gifford 1950: 188-189).

The Late Period corresponds to the Atemajac II and III phases and is defined by the widespread appearance of utilitarian red wares with heavy outcurved rims, white-on-red bichrome pottery, and tripod molcajetes with hollow, rattle-filled legs. Rim-ring handles – what I would identify as comales handles-also become diagnostic features during this phase (Gifford 1950: 189, 193). These materials are often found overlaying Middle Period deposits, indicating cultural continuity and the further development of earlier traditions rather than abrupt replacement. Sites associated with the Late Period include Mina La Colorada (Site 5), Sites 6–7, 10–12, 14, and the upper levels of Site 15 (Gifford 1950: 189, 193)).

The detail provided here is intended to establish a clear framework for understanding how the Ixtlán del Río sequence connects to broader patterns in the Tequila Valleys. By outlining the ceramic traits that define the Middle and Late periods, I highlight the specific technological and stylistic changes—particularly in cooking and serving vessels—that inform later discussions of cuisine and identity. This background offers the reader a point of reference for recognizing continuity and innovation across periods, ensuring that subsequent analysis is grounded in well-defined cultural and chronological markers.

By ca. 1200 CE (Atemajac II), ceramic production in the Tequila Valleys shows evidence of technological innovation, most notably the introduction of comales, which represent a substantial change in cooking practices. This period reflects a more pronounced—but still selective—engagement with Aztatlán stylistic and technological traditions, as regional interaction intensified across West Mexico. Tripod-footed vessels, bowls with incurving rims, and increasingly elaborate painted in Atemajac I wares suggest both aesthetic innovation and shifting culinary needs. These shifts in ceramic form and decoration correspond to broader regional reconfigurations in trade, political power, and daily practice, reflecting a cuisine increasingly shaped by both local innovation and transregional connectivity.

3.9.1 Groundstone Comparison

To the south of the Tequila Valleys, at the site of Sayula, for example, metates recovered from shaft tomb contexts are uniformly rectangular and fairly shallow (Reveles 2005: 354). These are associated with rectangular manos, indicating a close fit between grinding stones and their corresponding handstones. Mortars and pestles were also recovered from these contexts, suggesting that a diversity of grinding and pounding techniques existed alongside the dominant trough metate tradition. In the subsequent Amacueca Phase (approximately 1250-1350 CE), this basic metate-mano assemblage persists, but with the notable addition of tripod supports on some metates. These three-footed rectangular metates retain their trough form but introduce slight variation in how the tool is stabilized or elevated during use (Reveles 2005:366).

Further evidence comes from Galván's excavations at Atemajac to the East of the Tequila Valleys, where metates recovered from Tumba de Tiro No. 11 (Figure 12)include three sided, squared forms without feet. Galván identified multiple examples of what he termed three-sided trough metates without feet — alongside flat manos.

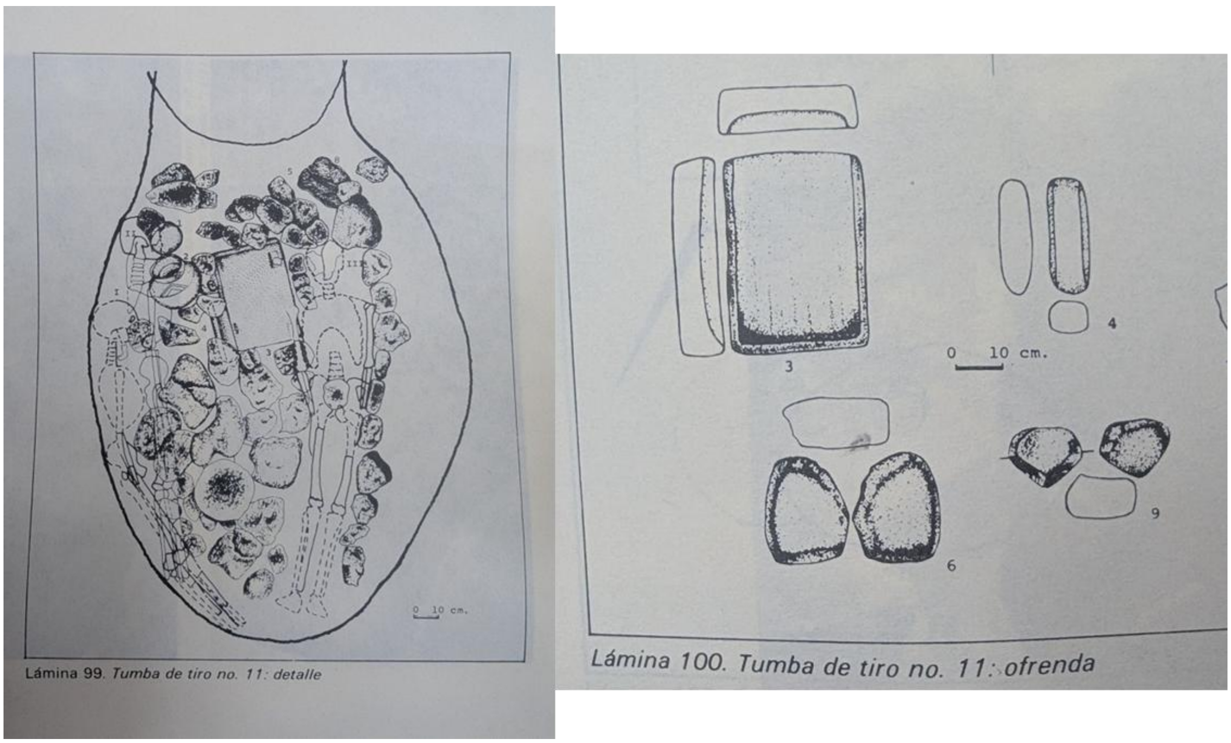

Figure 12 Left, Tumbo de Tiro no.11(Galván 1991: Lamina 99); Right, objects from Tumba de Tiro no.11 (Galván 1991: Lamina 100)

Similar patterns are seen at the elite burial of Huitzilapa within the Tequila Valleys(Figure 13), where a square metate with four feet was recovered from the tomb assemblage((López Mestas C. and Ramos De La Vega 2006; de la Vega and Camberos 1996). The presence of feet on metates — ranging from three to four supports — appears to be a regional variation rather than a chronological innovation. These footed metates co-exist with the more common flat-bottomed forms across sites and phases.

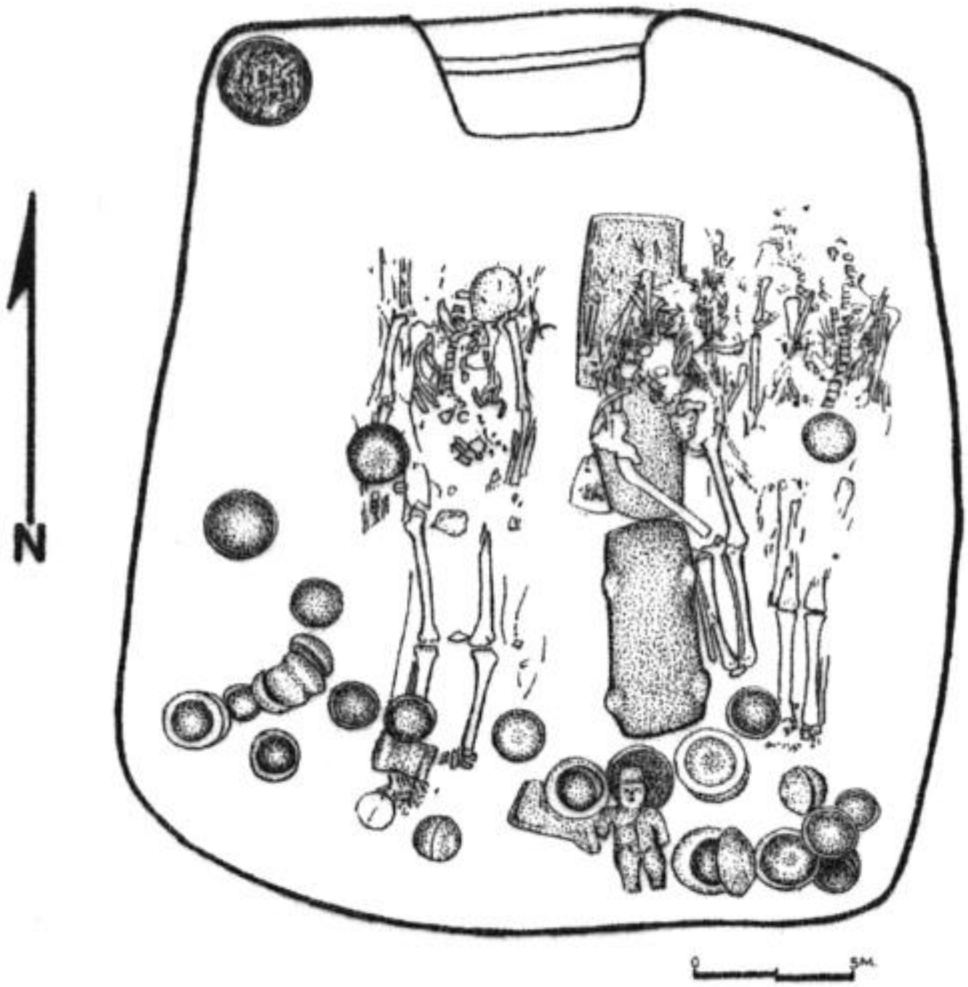

Figure 13 South chamber of Huitzilapa Shaft Tomb (López Mestas and Ramos De La Vega 2006. Figure 6)

3.10 Echoes of the Past: Colonial-Era Observations and Indigenous Resilience

Figure 14 “Huichol woman grinding with metate, Santa Catarina, Jalisco, Mexico, 1895” AMNH Special Collections, Carl Lumholtz Nitrate Negative Collection, 6 x 8: CL1981. Courtesy of AMNH.

Colonial accounts from the early decades of Spanish rule provide crucial, if partial, glimpses into the food traditions of Indigenous communities in west Mexico. One of the most illuminating texts is the Relación de Michoacán, compiled in the 1540s based on testimony from Indigenous Purépecha informants (Uribe 2018; Warren 1971) by the Franciscan Jerónimo de Alcalá at the request of the first viceroy of New Spain. Though focused on the Purépecha (Tarascan) kingdom, the document has broader relevance for adjacent areas, including parts of northern and eastern Jalisco that shared cultural and economic ties with the Tarascan sphere.

The *Relación* describes a food system deeply embedded in ritual and hierarchy. Maize, beans, squash, and chile were dietary foundations (Alcalá 2024: fols. 12r, 12v), prepared with stone tools and ceramic vessels (Alcalá 2024: fols. 28v, 78v, 112v). Importantly, women appear with titled roles tied directly to food production and presentation—for instance, the "salt holder" (*salera*) (folio 23v) and the "tamale maker" (*tamalera*) (folio 31r)—underscoring the formal recognition of their labor within ceremonial contexts. The text also records vivid scenes of eating, such as communal gatherings where tamales and atole were distributed in hierarchical order, with nobles and ritual specialists served first (folios 45r, 46v). These examples illustrate that food preparation and consumption were not merely subsistence activities but structured performances, binding women's roles, culinary technologies, and ritualized meals into the broader fabric of Late Postclassic social life.

This account, produced just a few years after the conquest, reveals how Indigenous foodways remained largely intact during the initial phases of Spanish rule. Although the imposition of tribute, religious conversion, and labor systems disrupted many aspects of Indigenous life, food preparation and consumption appear to have been among the most durable elements (Alexander, Rani T. ed. 2019). That resilience is supported archaeologically by the continued presence of traditional cooking technologies—metates, comales, and ceramic ollas—well into the colonial period. Even as colonial authorities introduced wheat, domesticated animals, and metal cookware, Indigenous communities retained their reliance on grinding stones and ceramic vessels suited for boiling and steaming maize (Beekman and Roddy 2025). These continuities were not mere inertia but reflected the technical and cultural suitability of these tools for preparing staple crops. This raises an important point: rather than seeing the colonial period solely as a moment of rupture, these records encourage us to view prehispanic food systems as inherently flexible and robust, capable of accommodating change while retaining internal coherence.

Chapter 4: Methods

4.1 Interdisciplinary Approach

The interdisciplinary nature of this approach is essential. Cuisine as a subject is multifaceted, and addressing complicated subjects, such as on identity, necessitates weaving together multiple strands of evidence. The diverse types of evidence utilized in this work shed light on different facets of culinary research that a single approach cannot illuminate. The methods employed in this work draw upon techniques and strategies derived from various conceptual frameworks. I integrate techniques from art history, paleoethnobotany, as well as ceramic and groundstone analysis. Additionally, I utilize historical and ethnographic knowledge as an illuminating resource to contextualize some of the observations made through art historical and archaeological research. At the core of my interpretations of cuisine is the recognition that processing, serving, and consumption represent successive stages within a chaîne opératoire model.

As regards art history, research focuses on categorizing and identifying visual tropes related to food processing. Paleoethnobotanical studies rely primarily on residue analysis to identify starch grains, supplemented in some cases by alkaloid testing with mass spectrometry. For ceramics and groundstone, the main approaches involve classification and the construction of chronological sequences based on material attributes.

4.2 Chaîne Opératoire Model

Crucial to all my interpretations of cuisine is the understanding of the processing, serving, and consumption of cuisine as sequential steps in a chaîne opératoire model. In anthropology, " chaîne opératoire", a term that translates to "operational sequence" or "operational chain", refers to a concept used in the study of technology and material culture (Porqueddu et al. 2023; Coupaye 2022; Lewis and Arntz 2020).

In anthropology, particularly in archaeology, the study of chaîne opératoire model involves analyzing the entire sequence of actions or steps involved in the production, use, and discard of an artifact or technology (Coupaye 2022). This approach helps researchers understand not only the final product but also the knowledge, skills, and cultural practices involved in its creation and use. By analyzing each of these steps in the chaîne opératoire model, anthropologists can gain insights into technological innovation, cultural practices, social organization, and economic systems in past societies (Porqueddu et al. 2023; Coupaye 2022; Lewis and Arntz 2020; Walls 2016).

Because I am examining various types of artifacts, each potentially possessing its own operational chain, it is crucial for me to elucidate the steps constituting what I consider the "operational chain" in culinary creation. These categories sometimes encompass broader stages than those typically described in other applications of the chaîne opératoire in archaeological literature. For instance, if we were to focus solely on one type of artifact, such as groundstone, and delineate its lifecycle through the chain opératoire, we might outline the operational chain as encompassing the procurement of basalt, the carving and grinding of basalt into a metate, the years-long utilization of the metate for grinding corn, the eventual breakage of the metate, and the repurposing of the metate as construction fill(e.g. Hamon et al. 2025).

However, as we are addressing not just a single class of object but rather "cuisine," the operational steps pertain to the creation and utilization of culinary items, involving multiple types of objects within a single operational step. Thus, the fundamental steps of the operational chain in culinary creation are as follows:

1. Resource procurement- this involves acquiring both ingredients and processing materials. This could entail obtaining ingredients like maize or acquiring materials like basalt for making groundstone.
2. The creation of tools - this can encompass the necessary steps to create specific desired ceramic forms or the decoration of serving ware, as well as the creation of different forms of groundstone.
3. Processing of ingredients, such as in the grinding of maize
4. Cooking with heat after initial processing, such as the toasting of tortillas on a comal, or the boiling of a stew in an olla.
5. The serving of foods, including the presentation and act of consumption demonstrated by the decorated serving vessels or the representations of bowls and serving foods in art.

Not all stages of this model are equally addressed in the dissertation. Specifically, the most extensive discussion revolves around steps three and four: the preparation of food for consumption and serving foods. These stages are deemed most illustrative for discussing identity. Nonetheless, all steps are considered, as the identification of specific foodstuffs such as maize starch is closely linked to resource procurement, and the observation that most metates are made from the same raw material has implications for the creation of tools, for example.

4.3 Data Collection and Sources

Artifacts and samples examined are from the sites of Las Cuevas, Etzatlan, and Anona (held by UCLA's Fowler Museum) as well as the Los Guachimontones archaeological site (held in Teuchitlan, Mexico). The objects from Las Cuevas, Etzatlan, and Anona are from the 1963 and 1964 excavations of former UCLA graduate student Stanley Long. Objects from the site of Los Guachimontones are from the 10 year excavation project directed by Phil Weigand, and the more recent excavations directed by Verenice Heredia and Christopher Beekman. In many cases, previous documentation of objects existed. I used drawings made of Los Guachimontones material, photos and drawings created by Roger Nance and team from the sites of Las Cuevas and Etzatlan, and previous spreadsheets and analysis of Los Guachimontones material created by the Proyecto Arqueológico Teuchitlán (PAT) team.

The first set of assemblages of ceramics stem from exploratory excavations undertaken by Long and Glassow as UCLA graduate students in the early 1960s. Their primary aim was to document shaft-tomb architecture and associated grave goods, establish a preliminary ceramic sequence for the Tequila Valleys, and compare local material culture with that of neighboring regions. Because chronology and typology for West Mexico were still in their infancy, excavation and recording procedures were less standardized than today: deposits were often cleared to expose architecture and recover whole vessels rather than to maintain fine stratigraphic control. Provenience notes and photographs survive, but sampling was oriented toward visually diagnostic or complete specimens.

My own work with these collections was necessarily selective. I reviewed material in storage bags opportunistically, focusing on pieces that could provide clear illustrations of form, decoration, or technological traits. Nance's later quantitative datasets were not available for reanalysis, and a full re-study of all holdings lay beyond the scope of this project. Instead, these collections supplied observational data and comparative examples—especially drawings and photographs created by earlier teams—and they were particularly valuable for tracking Atemajac ceramic traits, which are better represented here than in other Tequila Valley assemblages.

Most of the Los Guachimontones assemblage originated from excavations directed by Phil Weigand, whose primary goals were the restoration of ceremonial architecture and the development of the site for tourism. Because of this orientation, large amounts of architectural fill and other non-diagnostic deposits were excavated alongside more informative contexts. Subsequent projects, led by Verenice Heredia and Christopher Beekman, expanded the fieldwork and introduced more systematic research questions about chronology, social organization, and craft production.

The ceramic dataset used here derives mainly from analyses undertaken by Beekman and collaborators on material from both Weigand's and later excavations. Their work focused on building a reliable chronological framework for the site, with particular emphasis on several stratigraphic pits that anchor ceramic sequences. These data include a broad inventory of ceramic attributes—form, ware, surface treatment, and decoration—allowing for quantitative comparisons across temporal phases. My study draws primarily on this dataset for statistical analyses, while recognizing that it represents only a single site within the Tequila Valleys and must be interpreted accordingly.

4.4 Morphological and Functional Analysis

Much of the Los Guachimontones dataset has been reorganized at various points to examine broader classes and attributes. I typically rely on ceramic ware, defined by paste composition, as the main tool for separating materials into chronological sequences. This approach produces necessarily broad temporal categories corresponding to the phase names shown in Figure 1 used by Beekman and Heredia (2024))—Tequila I-IV, El Grillo, and Atemajac I-III—that allow for comparisons across large portions of the assemblage. Within this framework, I have grouped rim codes and related attributes into functional or stylistic sets to support analysis of technological and decorative trends.

For ceramics, I initiated the process with documentation and description of the objects, noting their shape, size, decoration, and any visible attributes like surface treatment or color. I developed a typological classification primarily based on form, but also considering decoration, using form as a proxy for function. The objects were scrutinized for potential functions in the food-making process, with additional examination of wear patterns and residue analysis. Finally, I compared previously established chronological sequences with my typologies to establish the temporal context of the ceramic assemblage.

Similarly, for groundstone, I began with documentation and description, recording details such as shape, size, weight, and any visible attributes like wear patterns, polish, or damage. From this, I developed a typology based on shared characteristics such as form and size, using form as a proxy for functional analysis. Like ceramics, groundstone objects were examined for possible functions and preparatory roles in food making. Finally, I compared previously established chronological sequences with my typologies to establish the temporal context of the ceramic assemblage. However, accurately sequencing groundstone artifacts proved challenging due to deposition circumstances.

4.4.1 Forms

To better understand cuisine during the Atemajac phases, I revisited Nance et al.'s work with collections from the Etzatlan, Las Cuevas assemblage and Santiaguito. While their research was formative and instrumental in refining the region's chronology, their focus was primarily on chronological sequencing and decorative motifs rather than vessel form and actual use, which differed from my own research questions. To address this gap, I examined the materials housed at the Fowler Museum in person, creating drawings and comparing them with known vessel forms. I applied the same approach to collections and excavation materials from Los Guachimontones, a site that has been more recently excavated by multiple teams (Heredia Espinoza et al. 2023).

I also conducted a comparative analysis of ground stone materials from both the Fowler Museum and Los Guachimontones to better contextualize their roles in food production and consumption. These observations were then compared with examples from neighboring regions outside the Tequila Valleys. For this work, I follow Beekman's chronology, which is derived from Nance et al. (2013). This sequence divides the chronology into three phases: Atemajac I, II, and III. While Aztatlán materials appear in Atemajac I, Beekman does not use the term "Aztatlán" as a phase name because he views Aztatlán as a broader cultural phenomenon rather than a strictly chronological phase (personal conversation).

4.5 Art Historical Analysis

The fundamental methods entail categorization and identification of tropes related to food processing. The primary sample for this study is shaft tomb sculptures originating from various archaeological sites associated with pre-Columbian Mesoamerican civilizations, including but not limited to those found in regions of West Mexico, particularly Colima, Jalisco, and Nayarit. Selection criteria prioritize artifacts with explicit or suggestive depictions of food-related imagery, culinary tools, or contextual evidence linking them to cuisine practice. Visual analysis forms the cornerstone of this method, involving detailed examination and interpretation of the iconography, form, and materiality of the selected shaft tomb sculptures. This process entails close observation of motifs, symbols, and stylistic elements that may provide clues to culinary customs, foodstuffs, or cultural identity. Contextual analysis is essential for understanding the socio-cultural milieu in which these sculptures were created and used. This involves consideration of archaeological contexts, including the spatial arrangement of artifacts within tomb complexes, associated grave goods, and any inscriptions or accompanying material culture that shed light on culinary practices and cultural identity.

In this study, I draw upon a combination of provenanced and unprovenanced materials to strengthen the interpretive framework. While the primary focus remains on assemblages securely documented from the Tequila Valleys, I also engage with the broader corpus of West Mexican materials—particularly where these provide stylistic or functional parallels that contextualize the local data. The inclusion of unprovenanced objects raises important methodological considerations: without archaeological context, such pieces cannot be used to reconstruct site-specific histories or depositional patterns. However, they do retain value in illustrating regional variation, technological choices, and iconographic themes that resonate with or diverge from the securely excavated record. Unprovenanced materials are used heuristically rather than as primary evidence for chronology or cultural attribution. This methodological choice allows me to contextualize the assemblages without overstating claims based on objects detached from their original provenience.

The art historical material examined in this study provides legitimate and valuable insights into broader Mesoamerican cultural practices, including those potentially relevant to this region. Shaft tomb sculptures from Colima, Jalisco, and Nayarit share overlapping cultural traditions and iconographic motifs with the societies of the Tequila Valleys, reflecting shared regional ideologies and practices during the Tequila II - IV phases. These artifacts offer critical evidence of food-related activities, social identities, and ceremonial contexts that align with the themes explored in the Tequila Valleys. By analyzing these sculptures, we can infer broader patterns of cultural expression and situate the archaeological findings of the Tequila Valleys within a wider Mesoamerican framework, enriching our understanding of identity and culinary practices in the region.

4.6 Microbotanical/Residue analysis

This section provides an overview of starch microresidue sampling procedures, with more detailed explanations available in the appendix. This methodology enables interpretations of artifacts as plant processing tools, offering valuable evidence for understanding ancient diets, culinary practices, and resource exploitation.

The detection of maize starch, for example, highlights its centrality in Mesoamerican subsistence and ceremonial contexts, consistent with broader findings in Western Mexico (Biskowski 2000; Biskowski and Watson 2013; Piperno et al. 2009 Weigand 1993). However, the identification of contamination in the control samples underscores the importance of methodological transparency and interpretative caution (Crowther et al 2014; King et al. 2018).

Starch analysis thus bridges the theoretical divide between material culture studies and paleoethnobotany, allowing researchers to reconstruct past behaviors and trace cultural interactions through food. By addressing contamination, this procedure aligns with archaeological science's emphasis on methodological reflexivity and the importance of distinguishing ancient residues from modern contaminants.

The analysis of microresidues, particularly starch grains, has become a critical tool in understanding past human subsistence practices, food processing, and material use (Piperno et al. 2009; Barton and Torrence 2015; Pagán-Jiménez et al. 2016; Piperno and Dillehay 2008; Piperno et al. 2017). Starch analysis allows archaeologists to trace plant use in challenging archaeological contexts that preclude preservation of macrobotanical remains. The theoretical foundation for this technique is rooted in paleoethnobotany, which examines plant remains to reconstruct diet, agricultural systems, and the role of plants in socio-cultural processes (Pearsall 2015). The study of starch grains aligns with broader materiality approaches, emphasizing how food and its residues reflect cultural behaviors, technology, and identity (Piperno et al. 2009; Zizumbo-Villarreal and Colunga-García Marín 2010).

The procedure for isolating starch residues follows rigorous protocols designed to minimize contamination and preserve integrity, as contamination remains a persistent methodological challenge (Pagán-Jiménez et al. 2016).

The sampling process is divided into three critical steps: sediment extraction, starch separation, and slide preparation, adhering to principles of scientific rigor and replicability.

1. Sediment Extraction

   Two distinct methods—Wet Brushing (WB) and Sonication (S)were employed to dislodge microresidues from artifact surfaces. Wet brushing involves gently scrubbing artifacts with distilled water to remove surface residues, followed by sediment collection and centrifugation. Sonication further aids residue release through ultrasonic agitation, ensuring thorough extraction (Pearsall 2015). This dual method increases the likelihood of recovering microresidues while mitigating the risk of damage.

2. Starch Separation

   The sediment undergoes chemical treatments, including NaEDTA and hydrogen peroxide, to remove extraneous minerals and organic materials. Subsequently, heavy liquid flotation using lithium metatungstate (LMT) separates starch grains from heavier components. This step relies on the physical properties of starch, as it floats in LMT with a specific gravity of 1.8 g/ml, a technique widely used for isolating microfossils in archaeological contexts (Piperno et al. 2009). Stringent rinsing steps ensure that all reagents are removed, safeguarding the chemical integrity of the starch grains and preparing them for microscopic examination.

3. Slide Preparation

   Extracted residues are mounted on slides with a 50/50 glycerol-water solution. This method stabilizes starch grains for optical analysis, allowing for detailed morphological identification based on attributes such as shape, hilum position, fissures, lamellae, and size. These characteristics provide taxonomic information that enables identification of plant species, thereby linking residues to ancient food practices and material usage (Pearsall 2015).

To explore the persistence of key ingredients in local cuisine, I conducted starch grain analysis on artifact residues from both domestic and ceremonial contexts at sites in the Tequila Valleys. This involved sampling sherds and groundstone, extracting residues, and identifying starches under polarized light microscopy based on diagnostic morphological features (See appendix for full procedure). Over 32 objects were sampled with both wet brush and sonication bath, creating 65 samples. Starch was identified on 21 slides, including one control slide. The control was prepared using the same methods but without any archaeological material, serving to test the laboratory environment and procedures. Its false positive result indicates contamination, allowing identification of intrusive starch.

While concerns over modern starch contamination are well-documented in microbotanical studies (Laurence et al. 2011; Crowther et al. 2014; Barton and Torrence 2015; Barton 2007), several factors support the interpretation that the maize and probable bean starches identified in this study are ancient rather than the result of recent contamination. First, the distribution and density of starch grains across the analyzed slides are not consistent with patterns typically observed in laboratory contamination (Crowther et al. 2014). Control slides run alongside artifact samples, including laboratory blanks and site control objects, consistently produced very low starch counts (often fewer than 10 grains), while artifact-associated slides yielded starch densities exceeding 60 grains per slide in some cases. For example, slide 7WB, associated with a basalt mano had over 100 identifications of a single type of starch. This substantial disparity suggests the starch presence on artifacts reflects in-use accumulation rather than laboratory handling error. Second, the recovery of maize starch grains embedded within areas of heavy sediment on artifact surfaces further strengthens their association with ancient use, as these grains would have been shielded from more recent contamination events.

As noted in other studies of ceramic residue (e.g., Piperno et al. 2009; Pearsall 2005), while maize starch is a common contaminant in Mesoamerican lab settings due to its ubiquity in modern diets, beans are far less commonly encountered in laboratory environments. Their repeated appearance across multiple artifact slides, particularly in conjunction with high maize counts and in domestic vessel forms associated with food preparation, supports their interpretation as residues from ancient culinary practices. Taken together, the density, contextual patterning, and morphological preservation of starch grains recovered in this study provide reasonable justification to interpret these remains as ancient, despite the inherent challenges posed by potential contamination.

With a reasonable level of confidence that the remains are ancient, a following question is: How does the quotidian appear in the material record, and how can it be identified? Ceramic artifacts provide evidence in the form of cooking and serving wares, likely utilized on a daily basis, reflecting habitual practices. Groundstone tools are particularly noteworthy, as they can remain in use for decades or even across multiple generations in some cases. These artifacts often demonstrate continuity while also directly reflecting daily practices (Adams 2014). Their form and wear are shaped by the ubiquity of their everyday function, with their role in daily life influencing the creation and modification of the objects themselves (Adams 2014). Starch and other microbotanical evidence present additional challenges. In this research, where such evidence is primarily analyzed as present or absent, distinguishing between cumulative use over time and single-use instances is. For example, much debate surrounds whether fatty acid residues in ceramics result from the initial sealing of the vessel, its lifetime usage, or specific cooking events (Barnard et al. 2007). Starch analysis is somewhat more straightforward since starch granules do not blend, but the question remains whether identified starches derive from lifetime accumulation or individual events. Consequently, starch is less effective for understanding quotidian practices than the shape and use wear of ceramics and groundstone tools.

4.7 Synthesis: Interdisciplinary Insights on Cuisine and Identity

This chapter has outlined the diverse methodologies employed to investigate the interplay of cuisine, material culture, and identity in pre-Columbian West Mexico. By integrating approaches from art history, paleoethnobotany, ceramic and groundstone analysis, and contextualizing them within broader historical and ethnographic frameworks, this study exemplifies the strength of an interdisciplinary approach. Each method contributes unique perspectives: art historical analysis deciphers the symbolic and visual language of shaft tomb sculptures, paleoethnobotany provides direct evidence of plant usage and food processing, and ceramic and groundstone studies illuminate technological and functional aspects of culinary practices. Together, these strands of evidence weave a comprehensive narrative that bridges the symbolic and the practical, offering a holistic view of ancient culinary traditions.

Central to this analysis is the chaîne opératoire model, which frames cuisine as a sequence of interconnected processes involving resource procurement, tool creation, food preparation, and presentation. Cuisine emerges through an interconnected toolkit that spans multiple media—including ceramics, groundstone, and other implements such as botanical fibers or perishable wooden tools—each contributing to the preparation, transformation, and presentation of food. This framework not only provides a structured lens for examining diverse datasets but also highlights the cultural and technological complexities embedded in food practices. While the focus on preparation and serving illuminates questions of identity, especially in the socio-political and ceremonial contexts of the Tequila Valleys, other steps in the chain reveal insights into resource management and technological innovation.

Nonetheless, this interdisciplinary approach is not without its challenges. Methodological limitations, such as contamination in residue analysis or difficulties in assigning time periods to groundstone artifacts, necessitate careful interpretation and transparency. Furthermore, the reliance on previously excavated collections requires critical engagement with the biases and constraints of prior documentation and curation practices. Despite these limitations, the integration of multiple methods allows for a nuanced understanding that a single approach could not achieve. By situating the findings within broader theoretical frameworks of identity, materiality, and cultural practice, this chapter underscores the potential of interdisciplinary archaeology to unravel the complex relationships between cuisine and identity in ancient societies.

Chapter 5: Tequila I-IV to El Grillo phase Cuisine in the Tequila Valleys

5.1 Introduction

This chapter traces the transformation of cuisine in the Tequila Valleys from the Tequila to El Grillo phases, focusing on how food practices became central to identity and elite competition. I begin by outlining the major ceramic wares and their functional distinctions, showing how utilitarian cooking vessels diverged from finer wares used in serving and mortuary display. These assemblages reveal how cuisine articulated social difference, gender roles, and strategies of status.

The chapter then examines the emergence of the El Grillo ceramic complex after 500 CE, marked by new vessel types, decorative innovations, and funerary practices that formalized elite identity-making during a time of political change. Narrative interludes situate these shifts within daily cooking, communal feasting, and mortuary ritual, underscoring how food and vessels functioned as both practical tools and performative media.

5.2 Ceramic Wares and Prior Descriptions

The ceramic assemblage at Los Guachimontones has been classified using a type-variety system that distinguishes wares on the basis of paste, inclusions, finish, and other technological attributes. Rim typologies and additional modal traits are also incorporated into this scheme. For the purposes of this study, the most significant wares are Fine Colorines, Coarse Colorines, Arroyo Seco, Tabachines, and Estolanos. These ware distinctions provide the foundation for most functional interpretations and have been a consistent focus in earlier research on Los Guachimontones and other Teuchitlán culture sites (López Mestas 2005).

Tabachines ware (see Figure 15) was formally defined by Javier Galván, building on the "Ameca Grey" designation first proposed by Kelly (1938) and Long (1966). Galván refined this category using material from the Tabachines cemetery near Guadalajara (Galván 1991; Aronson 1993). The ware is characterized by its carefully prepared paste, which contains significantly fewer and smaller inclusions compared to contemporaneous ceramics. The vessels are often elaborately decorated and rarely show traces of heavy use. Indeed, many examples exhibit evidence of repair and deliberate curation before being deposited in tombs (Beekman 1996:474; Aronson 1993:211–212). These features strongly suggest that Tabachines vessels were not designed for cooking or utilitarian activities.

Estolanos ware closely parallels Tabachines, sharing its origins in what Kelly and Long had described as Ameca Grey. Estolanos also exhibits a finely processed paste and appears in high-status mortuary contexts. While Tabachines vessels are typically gray and polished, Estolanos examples show a somewhat broader color range, with some instances used to craft distinctive zoomorphic vessels. Like Tabachines, Estolanos ware is associated with elite display rather than quotidian function.

Arroyo Seco ware differs in both color and inclusions, being a finely filtered, light brown paste tempered with sand and obsidian particles. The ware is strongly linked to the production of large containers. Johns (2014:54) notes that Arroyo Seco ware represents one of the most common wares at Navajas, though the ware is rare at Los Guachimontones.

Coarse Colorines ware constitutes the majority of the assemblage in both count and weight at the site of Los Guachimontones. Its paste is marked by large and diverse inclusions, and the vessels are consistently associated with utilitarian purposes such as cooking and food processing (Beekman 2020; Johns 2014). Clear signs of thermal stress—including cracking and surface burning—are frequently visible, and the largest vessels at Los Guachimontones tend to have been made in this ware.

Fine Colorines (see Figure 15), by contrast, is a more carefully processed counterpart, made from the same clay but filtered to remove larger inclusions. It is often slipped, decorated, and crafted into open serving forms. Distinctions between Fine and Coarse Colorines were only firmly articulated following later analysis; Earlier studies sometimes treated them as a single ware category when comparing assemblages (Lefae 2017:13). Beekman and colleagues (2014, 2015) argue that Coarse Colorines was most often used for closed vessels in cooking or storage, while Fine Colorines is more typical of serving forms such as bowls (Lefae 2017:67; see also Johns 2014). At Los Guachimontones, Fine Colorines is the second most common ware overall, and examples range from decorated serving bowls to finely crafted closed vessels, underscoring its dual role in both utilitarian and ceremonial contexts.

The original excavations at Los Guachimontones sought to link ceramic forms with vessel function, drawing on Rice's (1987) categories such as "special use vases, cooking pots, storage vessels, unheated preparation vessels, serving vessels, and transport containers" (Blanco et al. 2010:102). This framework was applied to whole vessels recovered from the site and emphasized distinctions based on paste, decorative treatment, and morphology.

The results of these functional studies have not always been consistent. Blanco and colleagues (2010), for example, argued that guachimontón groups and residential areas could be distinguished sharply on the basis of functional categories. In contrast, Beekman (2016, 2018b, 2020), analyzing a smaller but contextually secure sample of ceramics, reached more cautious conclusions. His comparison of civic-ceremonial and residential deposits, organized by ware and broad rim classes (open vs. closed), suggested that while some variation exists, the ceramic assemblages are not rigidly segregated. As Beekman (2020:82) notes, “the guachimontón architectural form does not show a single ceramic profile in relation to residential groups.” Even so, one clear pattern emerged: ballcourt contexts yielded unusually high frequencies of Coarse Colorines (Beekman 2018: Figure 3; Beekman 2020).

Chronology also appears to play a role in functional distinctions. Beekman (2020:87) observed that later tombs at the Tabachines cemetery contained higher proportions of Coarse Colorines, with fine wares largely disappearing, suggesting a temporal trend in ceramic use. A similar pattern can be seen within Los Guachimontones itself: centrally located guachimontón circles—the earliest constructions—tend to have lower percentages of Coarse Colorines than more peripheral and later groups (Beekman 2020:87–88; Galván 1991). These data imply that differences in ware proportions may reflect both chronological change and spatial variation in activity.

Additionally, preservation of the assemblage is often poor, given that these low-fired earthenwares are highly friable. Many pastes consist of similar clay recipes with varied inclusions, producing gradual shifts in texture rather than stark contrasts. Nonetheless, following Johns (2014:79), I maintain the distinction between Coarse and Fine Colorines, as these divisions correlate strongly with functional tendencies: Fine Colorines is more common in serving forms, while Coarse Colorines dominates large utilitarian containers.

Figure 15 Left, Tabachines quadripartite bowl INV TEU 132; Right, Colorines Bowl INV TEU 258. Image Courtesy of Proyecto Arqueológico Teuchitlán.

5.3 Ceramic Differentiation and Social Dynamics

Social dynamics are materially expressed in the ceramics associated with ritual and elite contexts. In West Mexico, this separation between the quotidian and the special becomes apparent during the Formative period ((Tequila II-Tequila IV). This gradient in ceramic sophistication not only signifies the creation and processing of food but also the presentation and experience of dining. Certain wares were clearly associated with cooking, revealing functional differentiation within the assemblage. Colorines ware, for instance, served as the primary cooking ceramic, linked to routine food preparation. The contrast between utilitarian wares such as Coarse Colorines and more carefully finished fine wares reflects an important distinction between vessels intended for basic cooking and those suited for serving or display. The Formative period assemblages from Los Guachimontones represent the earliest moment in this region where such differentiation can be reliably observed (see Figure 16).

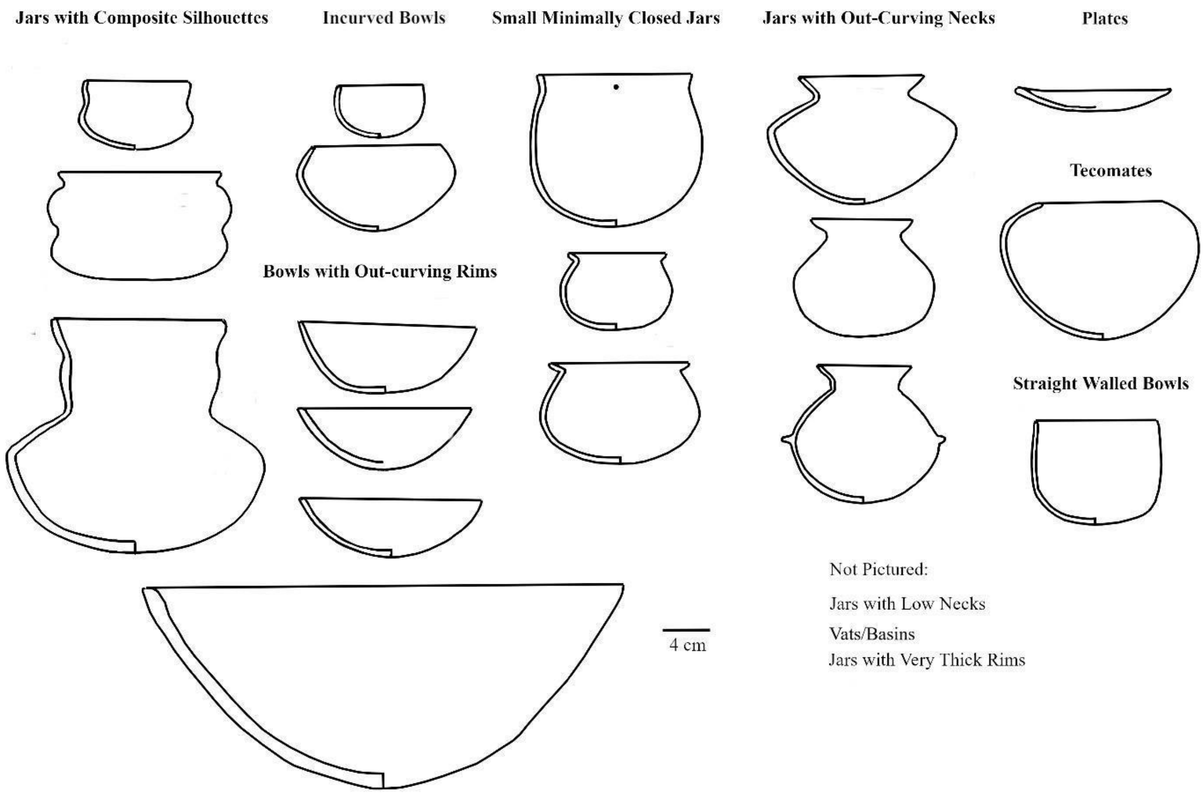

Figure 16 Representative forms during of Tequila phases (After Roddy 2020)

Direct roasting in fires was likely common, enabling the preparation of foods like tamales in ashes or meats over spits. The predominance of cooking jars within Coarse Colorines ware highlights a strong focus on liquid-based food preparation, such as stews, soups, and beverages like atole, as shown in Table 2 (see discussion of function, Rice 2015:412-432). At the site of Los Guachimontones in this ware, closed forms number 258 (35.2%) compared to 475 open forms (64.8%), making jars a substantial component of the assemblage. A smaller proportion of closed vessels also appears in Fine Colorines (14.7%), which may include some cooking jars, though most other wares' closed forms are more plausibly linked to storage or serving rather than cooking. This concentration of jars in the most utilitarian wares underscores their role in everyday culinary practices.

Table 2 Open and Closed vessels by ware in Tequila phases Los Guachimontones

Ware Name	**Vessel Class**	**Count**	**Proportion**
Tabachines	Closed	4	0.03
Tabachines	Open	117	0.96
Estolanos	Closed	17	0.10
Estolanos	Open	141	0.89
Arroyo Seco	Closed	1	0.2
Arroyo Seco	Open	4	0.8
Fine Colorines	Closed	61	0.14
Fine Colorines	Open	353	0.85
Coarse Colorines	Closed	258	0.35
Coarse Colorines	Open	475	0.64

Alongside dietary traces, material expressions of food consumption, particularly in the form of fine ceramics and feasting scenes, provide a complementary window into social dynamics. Finer dining vessels were widely distributed, suggesting broad access. This pattern is supported by the widespread occurrence of finewares across the site of Los Guachimontones (Roddy 2020). Their presence in contexts beyond elite compounds indicates that access to decorated or higher-quality dining vessels was not restricted to a narrow social group but extended broadly across the community. However, the competitive aspect of these displays should be considered.

Ceramic forms not used for everyday cooking and serving bowls display several defining characteristics. Firing variations produce a white-to-grey continuum on their surfaces, which are burnished to a glossy finish, in contrast to the reddish-brown and buff tones typical of other vessels. These finer vessels often have slip, most often in red, and are generally smaller, thinner-walled, and decorated with shared iconography, such as the quadripartite designs commonly seen on Tabachines bowls (Johns 2014, Aronson 1993). While white and red decorated ceramics might have forms that mimic quotidian vessels—simple bowl forms—they are often miniaturized, and more elaborate vessel shapes appear. Notably, "compound" bowls and jars appear, with forms that sometimes seem to mimic gourds (Aronson 1993). Current evidence does not allow for distinct household comparisons, but relative access can be inferred through tomb findings. In other words, the quantity and quality of fine vessels used in life—and those chosen for inclusion in burial—offer insight into differential access to prestige goods.

The development of elite culinary practices is evident during the Teuchitlán era. The inclusion of finely crafted vessels containing food—such as fish and corn—(Benz et al. 2006) in tombs alongside other items of wealth, including jewelry, shell, and other trade goods, indicates that culinary practices were integral to a broader suite of objects and activities that signified elitism and competitive displays of wealth. Shaft tomb figures sometimes depict individuals holding miniature versions of these finely crafted vessels, suggesting that the ownership of such items, along with associated ritual actions and practices of consumption, was a deliberate elite strategy and a significant aspect of display. Group scenes, although primarily found in Nayarit rather than the Tequila Valleys, appear to portray acts of public consumption (Butterwick 1994; 2004, see figures 4 and 5).

Shaft tombs also exhibit a wide variety of consumable resources. Unlike other regions of Mesoamerica, maize and beans are rarely depicted. Instead, items such as gourds, squash, roasted maguey, cactus, and a diverse array of animal resources are prominently featured. Although challenging to confirm, this variety suggests that access to and collection of these diverse resources may have played a role in displays of elitism and competitive status. Representations appear to prioritize access to natural resources over the symbolic value of staple crops like maize, emphasizing a different aspect of elite identity and resource control.

Gender is also directly related to consumption. We can see this again through shaft tomb sculptures. Shaft tomb sculptures are often gendered and sexed, with clothing and secondary sex characteristics. These gendered presentations are codified into different actions and spheres. For example, female figures are often shown holding a bowl or cup in their hands. In contrast, male figures often hold drums, spears, or rattles. The vessels shown in female figures' hands share the same forms as actual elite ceramics, demonstrating that cuisine, food, ritual, and action are intertwined with gender roles. This will be discussed in greater depth in chapter 6.

5.4 An Interlude

In the early morning light of the Tequila Valley, a woman knelt by the fire, feeding the fire small pieces of dried wood. Around her were simple, sturdy Colorines jars used for cooking stews and drinks, alongside a finer Colorines bowl, its slip-painted white and red design standing out against the plain surfaces of the cooking vessels. Steam rose from a ceramic pot where corn boiled, filling the air with a familiar, earthy aroma. She worked steadily, grinding the softened corn into masa on a groundstone, pausing occasionally to check the fire or adjust a pot.

Outside, preparations for a feast were underway. Roasted maguey hearts rested on a dried reed mat, their soft, caramelized edges pulled apart by hand. People moved back and forth, *carrying bowls and jars filled with stews and drinks to the gathering space. The polished serving bowls, decorated with burnished designs or painted slips, were arranged carefully, signaling the importance of the occasion.*

As the community gathered, steaming atole was ladled into smaller vessels. Conversations and laughter filled the air as food was passed around, each dish a reflection of both practical needs and social meaning.

5.5 The El Grillo ceramic complex emerges

The changes in ceramic forms and culinary practices accompanying the El Grillo ceramic complex reveal a deliberate effort to reshape and project elite identities in response to broader social and political transformations. The adoption of new vessel types and decorative innovations indicates that food-related material culture became a critical tool for articulating shifting notions of belonging, authority, and distinction. By formalizing elite practices, such as mortuary drinking rituals and feasting, the elites not only reinforced their social standing but also redefined communal identities in the process. The pronounced emphasis on elite serving vessels, contrasted with the continuity of everyday cooking forms—as shown by the persistence of the same rim types in utilitarian wares—suggests that identity creation during this period was focused within highly visible, performative domains tied to power and prestige. This selective transformation of culinary and material traditions likely reflects efforts to navigate the cultural dynamics introduced by migration, integration, or competition, using food and its associated artifacts as a stage for negotiating new collective and individual identities.

Figure 17 Rims and bodysherds of El Grillo phase ceramics from the site of Los Guachimontones. Courtesy Proyecto Arqueológico Teuchitlan.

The emergence of the El Grillo ceramic complex, alongside shifts in burial practice and architectural form, reflects deliberate responses to changing social and environmental pressures. These were not passive adaptations; they were strategies of elite realignment, grounded in material performance. Through new vessel forms, particularly miniature paired cups and jars used in mortuary and feasting contexts, elites crafted and displayed new forms of authority, lineage, and legitimacy. The selective innovation in elite culinary material reveals a conscious effort to anchor power in ritual and control. Communities adopting this ceramic tradition developed new forms for daily life, such as serving bowls and cooking pots, and also entirely new vessel types, including rectangular trays, ring-based vessels, and molcajetes—vessels not previously seen in the Jalisco ceramic sequence (Beekman 2012).

Figure 18 El Grillo rim types, from Beekman drawings and collections, inked by author. Original drawings were developed from the La Primavera Project (Beekman 1996), the Tequila Valleys Regional Archaeological Project (Beekman 2008), and the Proyecto Arqueológico Ex-Laguna de Magdalena (Heredia and Beekman; Heredia Espinoza et al. 2018).

While utilitarian forms—such as bowls and cooking jars, evidenced by consistent rim profiles (Figure 18)—show clear continuity, the most significant shifts involve the emergence of a new category of elite ceramics.”. These include small, paired vessels—specifically cups and jars—that are scaled-down versions of everyday forms and commonly appear in high-status contexts (Beekman 2012). Decades earlier, Holien (1977) suggested that these pairings might reflect new, formalized mortuary drinking rituals (Beekman 2012). Beekman also notes that decorative innovations distinguish "El Grillo" ceramics, including the widespread adoption of engraved and incised designs, which were previously rare in central Jalisco (Beekman 2012).

Furthermore, pseudo-cloisonné decoration (see figure 20, though already present in the region, became more prominent and was applied to new vessel types and iconographic motifs (Beekman 2012). This expanded ceramic repertoire represents a notable departure from earlier traditions, adding new vessel forms, such as small drinking cups, alongside the established Tabachines ware jars. The new ceramic forms, including annular-based bowls, occasional tripod vessels with incised and negative-painted designs, and miniature ollas indicate a rupture in production practices (Aronson 1993; Schöndube and Galván 1978).

The importance of these changes, particularly in elite food vessels, concurrent with alterations in monumental architecture and apparent political strategies, is that the modified ceramic ware underscores the role of food and cuisine behavior as a strategy for elite competition. The classification of these objects as "elite" requires justification. While specialized forms often suggest restricted access or elevated social value, this does not automatically imply exclusive elite use. In the case of the Tequila Valleys, I base the interpretation on their contextual associations; they are disproportionately found in high-status burials and monumental architecture (Lefae 2017). Additionally, certain technological and decorative choices, such as fine paste, polychrome painting, or labor-intensive production, also suggest a degree of investment beyond what is typical for household wares.

At the same time, I acknowledge that "elite" does not necessarily mean exclusive. Some of these objects may have circulated more widely in ritual or communal contexts, even if their production and initial use were controlled by higher-status groups. By foregrounding the contextual and distributional evidence, I emphasize that their identification as "elite" is not simply a function of form, but rather of the social settings in which they appear. In other words, elite strategies based on cuisine change in tandem with political shifts in the region. While there is a general shift in most culinary practices, possibly reflecting a broader change in population due to migration or other cultural or ethnic shifts, the most radical and conspicuous changes in cuisine are not in everyday cooking practices but in elite serving vessels. This indicates that the culinary changes are not merely practical but are deeply intertwined with the social and political fabric of the time.

Rather than merely reflecting ethnic or linguistic difference, these material shifts articulate a politics of identity in motion—where food, death, and architecture served as mediums for negotiating belonging in a fractured world. Through the embodied acts of consumption and vessel use, communities forged new social orders in the shadow of collapse, inscribing memory and meaning into the very tools of daily and ceremonial life.

5.6 Second Interlude

The mourners gathered in silence as the body was laid within a carefully constructed open box tomb, its tuff walls reflecting the soft glow of nearby torches. The air was thick with the scent of smoke rising in slow, twisting trails as attendants prepared the final offerings. Unlike the grand shaft tombs of generations past, this burial was more exposed, its structure visible to those assembled—a reminder that the world had changed, and with it, the ways of honoring the dead.

Ceramics were placed around the body with deliberate care. Deeply incised bowls, their geometric patterns carved with precision, sat beside ring-based vessels filled with ground chiles. Small, finely made cups were passed from hand to hand in a final toast before being filled a final time and laid beside the deceased. Rectangular trays held offerings of roasted maguey and neatly *wrapped tamales, their careful presentation mirroring the order and control now shaping elite funerary practices.*

A woman, draped in richly woven textiles, knelt at the tomb's edge, holding a small, engraved vessel in her hands. She whispered quiet words before placing it near the body—a final act of farewell. The ceremony was solemn but purposeful, its precision reflecting the elite's effort to maintain power in an era of change. As the final stone was set in place, the gathered mourners stepped back, knowing that this burial was not just about the deceased. It was a statement—of lineage, of belonging, and of adaptation in a world where the past had been left behind, and a new order was taking shape.

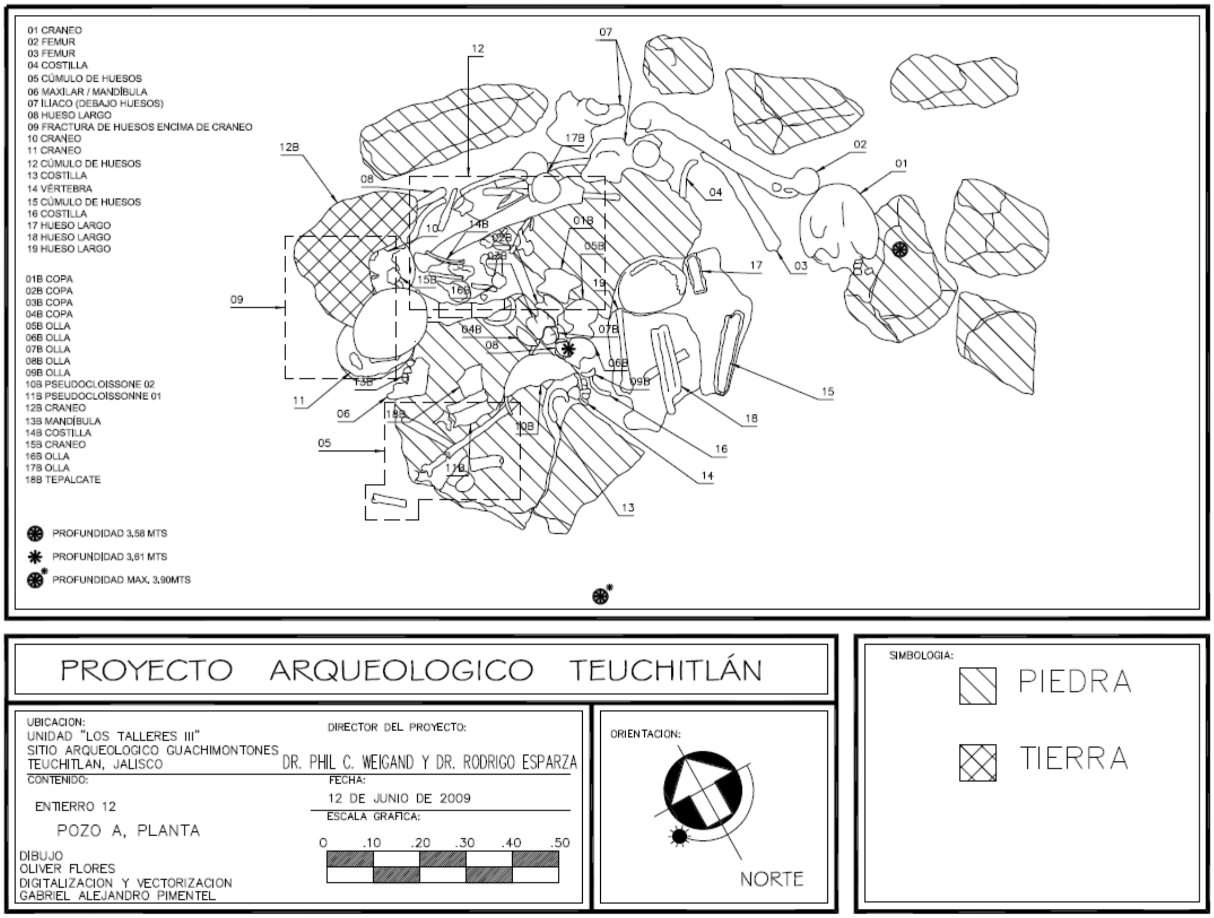

Figure 19 Talleres Burial #12 at Los Guachimontones, note deposition of many El Grillo cups and miniature vessels. Courtesy of Proyecto Arqueológico Teuchitlán.

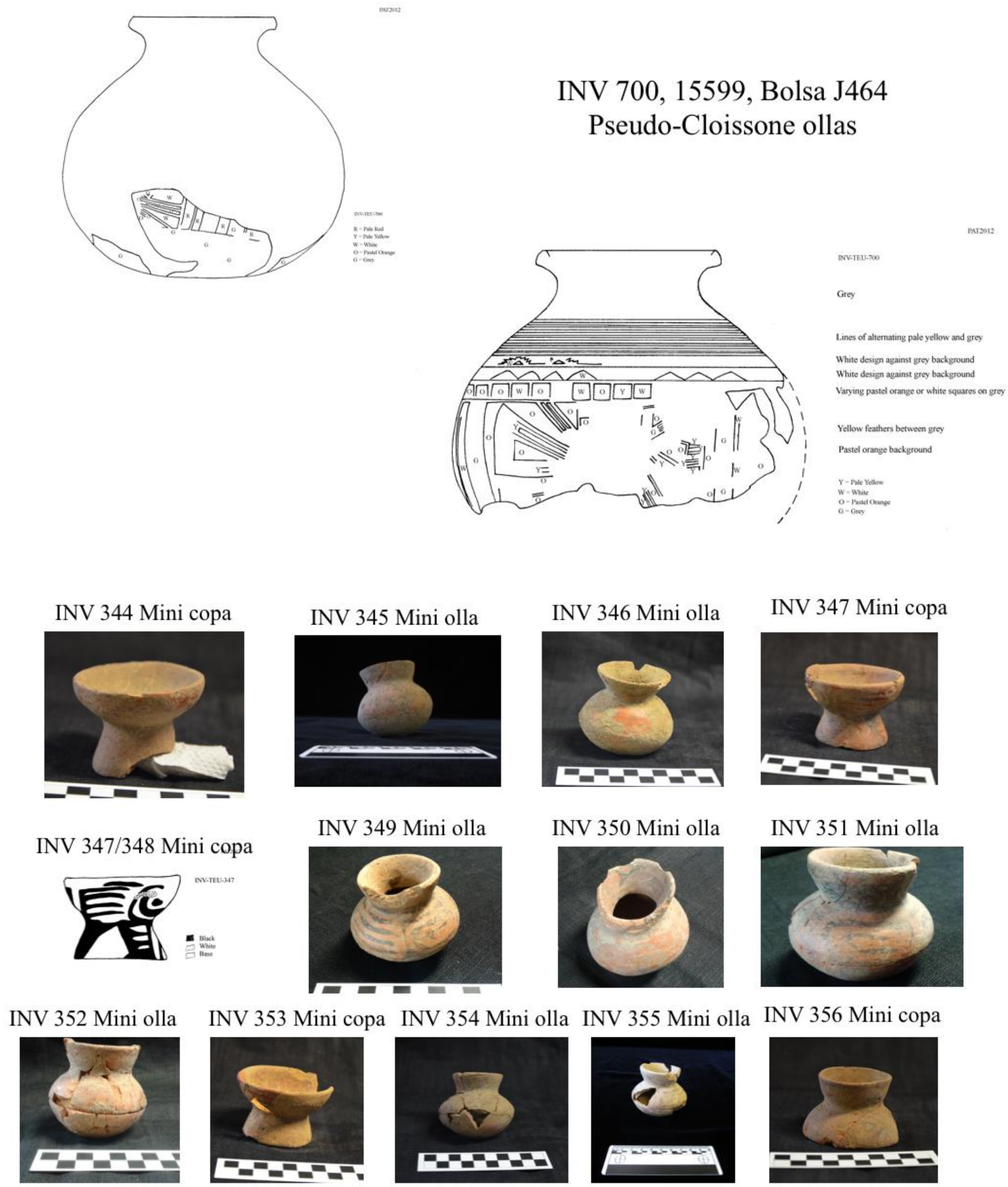

Figure 20 Top, pseudo cloisonné ollas. Drawing by Christopher Beekman; Bottom, El Grillo style jars from Talleres burial #12 at Los Guachimontones (Lefae 2017: 258)

Chapter 6: The El Grillo to Atemajac I-III Phases

This chapter begins by situating the Tequila Valleys after 900 CE within broader West Mexican and Mesoamerican transformations, emphasizing their peripheral yet connected role in the Aztatlán system. It then turns to the archaeological evidence for participation and divergence, highlighting diagnostic artifacts and the methodological challenges of defining "Aztatlán" across contexts. The discussion next addresses chronological limitations in the Atemajac sequence, followed by a detailed presentation of ceramic forms, including grater bowls, tripod vessels, large jars, and comales.

The middle sections of the chapter trace the culinary implications of these materials, exploring patterns of vessel use, decorative innovation, and shifts in food preparation practices. Two narrative interludes are interwoven to illustrate daily life and the sensory dimensions of change. The latter half of the chapter moves from gradual transformations, such as grater bowls and tejuineras, to abrupt innovations like the comal, situating these developments within longer ceramic sequences. It concludes with the Late Postclassic integration of long-distance trade and selective adoption of new forms, before drawing together evidence for the Tequila Valleys' role in wider networks of exchange and the hybridization of cuisine.

6.1 Greater context

By 900 CE, the Tequila Valleys were entering a period of cultural transition that echoed broader upheavals across West Mexico and Mesoamerica. Although the region was never central to the Aztatlán system, its ceramic assemblages began to reveal selective participation in these wider networks of exchange. Diagnostic wares such as banded red-on-buff and band-incised-buff vessels appear alongside early examples of polychrome decoration. Yet these styles often seem to reflect local adaptations rather than direct imports from coastal Aztatlán centers. In this way, the Tequila Valleys occupied a peripheral, but nonetheless connected, position within the broader Aztatlán world.

The archaeological evidence illustrates both participation and divergence. Aztatlán ceramics and other diagnostic items—including Mazapan figurines and occasional Plumbate vessels related to the site of Tula—appear in the region, but the overall material culture does not replicate that of the primary coastal centers. Vessel forms include bowls and jars with varied rim treatments, some closely paralleling those from neighboring areas such as Ixtlán del Río. The presence of Mazapan figurines and occasional Mixteca-Puebla-inspired motifs further suggests that elites were experimenting with long-distance exchange and symbolic affiliation (see Figure 13).

Figure 21 highlights the complexities of defining what "Aztatlán" means in different contexts. The upper example, drawn from Nahaupa II in the Tomatlán Valley (Mountjoy 2025: Figure 1.3), represents a Central-Coastal Jalisco expression of the style. The lower set, published by Nance et al. (2013: Figures 3-1d, 3-1f, 3-5a–d, 3-7a), comprises polychrome vessels explicitly described as a "manifestation of the Aztatlán ceramic complex." Juxtaposing these collections underscores the stylistic breadth encompassed by the label: from coastal Jalisco traditions to inland assemblages tied to Nance's chronology. At the same time, this comparison raises a methodological problem—while both groups are categorized as Aztatlán, their contexts and decorative emphases differ, complicating the consistency of the label's application across regions.

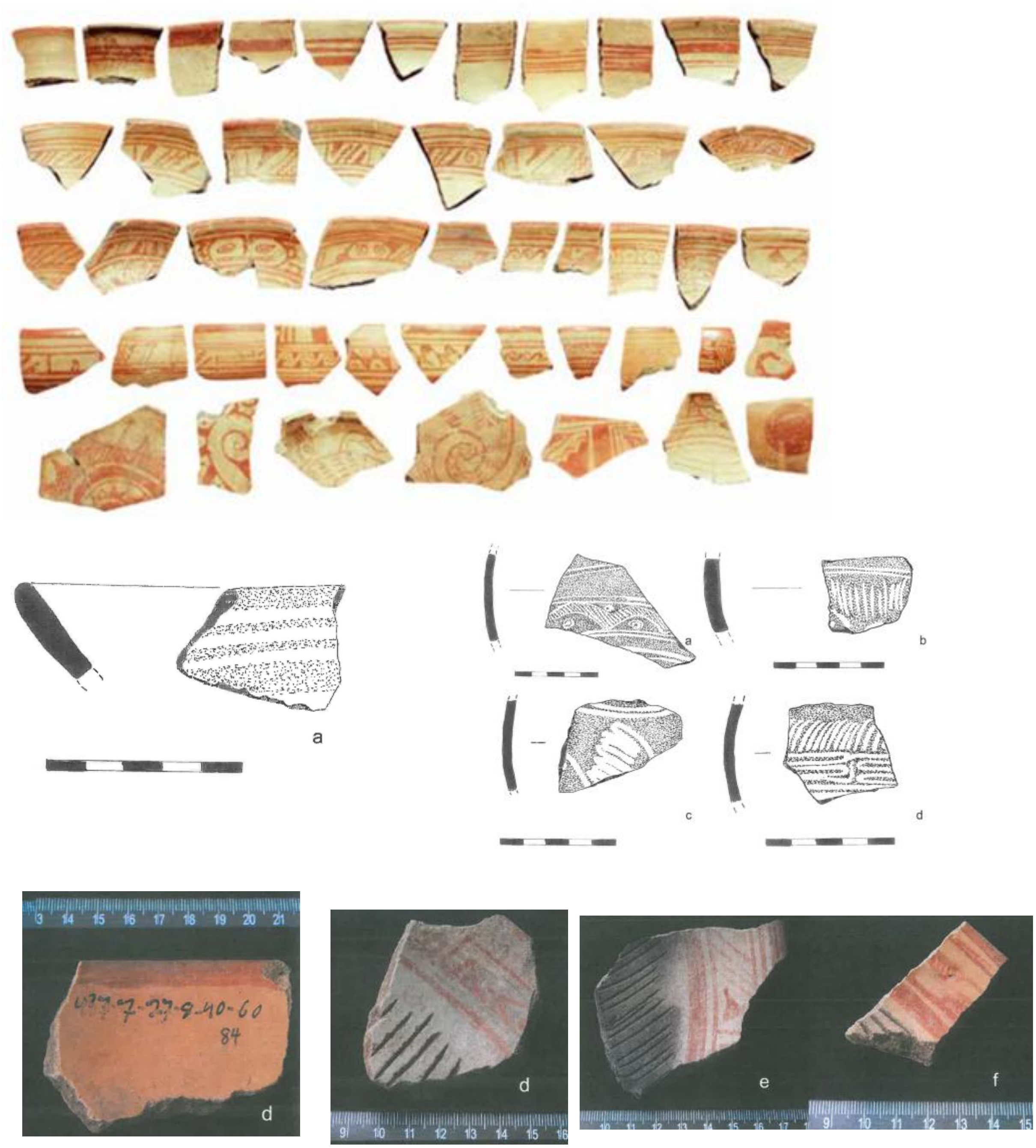

Figure 21 . Top: Set of Aztatlán-style ceramics from the Nahuapa II site in the Tomatlán Valley, Central-Coastal Jalisco (Mountjoy 2025: Figure 1.3). Bottom: Polychrome vessels identified by Nance et al. (2013) as a "manifestation of the Aztatlán ceramic complex" (Nance et al. 2013: Figures 3-1d, 3-1e, 3-1f, 3-5a–d, 3-7a). Top left: red-on-cream thin parallel lines, Type 22(appears in Atemajac II). Bottom left: red-on-cream broad parallel lines, Type 23 (Figure 3-6d). Top right: white-on-red complex motif (appears in all post-classic phases), Type 17. Bottom right: red-on-buff design, Type 11.

Chronological resolution in the Tequila Valleys during this period remains limited, making it difficult to distinguish finer phases within the Postclassic. In practice, many materials are therefore grouped under the broad label of "Atemajac" when more precise temporal markers are lacking. The assemblage analyzed here comes primarily from Las Cuevas and Etzatlán. Because many sherds are fragmentary, my interpretations often rely on rim and base fragments to infer vessel types and uses(see Figure 22).

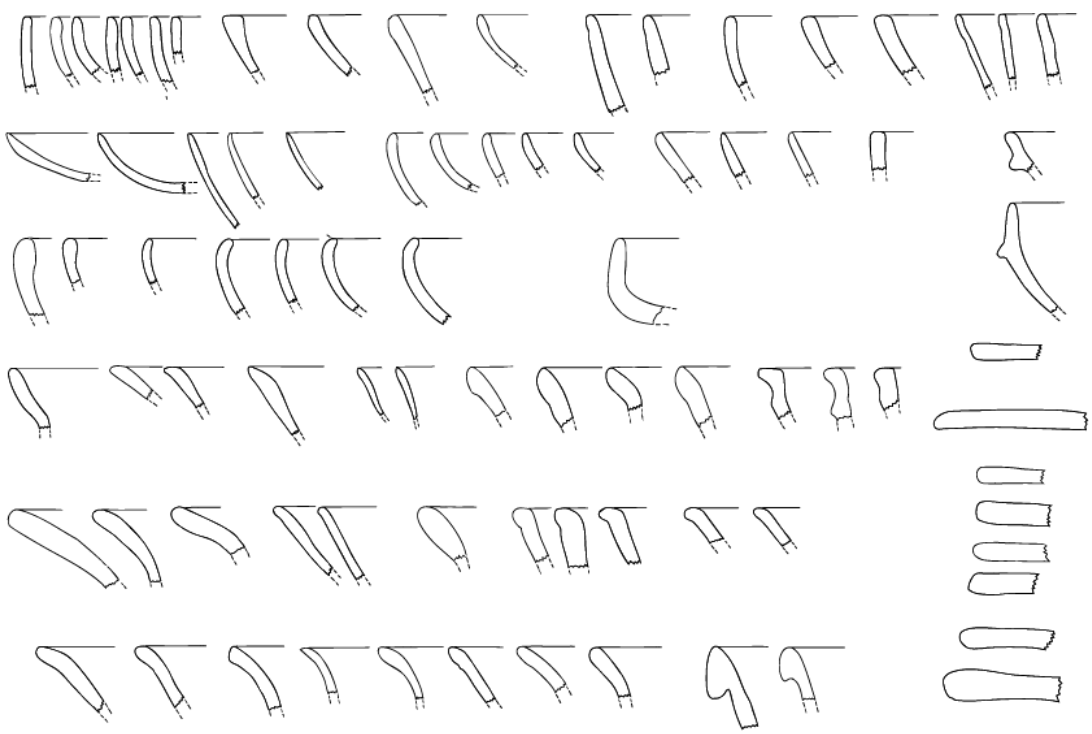

Figure 22 Atemajac rim types, from Beekman drawings and collections, inked by author. Original drawings were developed from the La Primavera Project (Beekman 1996), the Tequila Valleys Regional Archaeological Project (Beekman 2008), and the Proyecto Arqueológico Ex-Laguna de Magdalena (Heredia and Beekman; Heredia Espinoza et al. 2018).

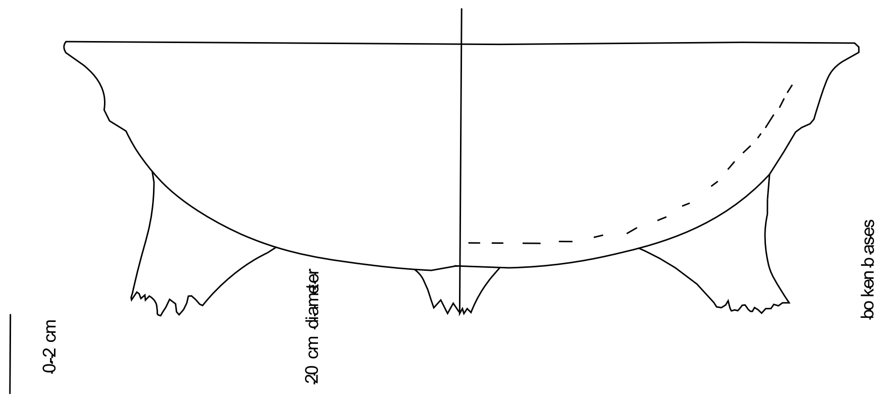

Figure 23 Tripod molcajete "grater bowl" from the site of Las Cuevas. Drawing by author.

Even with these constraints, several patterns are clear. Grater bowls (see figure 23) stand out as one of the most diagnostic and readily identifiable forms, owing to their standardized rim treatments (see figure 21 and 26). By contrast, much of the assemblage consists of undecorated body sherds from coarse utilitarian wares, which offer little diagnostic information.

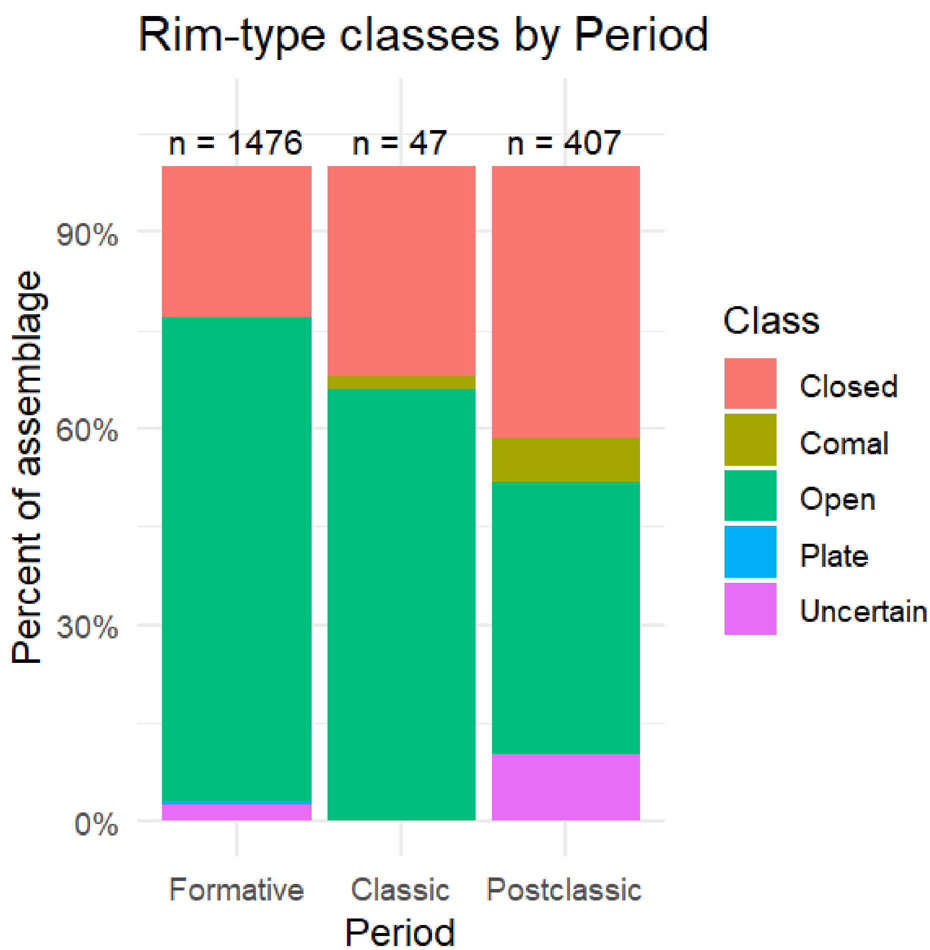

Figure 24 Rim type classes by period from the site of Los Guachimontón Formative is Tequila I-IV, Classic is El Grillo phase, Postclassic Atemajac I-III

Tripod vessels proliferate, with varied base designs (see figure 25). Vessel forms proliferate, with varied base designs (see Figure 25). Standardization becomes particularly evident in forms such as the grater-bowl Atemajac I–III tripod molcajetes, which consistently measure around 11 centimeters in diameter, unlike El Grillo or Atemajac I phase molcajetes in ring-based bowls or cups. Reduced-fired fine blackwares, typically well-formed bowls, further enrich the ceramic repertoire.

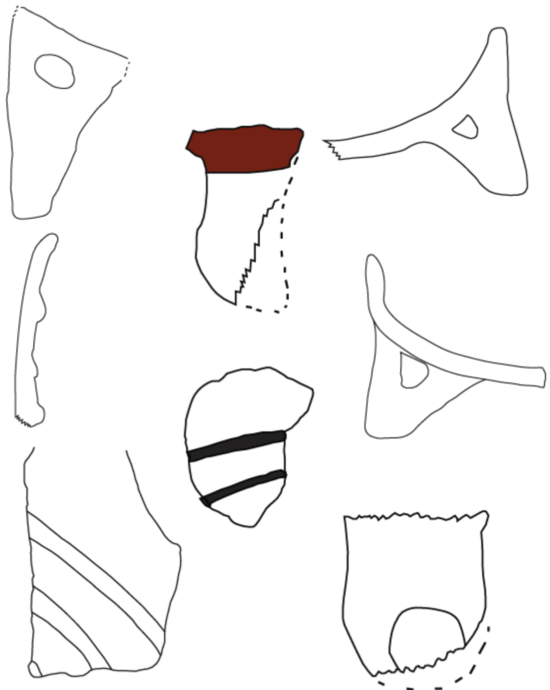

Figure 25 Atemajac ceramic bases from the site of Las Cuevas. Clockwise: solid conical with holes (three examples) and hollow cylindrical with bulb at base (two examples). Center left, bottom left, and lower center show profiles of corresponding Atemajac ceramics, including interior bases. Drawings by the author. Long Collection, Fowler Museum.

Grater tripod bowls deserve particular attention as a quintessential Atemajac I-III form. They occur throughout Las Cuevas, appearing in nearly every sample bag. Their ubiquity, however, may partly reflect sampling bias, since their distinctive surfaces make them easier to identify and collect than plainer fragments. Functional design remained stable, while changes occurred mainly in decorative elements such as banded rim motifs (see figure 26). These shifts point to localized adaptation rather than radical transformation. More broadly, the spread of three-legged grater bowls throughout Mesoamerica reflects regional participation, though the form had already circulated elsewhere earlier, indicating gradual dispersal and growing involvement with broader regions.

Taken together, these ceramic developments reveal significant transformations in cuisine after 900 CE. Food practices in the Tequila Valleys became more experimental, shaped by both internal cultural dynamics and selective external influences. Decorative innovations—such as incised and banded styles—point to heightened aesthetic concerns tied to food presentation, perhaps in communal or formal settings. The production of large storage jars and grater bowls indicate novel processing techniques. In particular, grater bowls suggest growing attention to food textures, whether in preparing tubers, seeds, or maize mixtures requiring shredding and grinding. Such practices may even hint at the early preparation of condiments resembling salsa. Meanwhile, the proliferation of decorated serving wares reflects changing social contexts in which meals became more performative or ritualized. Postclassic cuisine in the Tequila Valleys, therefore, emerges as both diverse and symbolically charged, blending longstanding traditions with new methods and expressive sensibilities.

When compared to other Aztatlán-affiliated regions, culinary practices in the Tequila Valleys demonstrate both convergence and local divergence. Shared features—such as ceramic decoration and vessel forms—suggest a broad cultural dialogue across Aztatlán-connected sites. However, local particularities persist. For example, while some northern Aztatlán centers display strong central Mexican ceramic influences in elite settings, the Tequila Valleys reflect a more diffuse, community-based engagement with external traditions. For example, the Tequila Valleys lack one of the key markers of that connection: codex or profile vessels. These vessel types are common in northern elite assemblages and signal direct engagement with central Mexican prestige traditions. Their absence in the Tequila Valleys indicates that local elites did not adopt the full suite of external forms, suggesting a more limited or selective engagement with broader Aztatlán networks.

This difference may be tied to local social structures, where decentralized political organization allowed for more fluid and diverse expressions of cosmopolitanism. Women's roles in food production were central to this process, as they selectively integrated new techniques and vessels into domestic routines, making culinary labor a key site of cultural negotiation. Their decisions—whether to adopt a new grinding technology or preparation technique—transformed daily practices and, by extension, cultural identities. These material changes, alongside performative consumption, highlight cuisine as a site of identity negotiation, influenced by both macro-scale movements and micro-scale daily acts.

6.2 An Interlude

The courtyard is quiet except for the dry, rasp of hand against ceramic. She kneels over the grater bowl—its three legs pressed firmly into the earth; its rim traced with bands of red slip that catch the morning light. Inside, dried chiles splinter into flakes beneath her fingers. The scent rises sharp and smoky, making her eyes sting.

This bowl is new. Its decoration—banded, incised, slipped—echoes styles she has seen on pieces passed between neighbors, or displayed at the last gathering. They say the look comes from the North or from Etzatlán, or maybe just from watching what others use and copying the design. She doesn't ask too many questions. It grates well, and that's what matters.

Her mother still prefers her old bowls, but years of use have ground the bottoms into a polished smooth surface- the lines of grating smoothed away. The younger woman likes her newer forms. A shallow dish beside her shows a similar hand—red lines on cream slip, neat and *narrow. Not imported, but influenced. Informed by stories, sightings, mimicry. Close enough to suggest familiarity, not enough to claim belonging.*

A cousin plays nearby with a small clay figurine, pressing patterns into its hair with a broken stick. The figure has wide, stylized eyes. She has seen a similar shape on a piece that someone in the village has- but this one will never be fired.

The grated chiles are swept into a bowl with a flick of her hand. Later, they will be mixed with tomatillo and quelites for a sauce. That evening, the grater bowl rests upside down on a shelf, stained faintly orange along the rim. The grater sits beside vessels both old and new, a quiet archive of choices. The chile dust may vanish, but the gesture—the motion, the shape of the tool—remains.

6.3 Atemajac Onwards

Although establishing a precise chronology is challenging, Nance's ceramic analysis and related archaeological evidence reveal clear sequences of change that provide critical insights into the Atemajac phases. What emerges is not a single trajectory of transformation but the coexistence of gradual evolution and abrupt innovation in ceramic traditions. Grater bowls illustrate the slower tempo of change. While precise dates remain elusive, ceramic analysis and the archaeological sequence place these bowls in a consistent order. Their stylistic variation—seen most clearly in incremental shifts in rim decoration—suggest slow change over time, yet their core functional design remained stable (see figure 26). This continuity suggests that food technologies and cooking practices developed gradually rather than through abrupt rupture.

Within this broader pattern of continuity, the case of grater bowls highlights the complexities of distinguishing between utilitarian and performative forms. In clarifying the distinction between bowls and molcajete bowls, my argument is not that molcajetes replaced decorated serving bowls in contexts of presentation, but rather that their increasing elaboration during the Atemajac II–III phases complicates a strict separation between utilitarian and performative functions. The earlier El Grillo and Atemajac I molcajetes feature more highly decorated open bowls that clearly served as vessels of display, while later molcajetes—particularly the Huistla Polychrome types with black-on-red decoration—introduce an aesthetic dimension to a traditionally processing-oriented form. This elaboration suggests that while molcajetes retained their primary role in food preparation, their decoration may have carried visual weight in semi-public or communal contexts where preparation overlapped with display. In other words, I am not proposing that molcajetes were repurposed wholesale as serving vessels, but that their decorated surfaces mark a blurred boundary between processing and presentation, reflecting changing emphases on the visibility of food-related practices.

Large, thick-walled jars of coarse paste also fit this pattern. Among the distinctive vessel classes in the Tequila Valleys assemblages are the Atemajac III appearance of tejuineros (see figure 27), tall cylindrical jars often interpreted as specialized containers for preparing or serving tejuino, a fermented maize beverage with deep roots in western Mexico (Novillo 2015). Large jars—thick-walled vessels with wide capacities—were versatile containers that served multiple functions, including bulk storage of foodstuffs and liquids, as well as preparation of large quantities for communal events. Their scale and construction suggest use in bulk storage or fermentation, inviting comparison with tejuineras, though their actual functions were likely more diverse. These vessels reflect incremental adjustments within long-standing technological traditions- jars themselves get bigger, but are not radically changed.

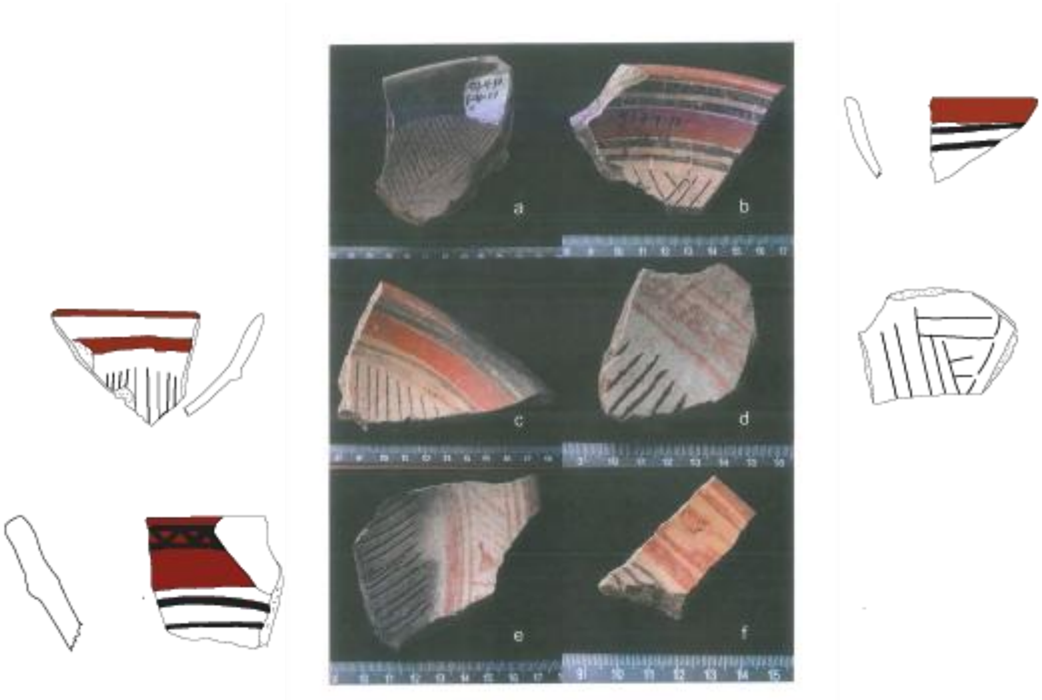

Figure 26 Photographs of grater bowls (after Nance et al. 2013: Figure 3-1a–f): (a) black-banded, Type 10; (b–c) red and black styles on buff, Type 8; (d–f) red on buff, Type 11. Corresponding drawings from the site of Las Cuevas (drawings by author). Las Cuevas, Long Collection, Fowler Museum. Note: The vessels with black paint (b–c) correspond to Huistla Polychrome, which is restricted to the Atemajac II–III phases. However, Nance (2013) identifies the black-banded Type 10 as an early grater bowl form.

Nonetheless, open bowls remain consistently abundant, echoing their utility in earlier periods (see figure 24).

Figure 27 Tejuinera on display at the Centro Interpretivo Guachimontones Photographer: Gilberto Hernández.

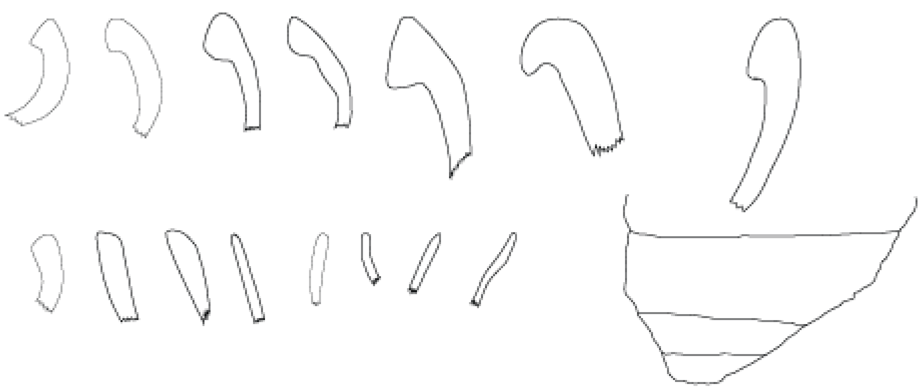

Figure 28 Atemajac rim sherds from the site of Las Cuevas, Atemajac Phase 2–3. Red olla rims, drawings by the author. Long Collection, Fowler Museum.

Other changes, however, were more dramatic. The introduction of the comal in West Mexico in the Atemajac II phase marks a decisive break, representing not just a new cooking method but the adoption of an entirely new cuisine (see Figure 29). This innovation stands in contrast to the slow, cumulative development of forms like grater bowls or storage jars. A useful comparison comes from the El Grillo phase, when migration produced similarly abrupt transformations. The sudden appearance of El Grillo ceramics brought a fully formed assemblage into the region, including molcajetes and ring-based cups associated with ritualized drinking. While not part of the Postclassic sequence itself, El Grillo demonstrates how culinary technologies could arrive wholesale, tied to population movements and identity negotiation, in contrast to the gradual and selective incorporations more characteristic of the Atemajac phases.

Figure 29 Comal fragments from the site of Los Guachimontones. Photo by author

Just as significant as what was adopted is what was not. The comal, for example, spread widely in Mesoamerica but was never integrated into Tarascan culinary practice (Blanton et al. 1999; Hirshman 2008; Pollard et al. 2016). Such omissions underscore that cultural borrowing was never automatic. Communities filtered outside traditions carefully, embracing some elements while rejecting others in ways that reflected local culinary logics and social priorities.

The fragmentary nature of the archaeological record complicates efforts to trace these shifts at the household level. Fully stratified domestic contexts spanning multiple phases are rare, and most evidence derives from cumulative deposits across sites. As a result, comparisons must be made on a broad scale, and interpretations necessarily remain generalized. Even so, some patterns are clear. Bowl forms appear in every period, reflecting their enduring importance in daily food practices. In the Tequila phases, utilitarian wares tend to be smaller than in later periods, with many small jars and bowls. During the El Grillo phase, similar functional categories appear but with increased variety and dramatic changes in decorative schemes. By the Atemajac III phase, very large storage jars emerge alongside a proliferation of polychrome serving vessels, signaling changing consumption practices and perhaps more formalized or communal modes of presentation.

By the Atemajac I, II, and III, long-distance trade and selective adoption became the primary drivers of innovation. The spread of comales for tortilla production reveal the integration of broader Mesoamerican foodways, likely facilitated by Aztatlán trade networks. Yet these were not uniformly or immediately incorporated. Instead, they entered daily life gradually and unevenly, shaped by local culinary traditions and social structures.

The Atemajac phase in the Tequila Valleys reveals a dynamic landscape of cultural exchange, shaped by increasing participation in expansive trade networks and long-standing patterns of population movement initiated during the El Grillo and Atemajac I phases. This era is marked not by abrupt cultural ruptures, as in the El Grillo phase of the Classic period, but by the gradual incorporation and transformation of external influences, especially culinary ones, into local lifeways. These processes reflect a growing cosmopolitanism, wherein communities balanced regional traditions with transregional trends, forging hybrid material and social identities through food practices.

Archaeological evidence for this increasing cultural exchange comes from the circulation of distinct ceramic types and styles across vast distances. Vessel forms such as comales, previously associated with central and southern Mesoamerica, appear in the Tequila Valleys during Atemajac II, suggesting integration with broader Mesoamerican cooking traditions—specifically, those involving dry cooking and tortilla production. The local adoption of these forms signals an openness to external culinary ideas, even as the comales themselves were adapted to suit regional preferences. Likewise, large ceramic vessels linked to tejuino fermentation (see figure 27) evoke feasting traditions while retaining uniquely West Mexican attributes in decoration and form. These material traces reflect the blending of local and foreign traditions, offering a tangible record of how cuisine became a platform for negotiating identity in a connected world.

Shifts in daily culinary practices in the Tequila Valleys were driven by intersecting mechanisms, including migration, trade networks, localized innovation, and the gendered dynamics of food production. While broader processes like the Aztatlán cultural network and regional trade facilitated the circulation of new materials and ideas during the Atemajac I and II, local communities—particularly women—played an active role in adapting, rejecting, or transforming these influences.

In sum, Postclassic cuisine in the Tequila Valleys represents a hybrid cultural formation—one shaped by trade, migration, and the creative agency of local communities. Ceramics and culinary practices embody this synthesis, offering material evidence of a region that was deeply embedded in Mesoamerican networks while retaining distinct cultural identities. The result is a complex and cosmopolitan cuisine, attuned to both everyday needs and the broader performative politics of identity, memory, and taste.

6.4 Second Interlude

The fire burns lower now—coals steady, radiating. She crouches beside the flat ceramic plate resting over the fire, watching as the thin tortilla begins to puff. The comal is new to her household. Her sister brought one back from a journey toward the south, where people use them for everything. It's strange, she thinks, to cook directly on clay, but the smell of the maize says otherwise.

Beside her, an older grater bowl rests in the shade, its three legs caked with years of soot. Its rim is different than her mother's, the red slip more deliberate, the incised pattern tighter. Familiar in function but dressed in newer clothes. Her grandmother used to say you could tell who people talked to by the way their bowls looked. She thinks that is true now more than ever.

Some say the people far to the south use different tools entirely, that their pots sit lower, wider, or carry different marks. The potters here have started copying those styles, but only some. You don't adopt everything. That would be foolish.

A painted bowl rests on the ground nearby—deep red with a buff interior, its rim curving gently inward. She made it with her cousin. The bowl is lovely, but mostly for guests.

The comal hisses. She flips the tortilla with a practiced hand. Around her, the courtyard is full of sounds: a cousin grinding maize, children arguing, someone calling out a greeting. This is *what change looks like, she thinks—not erasure, but layering. The tortillas puff again. She smiles. Some things take to the fire quickly. Others just need time.*

Chapter 7: Sustainability and Tradition in Food Systems

7.1 Results: General Starch Interpretation

While shifts in ceramic forms and cooking technologies, as discussed in chapters five and six, provide evidence for innovation and adaptation in food practices, microbotanical analysis offers critical insight into the remarkable persistence of certain ingredients over time. Starch grain analysis, in particular, allows us to identify plant remains at the microscopic level, often capturing traces of food preparation that do not survive in the macrobotanical record. In the Tequila Valleys, analysis of ceramic residues from both domestic and ceremonial contexts reveals a core suite of plants that remained central to local cuisine over centuries. The analysis focused on identifying staple crops such as maize and revealed consistent evidence of Zea mays starch across multiple contexts and time periods, indicating its long-term significance in regional foodways. Only about a third of the slides yielded starch, which is typical given the highly patchy distribution of residues, differential preservation, and the inherent inefficiency of micro-sampling from groundstone tools. Because grain counts are not reliable proxies for original abundance—due to uneven extraction, clumping, and sub-sampling error—starch studies commonly report presence/absence and diagnostic types rather than quantitative counts.

Across 65 slides, starches were confidently identified on 21 artifact slides and on one control slide. The morphology and extinction features confirm Zea mays as the most common taxon, with multiple slides (notably 2 EWB and 10 EWB) also showing Phaseolus-type forms. Contamination was restricted to early (pre-COVID) runs; later rewashed and resampled slides show clear separation from lab controls.

Table 3 Summary Starch Results.

Slide ID	Site	Artifact Type	Method	Observations (Condensed)	Probable ID / Interpretation
Control Slide	—	None (lab control)	Standard (same as samples)	6–9 starch grains per slide	Background contamination baseline
Artifact 1 Rewash	Las Cuevas	Basalt mano	Sonication	Dozens of faceted 15–25 µm grains with diffuse cross arms	Maize-type grains; minor contamination possible
Artifact 2 EWB	Las Cuevas	Basalt mano	Wet brushing	Numerous elliptical and kidney-shaped grains ("bean city")	Phaseolus spp. (bean) and maize mix
Artifact 3 ES	Las Cuevas	Basalt mano	Sonication	Minuscule 3–4 µm "juvenile starch or false starch"	Non-diagnostic / likely environmental
Artifact 4 ES	Las Cuevas	Basalt mano	Sonication	Circular and semi-rectangular grains, 10–20 µm	Mixed Type A/B forms, possibly maize
Artifact 4	Las Cuevas	Basalt mano	Sonication	Damaged grains with eccentric hila and flaring crosses	Probable maize; damaged during prep
Artifact 4 EWB	Las Cuevas	Basalt mano	Wet brushing	Dense slide (>15 grains): Types 1–3 with radiating lamellae	Maize dominant; possible bean presence
Artifact 5 ES	Las Cuevas	Basalt metate	Sonication	Bubble artifacts from mounting medium	Unreliable sample – excluded from counts

Artifact 6 EWB / 6 ES	Los Guachimontones	Basalt mano	Wet brushing / Sonication	15–17 µm grains with centric hilum and flaring cross	Zea mays (maize)
Artifact 8 ES	Las Cuevas	Basalt mano	Sonication	Small 10–11 µm grains, double hilum marks	Processed starch; milling damage visible
Artifact 10 EWB	Las Cuevas	Basalt mano	Wet brushing	11 faceted grains (15–23 µm), polygonal to elliptical	Maize dominant; possible bean-like forms
Artifact 10 ES	Las Cuevas	Basalt mano	Sonication	5+ rounded to hexagonal grains (14–17 µm)	Maize-consistent morphology
Artifact 16 S, 16 BST, 9 ST	Various	Unspecified (pre-COVID samples)	Sonication	Contaminated slides	Excluded from final analysis
Artifact 2022 Resample Set	Las Cuevas	Manos & metates (Artifacts 1, 3, 11–13)	Sonication + Wet brushing	Rewashed and reexamined after contamination issues	Maize and bean confirmed again

The repeated recovery of starch grains morphologically consistent with Zea mays across multiple slides and contexts strongly supports the centrality of maize in local food systems. Maize starch was identified based on its distinct size range (typically 15–25 µm), circular to polygonal shape, central hilum, and extinction cross with flaring or straight arms, often accompanied by faint lamellae (Piperno et al 2009). These diagnostic features appear frequently in both early and late contexts, including from vessels associated with ceremonial contexts and more utilitarian domestic assemblages. For instance, starches from a basalt mano from the site of Los Guachimontones exhibit characteristics consistent with maize: large, faceted grains with centric or slightly eccentric hila and strong extinction crosses, often with diffuse or flaring arms (see Figure 30).

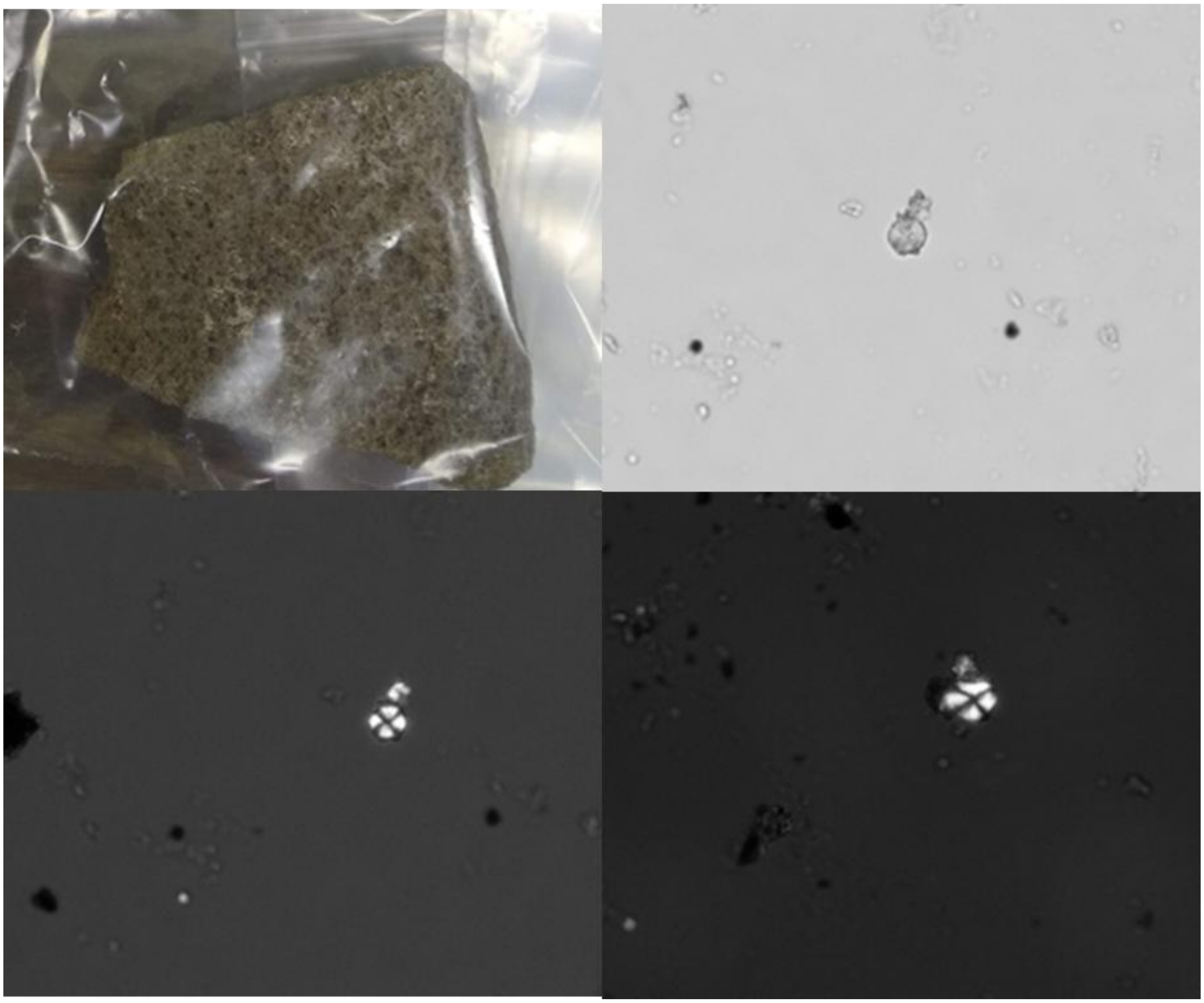

Figure 30 From top left: Artifact 6, basalt mano. Slide 6ES unpolarized light. Slide 6EWB polarized light, slide 6 ewb polarized light.

In addition to maize, starch grains potentially attributable to genus Phaseolus spp. (beans) were documented in several samples, most notably in Slides 2 EWB and 23. These starches, while more variable, tend to be ovoid to kidney-shaped with curved or eccentric extinction crosses and in some cases exhibit bimodal sizes suggestive of storage parenchyma tissues

(Piperno and Dillehay 2008, Piperno et al. 2017). The identification of morphologies that resemble beans aligns with known Mesoamerican cultivation and consumption patterns, wherein beans formed a nutritional complement to maize (Landon 2008, VanDerwarker 2022). Though identification to species remains tentative due to morphological overlap with other legumes, the consistent recovery of these starch forms across multiple samples strengthens the case for their dietary relevance.

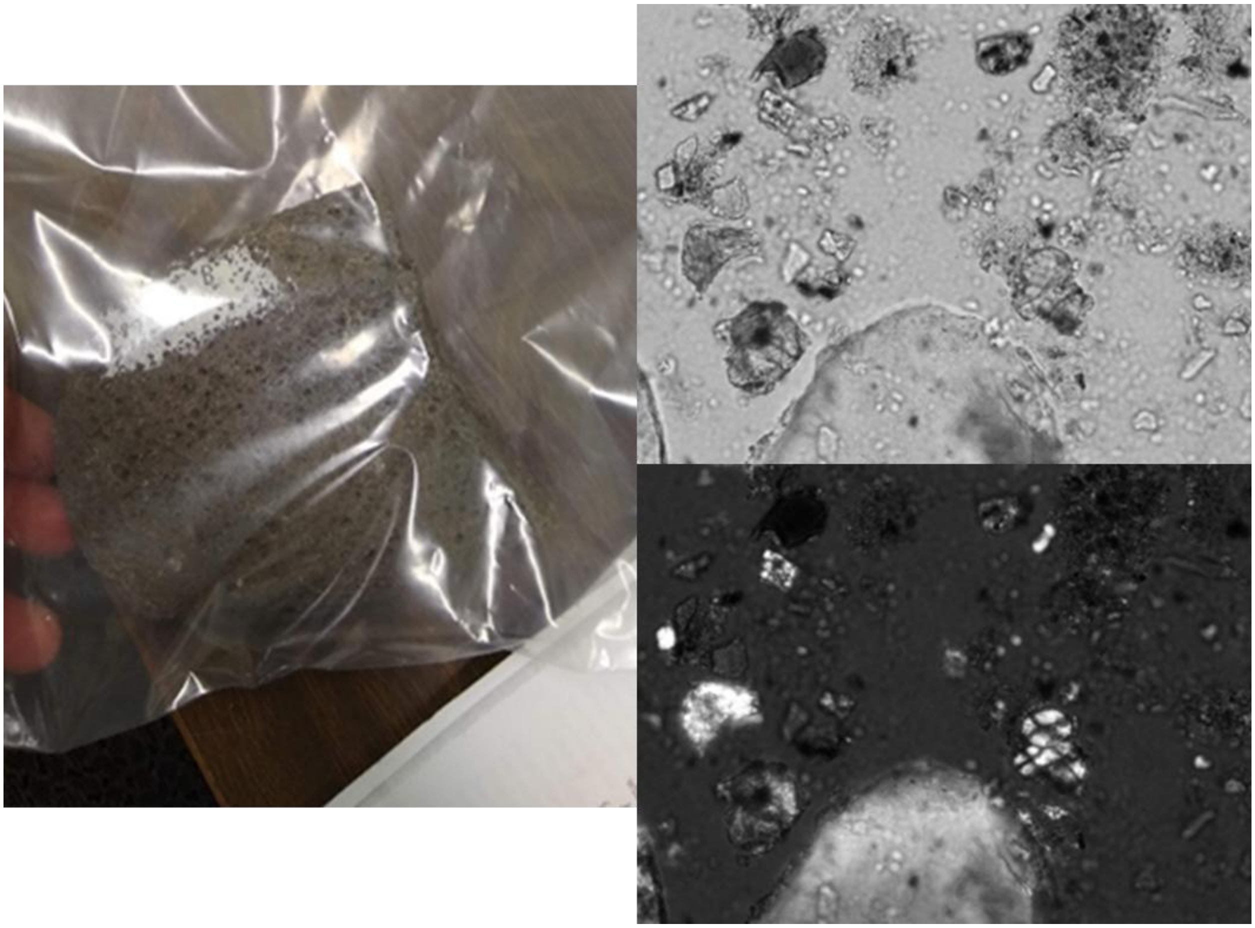

Figure 31 Artifact 2, basalt mano, slides 2EWB in non-polarized and polarized light.

Together, this microbotanical evidence not only reaffirms the dietary and cultural importance of maize and beans as long-standing staples, but also supports models of continuity within regional cuisine, where core crops remained embedded in culinary practices even amid broader social or technological change.

Table 4. Identified Maize with corresponding artifact and period.

Slide ID	Site	Artifact Type	Method	Probable ID / Interpretation	phases
Artifact 1	Las Cuevas	Basalt mano	Sonication	Maize-type grains; minor contamination possible	Atemajac I-III
Artifact 2	Las Cuevas	Basalt mano	Wet brushing	Phaseolus spp. (bean) and maize mix	Atemajac I-III
Artifact 4	Las Cuevas	Basalt mano	Wet brushing	Maize dominant; possible bean presence	Atemajac I-III
Artifact 6	Los Guachimontones	Basalt mano	Wet brushing / Sonication	Zea mays (maize)	Tequila I-IV
Artifact 10	Las Cuevas	Basalt mano	Wet brushing	Maize dominant; possible bean-like forms	Atemajac I-III

Most notably, maize (Zea mays) appears as a component of food preparation in the Tequila and in the Atemajac phases underscoring its role not only as a dietary staple but also as a socially embedded ingredient, central to both daily subsistence and ritual commensality. This persistence may reflect the suitability of these plants to the environmental conditions of the region, as well as their compatibility with existing cooking technologies such as boiling, grinding, and grating.

Building on this, residue analysis from large ceramic jars at Los Guachimontones further supports the centrality of maize in local food and drink practices (Novillo Verdugo and Esparza López 2016). Chemical and starch analyses conducted on eight tinajas indicate that these vessels were used in the production of fermented maize-based beverages, likely tejuino (Novillo Verdugo and Esparza López 2016). The identification of gelatinized maize starch, along with the absence of residues associated with meat or water storage, points to a specialized function tied to communal or ceremonial consumption. This evidence complements the broader pattern of continuity in maize use, showing how staple ingredients were not only maintained but also adapted into shifting culinary and social frameworks (Novillo Verdugo and Esparza López 2016).

Ultimately, starch grain analysis demonstrates that while ceramic styles, serving practices, and even culinary techniques underwent transformation, the fundamental ingredients of daily cuisine remained deeply rooted in local ecological and cultural landscapes. The persistence of maize and other staple starches across time reflects not only agricultural resilience but also the enduring social and symbolic importance of these plants within West Mexican communities. While maize and beans were indeed recovered, their presence is hardly unexpected given their widespread role as staples throughout Mesoamerica. In fact, the absence of such remains would have been the more surprising outcome. The value of these findings, therefore, lies less in their novelty than in how they anchor the Tequila Valleys assemblage within broader regional dietary traditions. Beyond these staples, however, no additional cultigens were identified in the starch assemblage or through mass spectrometry. This negative evidence likely reflects both preservation biases and the methodological limits of the techniques employed, rather than a true absence of other crops. Thus, while the data reaffirm the centrality of maize and beans, they also underscore the difficulty of recovering a more diverse picture of foodways archaeologically. Lastly, while I have not identified amaranth in any starch samples to date, its historical use remains plausible given its poor preservation characteristics.

7.2 Forms of Preparation: Groundstone Evidence for Food Technologies

This analysis employs a technological typology for manos and metates adapted from Adams (2002). The goal is to provide consistent, replicable definitions of artifact classes used throughout the study. Classifications are based on design and surface configuration rather than size alone, ensuring comparability across assemblages.

Manos are the handheld elements of grinding equipment. They vary in size, form, and degree of modification, and can be classified into several types. One-hand manos are small implements that can be operated with a single hand, typically used in conjunction with basin or small flat metates. Two-hand manos are larger, heavier tools requiring the use of both hands; these are most often paired with trough or large flat metates. A distinct category is the trough mano, which is characterized by end wear resulting from use within the confined walls of a trough metate. In terms of manufacture, some manos are expedient, consisting of naturally shaped cobbles that show little or no modification. Others are strategic, intentionally shaped to facilitate use and often incorporating comfort features such as finger grooves, pecked surfaces, or turtle-back profiles.

Metates, the netherstones against which manos are used, are classified according to the configuration of their grinding surfaces. Basin metates exhibit shallow concave surfaces, which are often produced through initial use rather than deliberate shaping. Trough metates are distinguished by elongated, rectangular depressions created by repeated reciprocal strokes; these occur in several subtypes. Open-trough metates have borders along both sides but are open at the ends, while three-quarter trough metates are enclosed along both sides and one end. Finally, flat metates present broad, planar surfaces (See Adams 2022 for more drawings) When fixed in bins, they are often set at an angle, producing longitudinal concavities through repeated use, whereas free-standing examples tend to wear evenly across the surface.

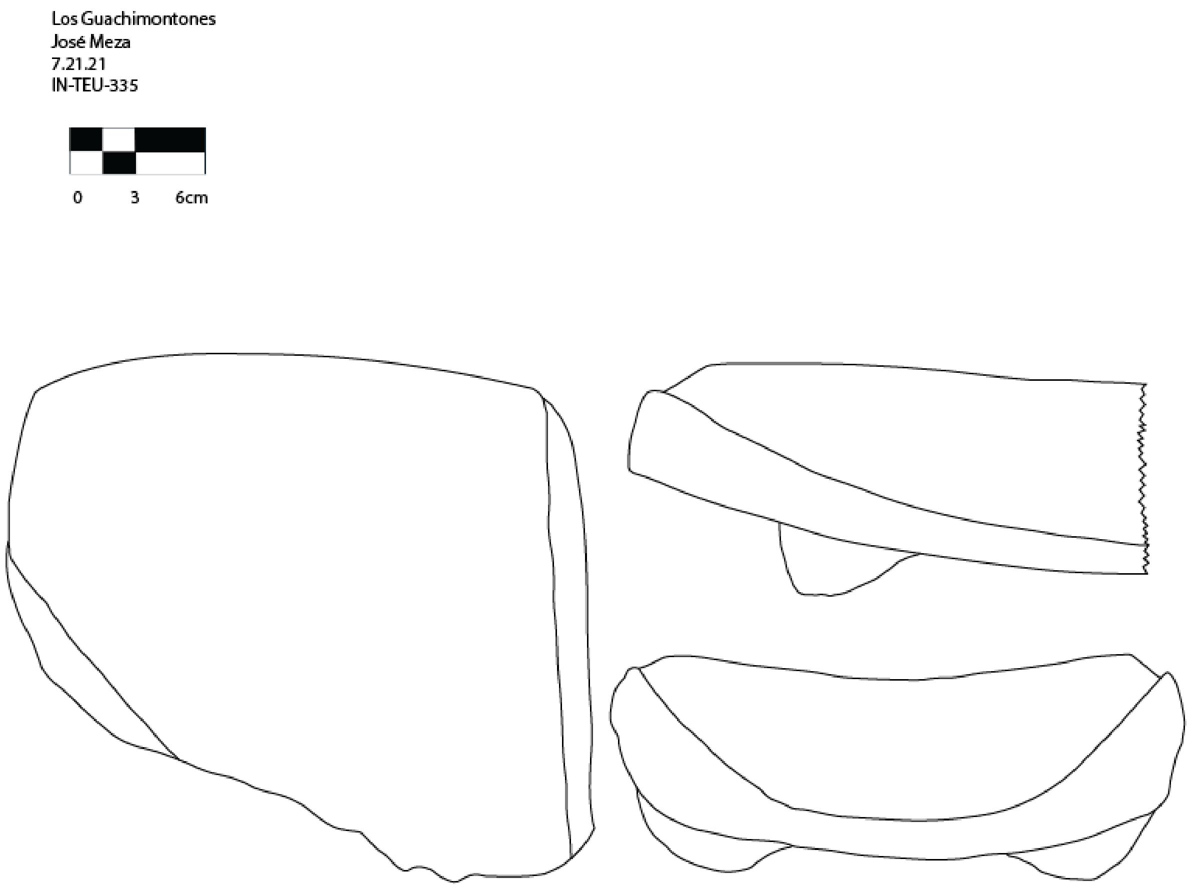

Figure 32 Trough metate fragment from Los Guachimontones: open-trough or three-quarter-trough form, missing one end such that the original design cannot be determined.

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Mano and metate classifications are linked: the form of one determines wear and configuration on the other. Categories presented here provide the typological framework for analysis of grinding technology in this study, standardizing definitions for comparisons across contexts.

Table 5 Mano and Metate typology

Mano Type	**Key Features**	**Associated Metate Type(s)**	**Notes**
One-hand mano	Small, held with one hand; minimal surface area	Basin, small flat	Often expedient; short-duration use
Two-hand mano	Large, heavy; operated with both hands	Trough, large flat	Greater efficiency for intensive grinding
Trough mano	End wear from contact with trough walls	Trough (open, ¾)	Diagnostic of trough metates
Expedient mano	Unmodified cobble; one or more grinding surfaces	Any (depending on fit)	Opportunistic use
Metate Type	**Grinding Surface Configuration**	**Associated Mano Type(s)**	**Notes**
Basin metate	Shallow concavity; round/oval plan	One-hand mano	Early or less intensive grinding
Trough metate	Elongated, rectangular depression	Two-hand or trough manos	Includes open, ¾,
Flat metate	Broad, planar surface; sometimes in bins	Flat-ended manos	Wear develops evenly or as shallow concavity

Throughout the sequence, groundstone tools in this region are by observation most commonly rectangular metates with raised sides, creating trough-like grinding surfaces (see Figure 32 and Figure 33). These metates are typically less than 5cm in depth to their grinding surfaces although some variation exists. The artifacts are usually made of fine-grained basalt in shades of gray to black, reflecting a consistent selection of raw materials that underscores shared technological traditions.

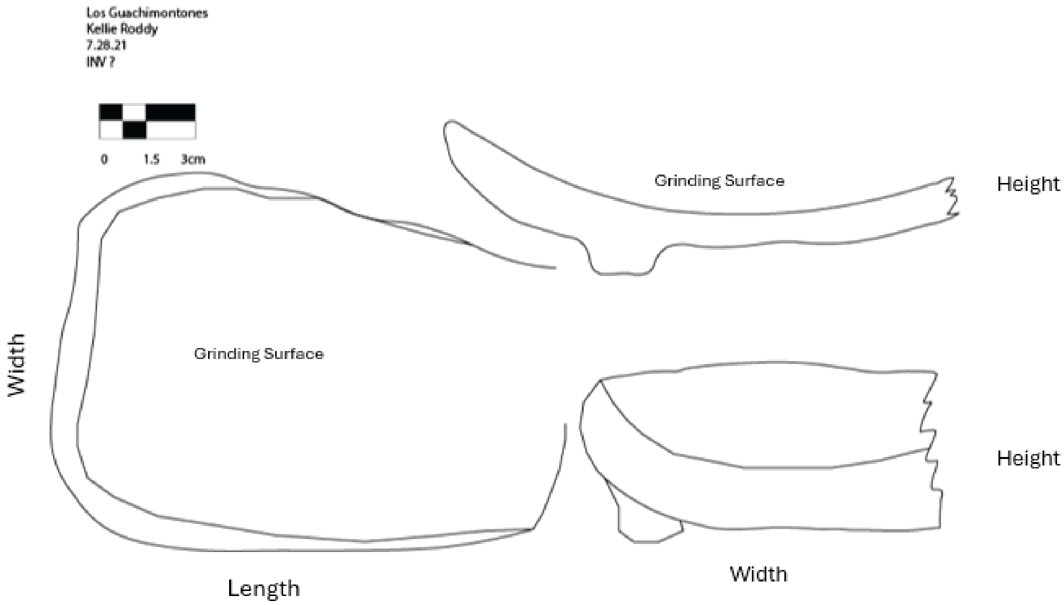


Figure 33 Metate from the site of Los Guachimontones. Drawing by author.

At Los Guachimontones, a similar consistency in groundstone forms is evident. In Circle 6, Tomb 1, dated to Tequila I or III, a three-sided trough metate without feet was recovered alongside a corresponding mano. Notably, the metate displayed traces of a red material on the grinding surface probably related to the red ochre covering the interred bodies in the grave, though this appears unrelated to food preparation. In Circle 6, Tomb 2, Entierro 3, another three-sided trough metate without feet was recovered, underscoring the stability of this specific metate form over time. Additional trough metates from Talleres 3, Entierro 5b include two square-sided examples without feet; these were more roughly shaped, particularly on the underside, perhaps reflecting expedient production or local variation. A line drawing of one of these groundstone tools illustrates the characteristic trough metate (Figure 32). The metate features a wide, shallow grinding surface and lacks supporting feet, while the mano exhibits a slightly convex grinding face consistent with use in trough-style metates.

Metates recovered from Etzatlán and Las Cuevas are predominantly associated with Atemajac I-III phase contexts, based on both stratigraphic and ceramic associations. The majority of these groundstone tools are trough-style metates, characterized by their elongated basins and flat or gently concave grinding surfaces, which suggest their use in processing large quantities of food, likely maize (Adams 2002:119-121). Many of the specimens are fragmentary, with broken legs or missing grinding surfaces, making precise typological classification difficult in some cases. Nonetheless, almost all metates examined from these contexts are trough forms, suggesting a clear preference for this configuration during the Atemajac phases, although this conclusion is based on qualitative observation rather than quantitative counts.

Taken together, the groundstone assemblage from sites across the Tequila Valleys demonstrates a suggestive pattern of continuity in food processing technology. The dominance of rectangular or squared metates with raised sides — whether footed or flat-bottomed — reflects a stable culinary tradition centered on grinding maize and other staples using trough metates and flat manos. The occasional presence of mortars and pestles suggests some flexibility in processing methods, but these did not displace the metate-mano pairing as the primary technology. The persistence of these forms, as in tomb contexts, suggests their symbolic as well as practical significance, reinforcing their role in food preparation and their association with domestic identity. This basic form appears to have remained largely unchanged over centuries, in contrast to central Mexico, where metates evolved from basin forms to trough metates, and eventually to overhanging styles in the Postclassic period (Biskowski 2000, 2017). The relative conservatism of metate forms in western Mexico points to strong continuity in food processing traditions, particularly for grinding maize and other staple products.

This regional conservatism in groundstone forms contrasts sharply with other areas of Mesoamerica, where changing food preferences, social demands, or technological innovations spurred significant transformation in grinding tools over time (Biskowski 2000, 2017). In the Tequila Valleys, the enduring use of rectangular trough metates demonstrates long-term stability in staple food preparation, even as ceramic forms and serving practices evolved in response to changing social and political dynamics. This technological continuity in food preparation is also suggestive of broader patterns of sustainability — systems of daily practice that remained resilient and adaptable without requiring wholesale innovation in foundational technologies.

What this means is that people in the Tequila Valleys could use the same metates, ceramic forms, or core ingredients like maize and beans—but use them in new ways, for new purposes. A cooking vessel that once served daily family meals might now be employed in a ceremonial context to assert status or maintain alliances. The act of grinding maize could remain physically unchanged while being woven into increasingly performative or communal practices that reinforced social hierarchy. These changes do not necessarily require the invention of new tools or recipes; rather, they involve shifts in meaning, scale, audience, and context.

The analysis of ceramic and groundstone tool forms provides a valuable window into the food processing technologies of the Tequila Valleys, offering insight into both the continuity of culinary traditions and moments of potential innovation. While ceramic vessels in the Tequila Valleys reflect changes in serving practices, social contexts, or external influence, groundstone tools — and particularly metates — seem to reflect deeply rooted practices associated with staple food preparation. In the case of the Tequila Valleys and surrounding regions, the morphological consistency of metates across a broad chronological span suggests continuity in food processing methods, especially when compared to other areas of Mesoamerica where groundstone tool forms underwent significant transformation over time (Hamon et al. 2025; Sinensky 2021)

7.3 Culinary Flexibility and the Sustainability of Cultural Practices

Food systems in the Tequila Valleys were sustained through a remarkable degree of cultural flexibility. Sustainability, in this context, was not simply a matter of ecological equilibrium or long-term agricultural productivity. Sustainability was a social and symbolic accomplishment, rooted in the strategic maintenance and adaptive reconfiguration of food-related traditions over centuries of change.

Communities preserved core ingredients like maize and beans not only because they were nutritionally reliable, but because they held deep cultural significance (Taube 1996, 2000; Beekman 2003) and could be prepared using technologies and methods suited to local ecologies. These ingredients formed the basis of daily meals and ritual feasts alike, embedded in networks of meaning that linked households to broader political, ceremonial, and ancestral frameworks. Continuity in tool forms and preparation methods—such as the persistent use of rectangular trough metates and ceramic cooking vessels—points to a deliberate conservatism, a valuation of familiar practices that could anchor identity in a shifting world.

At the same time, these systems were far from static. Culinary practices evolved through incorporation and recontextualization. This adaptability is what made them sustainable—not in spite of change, but because of change. Food practices operated as a cultural technology: a domain in which innovation could occur without severing ties to the past, and where transformation was shaped through the grammar of tradition.

By viewing cuisine as a dynamic, negotiated process, we gain a deeper understanding of how cultural systems endure. Sustainability, in this light, is not the absence of change, but the ability to absorb, reinterpret, and repurpose change without losing coherence. The archaeological and historical record of West Mexico demonstrates that foodways were central to this process. Through them, communities sustained more than their bodies, they sustained relationships, memories, and ways of being in the world.

Chapter 8: Cuisine and the Construction of Identity

8.1 Material Culture and Group Affiliation

Culinary practice in the Tequila Valleys operated as a medium for articulating social belonging and distinction. Far from static, these culinary practices responded to shifting historical conditions while maintaining continuity through their repeated performance. In this way, cuisine served not only to nourish the body, but to embed individuals within communities, reinforce roles and relations, and sustain cultural identities across time.

In the Tequila Valleys, decorative motifs, construction techniques, and local ceramic styles functioned as material expressions of group affiliation. Consistent rim treatments on cooking jars, the use of red slip on everyday bowls, and the prevalence of shallow, rectangular trough metates established a recognizable regional aesthetic that reinforced social belonging through daily practice. These repeated forms were not simply technical solutions—they were embedded traditions, reproduced through the bodily actions of making and using, and they helped define what it meant to be part of a local community. Such material consistency created continuity across generations and formed the basis of a shared visual and tactile identity.

Despite episodes of stylistic innovation, the infrastructure of food preparation in the Tequila Valleys remained strikingly stable. Groundstone tools such as rectangular trough metates and cylindrical manos persisted from Tequila I through Atemajac II with minimal change. Unlike central Mexico, where metate forms transitioned from basin to overhang styles, the Tequila Valleys exhibit a long-term adherence to shallow grinding platforms. Cooking vessels such as ollas also retain consistent forms over time, suggesting that while serving practices may have evolved, the core techniques of food preparation remained deeply rooted. Starch grain analysis reinforces this picture of culinary conservatism: maize and legumes such as Phaseolus spp. continue to dominate residue assemblages across periods and vessel types, underscoring the enduring centrality of these staples in the regional diet.

This dual pattern—stylistic adaptation in serving wares alongside conservatism in production tools and ingredients—suggests a deliberate strategy for navigating social change. As new political alliances formed and interregional exchange intensified, communities in the Tequila Valleys maintained culinary practices that provided continuity and cultural coherence. Foodways anchored households in familiar routines, even as decorative elements and public displays began to reflect shifting affiliations and external connections. In this way, cuisine became a medium through which people could negotiate identity—resilient yet responsive, rooted yet open to reinvention. The chaîne opératoire of grinding maize, boiling stews, and pressing tortillas on a comal encoded social memory into the physical act of cooking. These practices did not merely reflect identity; they produced identity. Even as ceramic aesthetics shifted in response to new cultural currents, the persistent forms and techniques of food preparation reaffirmed a shared regional lifeway that could carry communities through moments of uncertainty and transformation.

8.2 Ethnicity, Migration, and Adaptation

Atemajac I-III contexts further illustrate the emergence of multiethnic communities and layered identities forged in moments of political and economic realignment. Material culture from these periods often exhibits stylistic blending that cannot be easily mapped onto distinct ethnic groups, supporting Díaz-Andreu’s (2015) critique of equating artifacts with bounded communities. In such pluralistic settings, ethnic identity was neither stable nor singular; rather, it was situational and performative, enacted in ways that responded to shifting alliances, competition, and status display.

Colonial-era ethnohistoric sources from the Tequila Valleys region offer compelling evidence for the persistence of multiethnic communities and the ongoing negotiation of identity in the wake of migrations. Administrative documents such as the Relación del Pueblo de Ameca, the 1525 visita by Juan de Cerezo and Francisco de Coria, and the Pintura del Nuevo Reino de Galicia collectively reveal a sociopolitical landscape defined not by centralized authority, but by a mosaic of semi-autonomous señoríos, each under local leadership and often distinguished by language and ethnic affiliation (Cerezo and Coria in Guzmán vs. Cortés 1937; Weigand and García de Weigand 1996).

The Cerezo-Coria visita, in particular, underscores the cultural heterogeneity of the region by recording linguistic distinctions between adjacent settlements: Etzatlán is associated with a now-lost linguistic tradition—likely Totorame—while Magdalena is home to Coano-speaking peoples (Weigand and García de Weigand 1994). This reinforces the view that the Late Atemajac and early Colonial Tequila Valleys were characterized by interspersed and interacting ethnic communities rather than homogeneity. These distinctions were not merely linguistic but carried political and social implications, further emphasized by the regional involvement in large-scale conflicts such as the Rebelión de Nueva Galicia (1541), which mobilized diverse ethnic groups including the Caxcan, pointing to shifting alliances and fluid identities under pressure. Nahuatl-speaking indigenous auxiliaries allied with the Spanish played a critical role in reshaping indigenous identities by introducing new toponyms and enforcing a lingua franca that increasingly obscured pre-existing ethnic distinctions (Tello 2022; Weigand and García de Weigand 1994).

These historical dynamics find important archaeological correlates. Material transformations during the El Grillo phase—especially in the Atemajac Valley—suggest not only the arrival of new populations but the coexistence and hybridization of identities. The abrupt shift from shaft tombs to box tombs at sites like Tabachines, accompanied by entirely new ceramic forms and mortuary practices, indicates a sharp break with earlier traditions and the integration of external stylistic influences from regions such as the Bajío and Zacatecas (Aronson 1993; Schöndube and Galván 1978).

The eventual rise of Postclassic settlements with ties to northern Jalisco and Nayarit further underscores the long-term impact of these migrations. Although Postclassic architecture in the region is poorly documented, what has been documented is suggestive (see Heredia Espinoza 2016). The Atemajac II-III archaeological complex is characterized by modest residential structures and exhibits strong parallels with communities from the canyon areas of northern Jalisco and Nayarit (Beekman and Christensen 2003). This resemblance has led some scholars to propose that the site reflects the arrival of Corachol-speaking groups displaced by the advancing Caxcan populations (Deltour-Levie 1993; Beekman 1996a:607–643, 955–962; Weigand and García de Weigand 1996, pp. 50–51).

8.2.1 Foodways and Everyday Practices, Temporal Shifts and Adaptive Traditions

We can consider what foodways, practices, temporal shifts, and adaptive traditions imply for the construction of ethnic identity, even if the specific ethnic groups or divisions involved remain uncertain. Both documentary and archaeological records converge to show that identity in the Tequila Valleys was not static, but reconstituted through migration, conflict, and intercultural negotiation. Far from displacing or homogenizing existing populations, migration facilitated the emergence of new, multiethnic configurations in which material culture, language, and political authority were reconfigured in locally contingent ways.

The longue durée of foodways in the Tequila Valleys demonstrates that ethnic identity was not static or inherited wholesale but continually shaped through material engagement—especially in times of rupture and reorganization. The collapse of the Teuchitlán culture and the subsequent appearance of the El Grillo complex around 500 CE marked a period of pronounced disruption, likely associated with the arrival of new populations or the rapid formation of new sociopolitical groups. The sudden emergence of fully formed ceramic packages, novel settlement layouts, and new ritual forms suggests a shift in ethnic composition or identity, whether through migration or internal restructuring. Yet even amid this upheaval, communities retained core elements of earlier culinary practices. The continued use of rectangular trough metates—a form stable from the Tequila I through Atemajac III—and the preparation of staple foods like maize and Phaseolus beans, suggest that some food-based practices carried enduring cultural meaning and may have served as anchors of ethnic memory and cohesion.

This negotiation between change and continuity becomes especially visible during the later transitions around 900 and 1200 CE. During these centuries, elite compounds increasingly incorporated Aztatlán-style ceramics—thin-walled red-on-buff bowls, bichrome plates, and other coastal-inspired forms—into their assemblages. These stylistic shifts correspond with heightened regional interaction and the formation of broader exchange networks, and they likely reflect new or reconfigured ethnic affiliations at the elite level. However, these forms were layered onto, rather than replaced, a long-standing foundation of local culinary technology.

The divergence between conservative food preparation methods and the flexible adoption of non-local serving styles reflects how cuisine operated as a dynamic medium for ethnic negotiation. Groundstone technologies and cooking vessel forms were not just utilitarian—they were expressions of belonging, transmitted across generations and embedded in embodied knowledge. In contrast, the adoption of Aztatlán ceramics may have functioned as a performative act, allowing local groups to participate in wider regional identities without abandoning the material practices that defined them as distinct communities.

In this light, ethnic identity in the Tequila Valleys was forged through the interplay of persistent culinary routines and strategic material adaptation. During times of political and demographic change, foodways allowed communities to assert continuity and cohesion while selectively incorporating new elements into their social and material lives. Cuisine, through both its conservative core and its capacity for stylistic elaboration, became a key arena in which people made visible who they were, who they had been, and who they wished to become within an ever-shifting cultural mosaic.

In the Tequila Valleys, cuisine played a central role in expressing and reinforcing social distinctions. The ways food was prepared, presented, and consumed varied across social strata, offering insight into how identity was constructed and maintained through everyday practice. Elite households had access to more elaborate ceramic forms which contributed to a cuisine that emphasized differentiation. These culinary practices were not simply about sustenance; they were carefully curated acts that reflected status, lineage, and access to broader networks of exchange and influence.

8.2.2 Aztatlán-Style Ceramics and Elite Culinary Identity

One of the most visible material markers of elite culinary identity in the Atemajac I is the presence of Aztatlán-style ceramics. These finely crafted and often elaborately decorated vessels appear selectively in elite residential areas throughout inland West Mexico, including the Tequila Valleys. Their inclusion in local assemblages reflects the deliberate incorporation of prestige materials into high-status cooking and serving practices. By adopting Aztatlán forms—many of which originated in coastal or long-distance exchange contexts—elites signaled their elevated social position and aligned themselves with a broader regional aesthetic. The integration of these ceramics into local cuisine reflects the construction of a shared elite identity communicated through the materiality of food.

In contrast, non-elite households exhibit greater continuity in their use of traditional ceramic forms and preparation tools. Their culinary practices remained rooted in longstanding regional traditions, emphasizing staple ingredients such as maize and legumes and relying on conservative groundstone technologies. This continuity suggests that for non-elite communities, cuisine served as a medium for reinforcing collective identity and cultural persistence. Rather than adopting externally derived styles or ingredients, non-elite groups maintained foodways grounded in intergenerational knowledge and local lifeways.

In this way, cuisine operated as a subtle but powerful means of social differentiation. Elite identity was expressed through diversity, innovation, and externally influenced material styles, while non-elite identity emphasized continuity, tradition, and regional belonging. These differences in culinary practice—reflected in tools, ingredients, and vessels—reveal how social roles and hierarchies were enacted and maintained not just through ceremonial display, but through the rhythms of daily food preparation and consumption.

8.2.3 Conclusion: Shifting Strategies of Status and Culinary Distinction

While material distinctions between elites and non-elites are a recurring feature of all societies, what differentiates each period in the Tequila Valleys is not merely the presence of hierarchy, but the evolving strategies through which that hierarchy was materialized and performed. Across time, the symbolic language of status shifted in tandem with broader changes in technology, exchange networks, and political organization. These shifts are particularly visible in the realm of cuisine, where food practices served as a highly legible medium for expressing social differentiation.

In the Tequila III-IV, status was encoded in funerary contexts through figural ceramics that emphasized food-related roles, visually linking authority to acts of preparation and consumption. By the El Grillo phase, this symbolism extended into domestic contexts, where decorated ceramics and restricted vessel forms signaled elite identity within everyday culinary practice. In the Atemajac phases, the adoption of Aztatlán-style ceramics reveals a growing emphasis on regional affiliations and long-distance ties, allowing elites to craft identities grounded in cosmopolitanism and selective appropriation. These changes highlight a transition from localized expressions of prestige to more outward-facing performances of power and affiliation.

Ultimately, what sets each time period apart is not the existence of class itself, but how that class was negotiated, performed, and sustained through the materiality of food. Cuisine thus emerges not only as a tool of sustenance but as a dynamic social field where power, tradition, and identity were actively contested and redefined.

8.3 Women and Cuisine

Together, these shifting culinary practices illuminate how material expressions of food were not only instruments of class distinction but also conduits through which broader social identities were articulated. As the negotiation of status became increasingly visible in both public and domestic spheres, the performative dimensions of food preparation and presentation intersected with gendered domains of labor and representation. It is within this nexus that women's roles emerge as particularly revealing, for the acts of cooking, serving, and feasting—often feminized within visual and material culture—offered a critical medium through which social power, lineage, and identity were enacted. The following section turns to these intersections, examining how women and cuisine were entwined in the symbolic and material construction of authority across time.

Shaft tomb sculptures produced during Tequila II-IV in the Tequila Valleys serve as a condensed symbolic archive of women's culinary labor and its ritual significance. Although many pieces lack secure provenance due to looting and market alterations, their abundance and recurring motifs allow for cautious interpretation. Scholarship has long recognized the prevalence of gendered imagery in West Mexican shaft tombs but often underexplored the roles and actions of female figures. Von Winning (1974), for instance, observed that women frequently appear holding bowls or seated with vessels but categorized them simply as "female," in contrast to the more differentiated male roles of "warriors," "musicians," or "shamans." This interpretive asymmetry minimized the potential ritual and social significance of women's activities.

Similarly, Furst’s (1966, 1972) analyses of psychotropic use focused almost exclusively on male participants, despite numerous depictions of women holding cups or bowls that plausibly relate to the same ceremonial contexts.

More recent scholars have attempted to redress this imbalance. Logan (2020), for instance, used statistical methods to show a moderate association between cups and female figures—though my own observations suggest an even stronger correlation, albeit complicated by sampling and contextual limitations. Pirtle (2016) offered a more nuanced model of gender complementarity, suggesting that while men were portrayed as warriors or ballplayers, women were associated with food and ritual. However, she too sometimes fell into the pattern of framing female figures as confined to domestic roles, despite acknowledging their frequent presence in ritual scenes. Butterwick (1998) advanced the interpretation that many of these figures—regardless of gender—participated in communal feasting, with both male and female figures depicted in the act of ritualized consumption. Still, her primary emphasis remained on the event of feasting rather than its gendered dimensions.

Building on these perspectives, I argue that women shown with bowls or cups are not merely domestic figures, but active participants in ritual. Their repeated depiction in scenes of consumption and presentation suggests they played central roles in ceremonial practices—roles that materialized their social importance within both household and broader communal contexts.

Many female figures are shown seated or kneeling, often holding small vessels on their laps or in their hands(see Figure 34). These are not incidental accessories but central attributes—personal serving bowls that index the relationship between women and food. Rather than interpreting these sculptures as mere illustrations of domestic life, I suggest they function as visual affirmations of women's authority in the realm of cuisine. The act of holding a vessel—especially in scenes that evoke feasting, ritual, or offering—should be read as performative: a

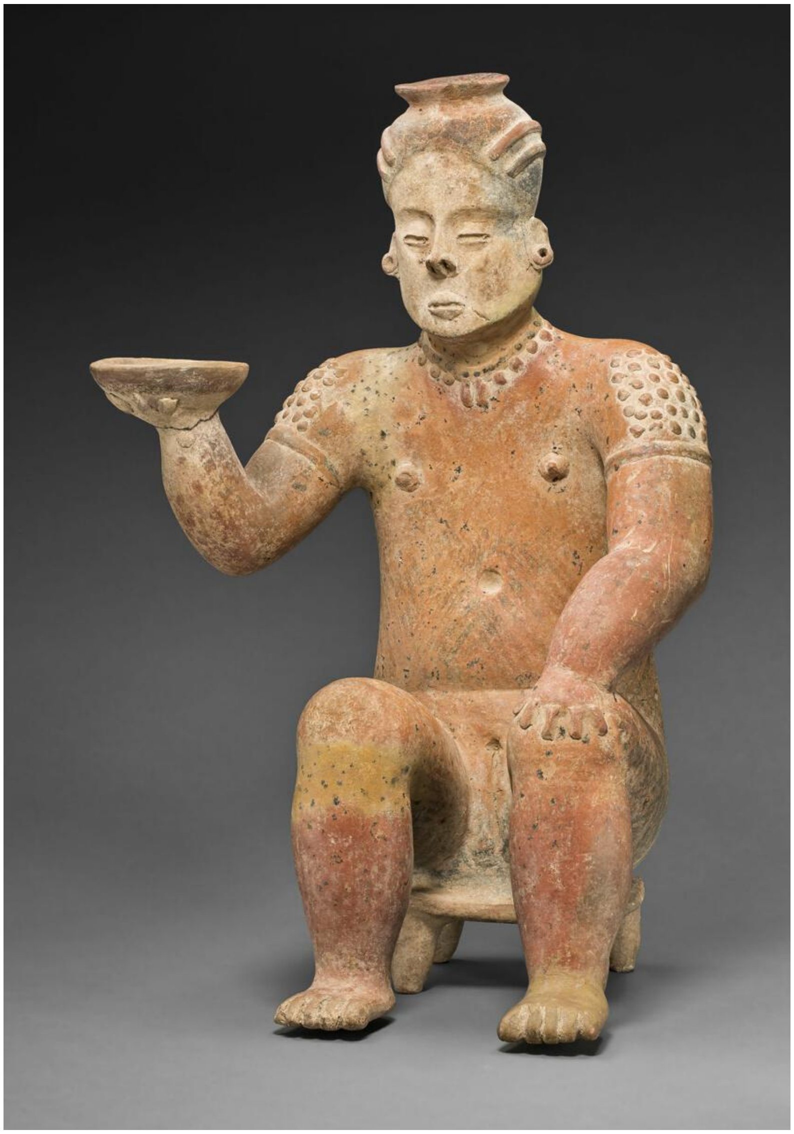


Figure 34 Seated Female Figure Holding a Bowl (1986.1088, Art Institute of Chicago). Courtesy of Art Institute of Chicago

demonstration of identity, power, and gendered responsibility.

The repetition of these motifs—women with bowls, women seated in communal contexts, women paired with male figures who bear musical or martial items—speaks to a broader cultural logic. Just as men may be depicted as warriors or ritual officiants, women are shown as stewards of sustenance. This is not to suggest a binary or reductive model of gender roles, but rather to emphasize that cuisine was recognized as a domain of symbolic and social weight. The shaft tomb sculptures crystallize a cultural ideology in which food preparation was not marginal, but central to the construction of gendered personhood and community belonging.

Figure 35 shows a characteristic male/female pair. These ceramic figurines—often found in funerary contexts—frequently depict women seated or kneeling, holding individual vessels in their laps or cupping them in their hands. These bowls are not incidental props but defining features of their portrayed identities. Paired with men who hold drums, rattles, or weapons, these women visually anchor a division of symbolic labor. Male figures often embody roles linked to sound, spectacle, or conflict, while women evoke nourishment, provision, and offering. The repeated depiction of bowls in women's hands, particularly when those bowls resemble high-status or fineware vessels, suggests a ritual rather than mundane context. These women are not simply cooking—they are officiating through food.

This distinction is critical. While earlier interpretations often relegated these female figures to the domestic sphere, recent scholarship has emphasized the public and ceremonial implications of their iconography (Butterwick 2004; López Mestas and Ramos De La Vega 2006). The pairing of female figures with food vessels in communal or group scenes—many of which depict activities that resemble feasting, musical performance, or other public rites—strongly suggests that food was one of the key ways women enacted power. Their presence in ritual settings indicates that women were more than support actors in ceremonial life; they were active participants, and in some cases, likely ritual leaders in their own right.

In sum, cuisine in ancient West Mexico operated as a gendered technology—not just in the tools or ingredients used, but in the embodied practices and social meanings that accrued around them. Women, through their culinary labor, enacted and reshaped social roles, crafting identities for themselves and their communities. Far from being confined to the domestic sphere, this work was part of a broader social project—ritualized, repeated, and remembered across generations.

Women in ancient West Mexico were not passive recipients of cultural change—they were active participants in shaping technological and social transformations. As the primary practitioners of food production, women mediated shifts in culinary technology, evaluating new tools within the contexts of daily labor, cultural memory, and collective identity.

8.3.1 Food and Ritual: The Performance of Power

Food is not merely sustenance—it is performance. Food is offered, displayed, and consumed in socially meaningful ways. In ancient West Mexico, food preparation and its presentation in ritual contexts were not just private acts but public, performative demonstrations of gendered power. Women, far from being confined to the domestic sphere, occupied highly visible and symbolically charged roles as providers and stewards of food in communal and ceremonial life. Nowhere is this more vividly materialized than in the shaft tomb sculptures of

Figure 35 Paired male and female Ixtlán del Rio figures. Male holds rattle in one hand, woman holds small plate (2005.91.12, Metropolitan Museum). Courtesy of Metropolitan Art Museum

the Tequila III-I, where women's association with cuisine is not simply depicted, but ritualized through iconography and form.

That said, this visual culture is temporally bounded. These kinds of depictions largely disappear after the Tequila phases. By the time of the El Grillo phase and Atemajac phases, figural ceramics become more schematic and less detailed. Flat figurines called “Mazapan” dominate, and overt portrayals of ritual action or food-related iconography decline significantly (Beltrán Medina and González Beltrán Medina 2007; Kelly 1949; Solar et al. 2011). While the reasons for this shift are not entirely clear, the absence is notable. It may reflect changing artistic conventions or, more fundamentally, shifts in the social and political roles available to women.

One possibility is that the highly performative roles that women appear to have occupied in earlier ceremonial contexts were curtailed or restructured in later periods. The upheavals of the El Grillo and Atemajac phases—characterized by migration, depopulation, and new forms of political organization—may have reshaped ritual life and gendered participation within it. In the absence of figurative depictions, women's roles may have become less publicly visible, even if they continued to play central parts in ritual food preparation behind the scenes.

Polychrome pottery from Arroyo Piedras Azules from coastal Jalisco further illustrates the shifting visual emphasis in ritual representation during later periods (Figure 36). Depictions of male figures as leaders, deities such as Mixcoatl, and ballgame players suggest a growing association between ritual performance and masculine, public authority—contrasting with the earlier, less visually documented but still vital roles that women held in ritual food preparation and domestic ceremonial practice.

Yet the earlier evidence, particularly from shaft tomb contexts, should not be dismissed as anomalous or symbolic alone. Rather, it offers a critical insight into how gendered authority was constructed and displayed in early West Mexican society. Women's power was performed through acts of feeding, serving, and symbolically nourishing both the living and the dead. Their bowls were not empty props, but icons of social function—powerful tools through which identity, memory, and community were maintained.

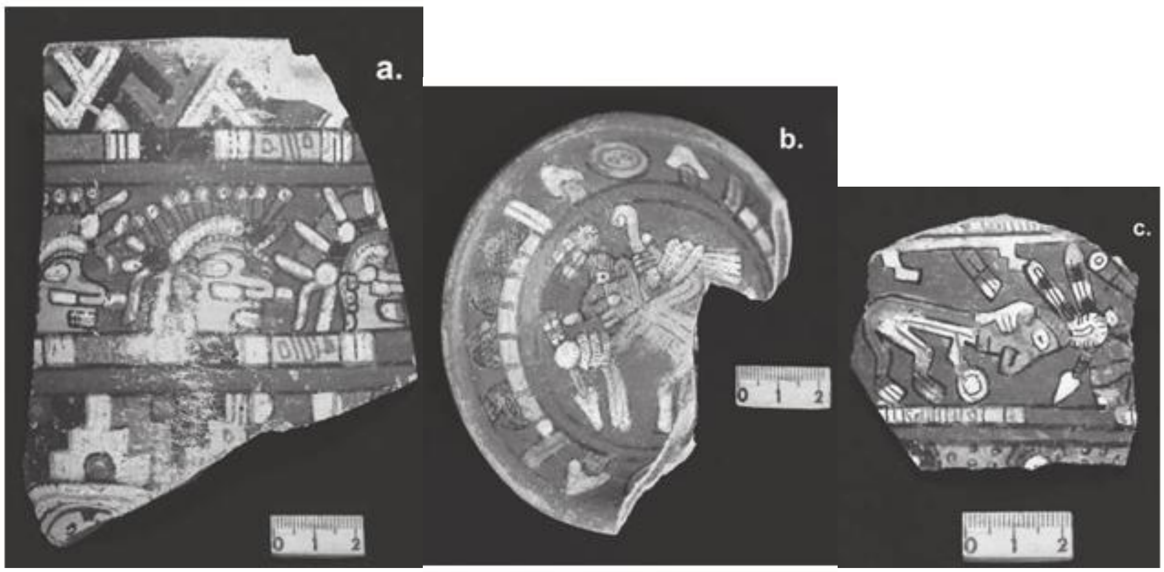


Figure 36 Polychrome pottery from the Arroyo Piedras Azules site (after Mountjoy 2025 Figure 4.4). a) Person depicted as a leader; b) person represented as Mixcoatl, god of the North and of the hunt; c) person shown as a ballgame player.

Importantly, these figurines also challenge the simplistic public/private binary often applied to Mesoamerican gender roles. As other scholars have argued, including Joyce (2000) and Gillespie (2001), the "domestic" in Mesoamerica was often a site of ritual activity and political meaning. The act of offering food was never purely private. In shaft tomb sculpture, the kneeling woman with a bowl embodies this convergence: the domestic act of food serving is staged within a performative, sacred register. It is this overlap—of nourishment and ritual, of female labor and social power—that lies at the heart of these images.

In sum, the shaft tomb figurines of the Tequila Valleys present an image of women as ritual agents—participants in public acts of offering, memory, and authority. While this imagery recedes in later periods, its early prominence suggests a time when women's power was visually acknowledged and materially embedded in the objects they held. These bowls, and the women who bore them, should be read not only as symbols of sustenance but as vessels of ceremonial authority—gendered instruments through which ritual life was nourished and made visible.

In the archaeological record of West Mexico, there is limited direct evidence identifying where food preparation occurred. This scarcity might stem in part from the poor preservation of perishable installations, such as hearths or work surfaces, that would have anchored food preparation. It also reflects a long research emphasis on tombs and ceremonial architecture, which often overshadowed the documentation of more ephemeral domestic spaces. Food preparation is often presumed to have taken place in contexts conventionally labeled as "domestic"—such as household compounds or shared residential spaces. Mesoamerican societies, and particularly at sites like Los Guachimontones, the domestic was also political, ritualized, and communal. Food, and those who prepared it—often women—were central to this convergence.

Architecture at Los Guachimontones and surrounding sites reveals clustered housing arrangements with shared patios and open-air spaces, blurring boundaries between household and community (Beekman 2008; Heredia Espinoza 2022). These shared spaces would have facilitated social interaction during food preparation, turning "private" acts into visible, performative ones. Grinding, cooking, and serving were witnessed, commented upon, and replicated—embedding identity not only in the final product but in the process itself.

In this context, women's roles as matriarchs extended beyond biological lineage. Through food memory, recipe transmission, and technique, women sustained intergenerational ties and community coherence. They were keepers of taste and practice—cultural brokers who ensured continuity even as societies changed.

In the, when the Tequila Valleys became home to multiethnic and multilingual communities (Weigand 1993), the archaeological record shows surprising culinary consistency—shared cooking tools, vessel forms, and preparation techniques despite demographic complexity. This suggests that cuisine became a unifying language, and women its most fluent speakers. Their labor shaped not only meals but group belonging, anchoring identity in daily acts of repetition and care.

In sum, the domestic sphere in West Mexico was not a place of seclusion but a stage for social reproduction. Through food, women made families, maintained tradition, and negotiated change. The kitchen was not the opposite of the public—it was one of its foundations.

8.3.2 Culinary Identity, Gender, and the Power of Repetition

Cuisine is not merely a reflection of gender roles—cuisine is a technology through which female gender roles are made, performed, and transformed. In ancient West Mexico, the material and visual record reveals that women were not passive participants in culinary tradition. They were decision-makers, ritual actors, and cultural stewards whose labor shaped the rhythms of daily life and the meanings attached to food, identity, and community.

Through their choices—what tools to adopt, what recipes to preserve, what flavors to reproduce—women negotiated change and asserted continuity. In the earliest periods, their authority is symbolically crystallized in shaft tomb sculptures that position women not only as servers of food, but as agents of ritual and memory. Even as the visibility of these roles diminished in later periods, the enduring material signature of women's culinary labor—grinding stones, comales, serving bowls—signals that their influence continued through embodied practice.

At the heart of this power lies repetition. The daily, cyclical act of preparing food is an intimate form of social reproduction. It shapes taste, encodes memory, and builds belonging. As feminist theorists have long argued, repetition is not passive—it is formative (Montón-Subías and Sánchez Romero 2008). In making food, women made people, made community, and made culture. In doing so, they also made themselves—asserting gendered identities that were flexible, situated, and deeply rooted in the material acts of everyday life.

Chapter 9: The Material Construction of Identity

The study of cuisine in ancient West Mexico reveals that food and its associated material culture are not simply reflections of social identity—they are active agents in its production. The material world of cuisine was deeply entangled with the construction of identity, operating not as a passive backdrop but as a generative framework through which people formulated themselves and their communities, not only at the level of habit and technique, but also in terms of memory, belonging, and social meaning (Miller 2005; Dobres 2000; Meskell 2005).

Changes in vessel form across time in the Tequila Valleys reveal shifting patterns of culinary labor that were embedded in daily routine and rhythms of labor. The introduction of molcajetes and grater bowls during the Classic period marks a significant transformation in how food was processed. These tools required repetitive, rhythmic bodily movements—grinding, scraping, shredding—that point to new forms of embodied labor, likely carried out by women within domestic contexts. By the Postclassic period, the adoption of comales further restructured cooking practices, enabling the production of tortillas and other flatbreads tied to nixtamalized maize. These shifts in technology were not just functional innovations; they reshaped the spatial, temporal, and physical dimensions of everyday life, embedding new rhythms of labor into the domestic sphere.

The importance of women in West Mexican cuisine is evident from an early date, with shaft tomb sculptures of the Tequila II-IV periods often portray female figures holding bowls or seated with vessels in their laps. While early interpretations dismissed these as generic domestic images, recent work—along with my own analysis—suggests these figures were engaged in symbolic acts of offering, presentation, or memory-making. The bowl becomes an extension of the body, materializing care, ritual authority, and the transmission of knowledge through food. These figurines reflect a cultural logic in which food preparation was not merely labor but a gendered act of social and ancestral continuity. The repeated pairing of female figures with vessels in mortuary contexts reinforces the idea that women's roles in sustaining households and enacting communal rituals were central to how identity was remembered and reproduced.

Changing culinary practices and vessel forms also correspond with broader shifts in political organization and interregional interaction. Around 500 CE, the decline of Teuchitlan centers and the rise of the El Grillo ceramic complex occurred alongside the abandonment of guachimontón architecture and the appearance of new civic-ceremonial forms. The concurrent introduction of new vessel types—ring-based cups, molcajetes, and elaborated serving wares—suggests that cuisine was implicated in these broader processes of social reorganization. As groups migrated or reconfigured their alliances, food became a means of articulating new forms of identity and belonging. Later, in the Atemajac II phase, more standardized cooking forms like comales and the elaboration of serving sets coincided with increasing participation in long-distance trade and alliance systems. In these contexts, cuisine helped formalize social distinctions, structure elite feasting traditions, and connect households to wider economic and ritual networks. This is evident in the enduring forms of groundstone tools across the Tequila through Atemajac phases, which shaped daily labor routines and embodied a conservative, tactile tradition of maize processing. The repetition of grinding maize on shallow rectangular metates was not only a subsistence task—it was a social act, passed down across generations and anchored in local sensory experience. Following Dobres' (2000) concept of "technologies of the self," the act of food preparation becomes a form of embodied identity-making. The consistency of these tools in the Tequila Valleys reflects more than technological stability; the consistency signals a deeply rooted attachment to specific forms of labor and a commitment to social continuity through embodied practice.

Ceramic vessels, likewise, were not just containers but mediators of social relationships. The adoption of Aztatlán-style serving wares in elite contexts, for example, reflects how new materials were used to recalibrate social identity within changing political and economic conditions. These vessels enabled elites to distinguish themselves and articulate connections to broader interregional networks, but they did so by building upon, rather than replacing, longstanding culinary foundations. The juxtaposition of imported or stylistically novel ceramics with traditional cooking jars and metates illustrates how the material construction of identity is inherently hybrid and iterative, rooted in continuity even as it engages with novelty.

Drawing from Meskell's (2005) argument that material culture is central to the production of memory and personhood, we can also understand cooking technologies as memory devices. They facilitated continuity not only in diet, but in relationships, obligations, and worldviews. The tools and vessels used in kitchens and courtyards became extensions of the people who handled them. In this sense, identity was not simply represented by objects but was crafted through their everyday use. The smoke-stained interior of a cooking jar, the worn surface of a metate, or the polished rim of a serving bowl all bear the traces of human lives and the repeated gestures that made them meaningful.

Taken together, these patterns underscore the importance of culinary labor and material culture not as symbolic stand-ins, but as forces that actively shaped lived experience. Food preparation structured the body, organized time, and mediated relationships—between women and their households, between communities and their ancestors, and between local practices and broader regional dynamics. The material world of cuisine was a domain in which people made sense of their world, their obligations, and their affiliations. The evidence from the Tequila Valleys shows that vessels, tools, and foodways did not merely reflect social identity—they were central to how it was produced, maintained, and transformed over time.

Through the material record of cuisine, archaeologists gain access to a textured, situated view of past identities. Rather than relying solely on monumental architecture or iconographic programs, the archaeological traces of food—residues, tools, vessel forms, hearths—allow us to understand how social life was structured at the level of daily practice. The repetition of cooking, the maintenance of cooking spaces, and the transmission of culinary knowledge all point to a slow, grounded process of identity formation that was deeply embedded in the rhythms of domestic life. This approach challenges reductive readings of identity as static or elite-driven and foregrounds the ways that ordinary people shaped social worlds through their engagement with material practices of cuisine.

The history of cuisine in the Tequila Valleys cannot be separated from the region's broader social and political transformations. By returning to the key transitional moments—around 500, 900, and 1200 CE—we can see how food practices materialized and mediated changes in identity, power, and cultural affiliation.

Around 500 CE, the collapse of the Teuchitlan tradition and the emergence of the El Grillo ceramic complex marked a dramatic cultural rupture. This period witnessed a shift from circular guachimontón centers to new U-shaped civic-ceremonial architecture, reflecting a reorganization of both settlement and political life. The abrupt appearance of new vessel forms—molcajetes and ring-based cups—supports the interpretation that migrant communities introduced cohesive culinary traditions. These innovations were not limited to utility; they reflected changing practices of consumption, including grinding, drinking, and possibly feasting, that helped forge new social identities amid political instability. Cuisine, here, was a tool of cultural integration and expression—a material reflection of communities navigating migration and redefining belonging.

By 900 CE, the political landscape had fragmented further, and evidence from sites such as Etzatlán and suggests the development of localized power centers. This phase is marked by the emergence of Atemajac ceramics and a diversification of vessel types that signal regional experimentation. Culinary practices, while rooted in local traditions, show signs of adaptation. Notably, the adoption of grater bowls—interpreted as both practical and symbolically charged tools—reflects changes in food processing that likely involved women's labor and agency. These transformations indicate that cuisine remained a vital domain through which identity was negotiated, especially as communities faced new demographic and environmental realities.

By 1200 CE, the Tequila Valleys had become enmeshed in broader Mesoamerican exchange networks. While not under direct imperial control, the region was influenced by distant polities through trade, marriage alliances, and shared elite culture. The introduction of comales—a technology associated with tortilla production —points to both culinary innovation and cosmopolitan aspiration. At the same time, ceramic assemblages suggest the elaboration of elite feasting traditions, potentially including fermented beverages like tejuino. These developments reflect not only technological adaptation but also a deepening social stratification. Women, again, appear as central figures in these changes, adopting new tools and recipes that connected local households to broader cultural currents while reinforcing their own roles in daily and ceremonial life.

The periods of 500, 900, and 1200 CE reveal a complex interplay between food, identity, and transformation. Cuisine in the Tequila Valleys was not static—it evolved in response to migration, political change, and interregional interaction. Yet, across all three moments, culinary practices remained a key medium for expressing group identity, navigating change, and materializing social boundaries. The findings of this study demonstrate that through the tools they used, the meals they prepared, and the meanings they embedded in their cuisine, the people of the Tequila Valleys actively shaped their world—and their place within it.

I have argued that cuisine is not merely a reflection of culture but a primary medium through which identities are made, maintained, and transformed. By examining the chaîne opératoire of food—from grinding and cooking to serving and consuming—this study has shown how material practices surrounding cuisine offer a powerful lens for examining the experiences of past communities in the Tequila Valleys. The archaeological record of cuisine reveals not only what people ate, but how they related to one another, how they navigated change, and how they positioned themselves within broader social and historical currents.

The "interludes" included in this dissertation are modest attempts—limited by my own skills in creative writing—to evoke the everyday experiences of women in the Tequila Valleys as they engaged with food preparation, exchange, and ritual across different historical moments.

These scenes are meant to do more than simply illustrate the analysis. They aim to lend texture and immediacy to archaeological interpretation, drawing on material, ethnohistoric, and ethnographic clues to imagine how cuisine functioned in lived practice.

These narrative moments serve two purposes. First, they bring women's labor to the center of discussions where it is often marginalized or rendered invisible. Second, they challenge the conventional boundary between empirical interpretation and empathetic imagination. By evoking the sensory and social dimensions of food preparation, these moments are intended to help the reader see cuisine not as static, but as a dynamic and embodied form of cultural expression. The interludes encourage a more humanized view of the past—one in which food is not only sustenance but a medium for identity, memory, and belonging.

Theoretically, this research contributes to anthropological and archaeological approaches to identity by emphasizing the co-productive relationship between people and things. Drawing on materiality theory, it highlights how tools and vessels are not simply reflective of social roles but are active participants in shaping them. Cuisine, then, becomes both a lens and a method for studying identity. It offers a scale of analysis that is both intimate and expansive—rooted in individual bodily practices and domestic routines, yet capable of reflecting regional shifts, political restructuring, and long-term cultural resilience.

By situating food within the broader material landscape of ancient West Mexico, this study also opens up new avenues for future research. One direction involves tracing the relationship between cuisine and migration: how communities adapt, preserve, or reinvent culinary traditions in new environments. Finally, this framework can be applied to periods of colonial encounter, exploring how cuisine serves as a site of resistance, adaptation, or hybridization in contexts of upheaval and cultural negotiation.

Chapter 10: Epilogue

In both the U.S. and Latin America, Indigenous foodways, sustainable agriculture, and the cultural politics of cuisine have gained increasing attention. Books like Braiding Sweetgrass (Kimmerer 2013) and High on the Hog (Harris 2012), projects like the Sioux Chef (Briger 2022), and even local developments—a small museum dedicated to Mexican cuisine opened in Los Angeles in 2022 (Esparza 2022)—have all looked back into time and tradition to try to speak to our current moment.

What might food have looked like in a world where most sustenance came directly from local land? This is not the first time the Tequila Valleys have experienced upheaval. Across centuries, communities have faced waves of migration, the rise of new economies, and shifts in trade routes—some of which stretched from the Pacific Coast through Jalisco and north into what is now the southwestern United States. How did ancient people adapt? How did they respond to unfamiliar foods and new social landscapes?

This study has been centered in the Tequila Valleys, where land and food systems are deeply broken. Small towns still host tianguis markets, but these often sell the same mass-produced crops found in national supermarkets: green limes, red tomatoes, orange carrots—all uniform, commercial varieties. When I searched these markets for foods native to the area, I largely came up empty-handed. The best chance of finding something locally distinctive was at a roadside stand, signaled by a cardboard sign nailed to a tree. By contrast, Coca-Cola, processed chips, and sweets were available in abundance—even from the front rooms of family homes—and OXXO stores, Mexico's equivalent of 7-Eleven, were present in nearly every town.

Agriculture in Jalisco is increasingly dominated by U.S.-owned agribusiness. Berry and chile production stretches across miles-long rows of white-tented fields, leased from local landowners. Deep wells are drilled, and groundwater is depleted. Empty pesticide containers are scattered along roadsides. There have been reports of boron being used as a soil insecticide—a bioaccumulative chemical that may prevent maize from growing in the soil ever again (Pint 2022). Farmers are rarely informed of this risk when renting out their land (Salgado Viveros 2023).

At the same time, the global demand for tequila and mezcal has driven a boom in agave planting. Agave is drought-resistant and resilient, but it takes seven to ten years to reach maturity. Once prized for its hardiness, it is now mass-planted in monocultures. Bulldozers clear mixed-use and ecologically productive fields to make room for agave rows that suit large truck harvests. During a tour of Fortaleza, a boutique tequila maker, I asked where they sourced their agave. "Anywhere we can get it," they told me—demand now far outpaces supply. Although agave requires less water than berries, its expansion does little to support soil health or biodiversity. In many cases, it contributes to erosion, ecological degradation, and the loss of archaeological heritage.

In 2022, a colleague, Tony, brought us to a site he had recorded during survey just a few years earlier—a settlement with ball courts, circular pyramids, and multi-phase construction spanning nearly a millennium. When we arrived, it had been completely bulldozed to accommodate rows of agave planted beside a road.

To be clear, I do not think berries or tequila are inherently bad. But the systems that currently produce them are extractive. They drain the land, exploit rural labor, and export the benefits abroad. Most of these berries are not consumed by Mexicans. And while tequila may be deeply rooted in Mexican cultural life, much of it is now produced for foreign markets.

And yet, there are still people holding on. Elders continue to dry native maize outside their homes, to cultivate nopales and tunas cactus fruits, and to grind quelites into flavorful pastes and salsas. Local biologists have documented biodiversity in the region and maintain a field house near the archaeological site where I stayed (Grzybowska 210, Herrerías-Diego et al. 2019). In northern Jalisco, small festivals celebrate traditional agricultural products and wild-collected foods, including mushrooms and heirloom crops. These efforts are active and meaningful—but they are increasingly under pressure.

This dissertation is not ethnographic. I have not conducted Indigenous archaeology in the collaborative sense, where Indigenous stakeholders co-develop research questions and guide interpretation. My fieldwork has taken place in more conventional academic settings, shaped by the priorities of U.S.- and Mexican-trained scholars. The questions at the heart of this project have been my own.

I offer this clarification because, in speaking with people in Mexico about this research, I have often been met with excitement and hope. People want to know what ancient communities ate, what we should eat today, and how to heal the land. Especially in the early stages of this research, I had little to offer them beyond what their grandparents likely already knew. Any local could have easily outmatched me in their understanding of native botany, traditional foods, and everyday agricultural practices. I have learned a great deal since then. But I continue to urge anyone interested in ecological healing to turn to the people who come from the land in question. There is a tremendous wealth of knowledge held by Indigenous communities.

While this project cannot replace the lived expertise of those communities, it can, I hope, offer a deep temporal perspective—one that situates contemporary struggles and knowledges within a long history of how people have used food to endure, adapt, and belong. I hope that this research—through ceramic analysis and microbotanical studies—can contribute, in a small way, to broader conversations about how we eat, who we are, and how we might live differently. Ultimately, the archaeology of cuisine is an archaeology of identity—not as a fixed category but as a dynamic, performative, and material process. Through food, people made meaning, navigated belonging, and enacted the worlds they wished to inhabit. By taking food seriously as a material and methodological focus, we can tell richer, more human stories about the past.

Appendix A: Starch Analysis

This appendix provides documentation for starch residue testing that was conducted from 2020 to 2024. Samples were taken from multiple collections and at different times. Procedures are provided, followed by photos and descriptions of starches associated with artifacts as well as artifacts that did not produce any examples of starches.

Samples and Methods

25 objects were chosen to be sampled from the collected artifacts of Las Cuevas, and 10 additional objects were sampled from the site of Los Guachimontones with one item (a flat piece of shale with no obvious human modification) taken as a site control. In addition to these objects, laboratory samples were created using the same methods as sampled artifacts as controls for the laboratory environment. Objects were assigned numbers for ease of record keeping. Protocol was adapted from methods of sampling stone tools for starch from Logan (2006) and Pearsall et al. (2004), all found within Pearsall 2015(p. 360-364).

1. Recorded contextual information, labeled sample bags and 50 ml. tubes, including control bags and tubes, which underwent the same processes.
2. Placed artifacts in bags with identifying information. A small amount (45 ml) of water was added to the bag, and a toothbrush was used to gently scrub the artifact.
3. Artifact was removed and placed into a second bag. Water and sediment from the first bag were poured into correctly labeled 50 ml tubes by cutting bags.
4. A small amount (45 ml) of water was added to the second bag. These sealed bags were added to the sonication bath, for 15 minutes.
5. After sonication, the second set of bags were cut and their contents were poured into 50 ml tubes.
6. All sediment were centrifuged at 300 rcf for 5 minutes and dried in a drying oven at 30 °C

Steps for deflocculating:

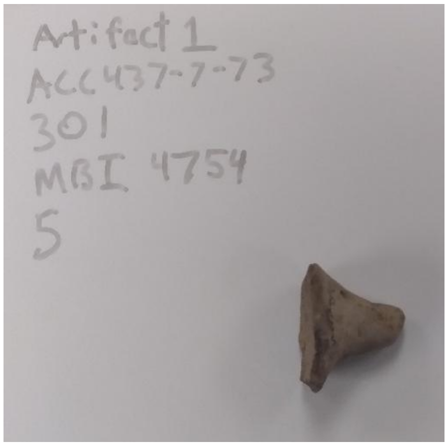
7. 8 ml. of .1 percent NaEDTA solution was added to each sample tube. They were then secured in a shaker. Shaker was run for 2.5 hours.
8. After shaking, distilled water was added to all sample tubes. These were capped, shaken briefly, and centrifuged for 2 minutes, then decanted. This was repeated two times.
9. 6 percent hydrogen peroxide solution was added to all test tubes. In control tubes 16 ST and 16 WBST, 5 ml. instead of 10 ml. were added. These were all placed into the shaker for 30 minutes of reaction time.
10. Distilled water was added to all test tubes, and objects were centrifuged for 2 minutes. This was repeated three times.

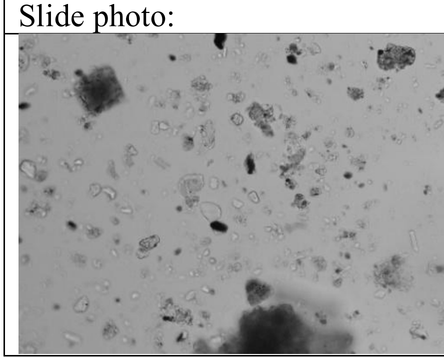
11. Heavy Liquid Flotation
12. A heavy liquid mix (Lithium metatungstate) with specific gravity of 1.8 g/ml was mixed.
13. 5 ml. of this liquid was added to each sample. These were then centrifuged for 5 minutes at 3000 rpm. The supernatant was then decanted into a new correctly labeled container. This was repeated two times.
14. In the previous step, lithium metatungstate was rinsed and retrieved.
15. Distilled water was added to new starch test tubes. These were then centrifuged for 5 minutes at 3000 rpm. These were then decanted, leaving about a half centimeter of liquid from bottom of test tube. This was repeated two times.
16. The remaining liquid was our starch remained as our starch extract. Each slide had 20-60 µl of this starch extract applied, and these were placed in a drying oven for 30 minutes.
17. After this 60 µl of 50/50 glycerol water was pipetted onto slides, and then slides were sealed with nail polish.
18. Slide Examination
19. Slides were scanned systematically at 40x magnification. Photos of starch were taken using AMscope software with the same microscope used to scan slides.

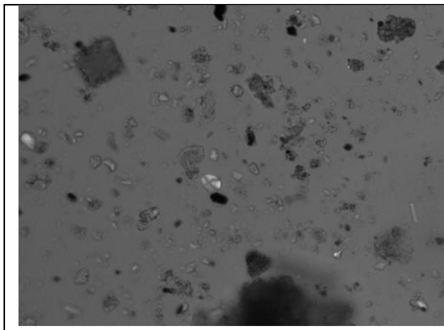
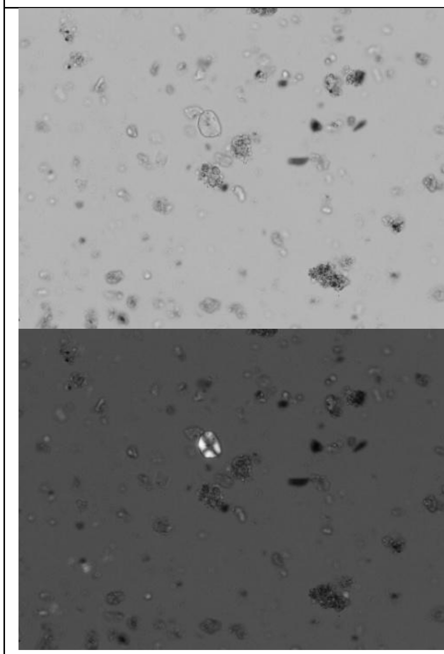
Resampling Procedure (July 19, 2022)

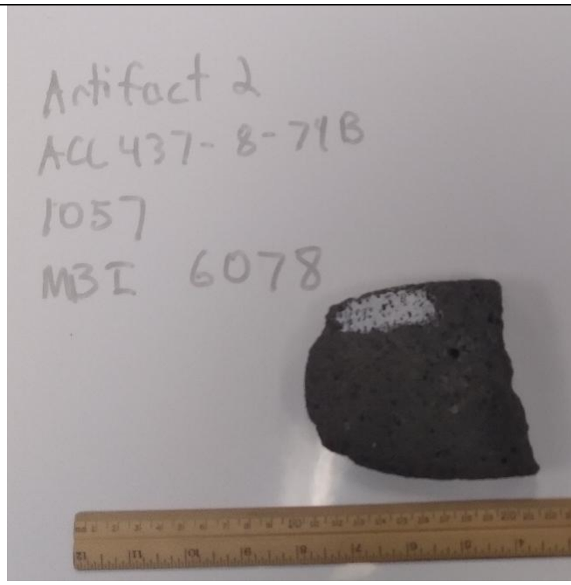
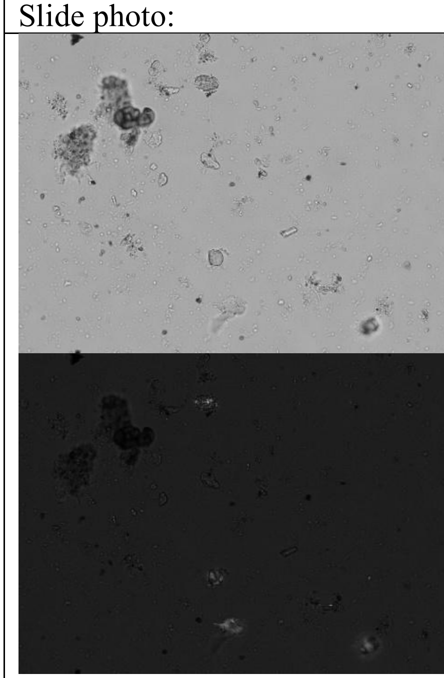
To ensure that samples represented artifact surface residues rather than adhering sediment, six of the most promising artifacts from the March 2022 collection (Artifacts 1, 3, 11, 12, and 13) were selected for resampling. Each artifact was first cleaned with a soft-bristled toothbrush over a basin to remove the majority of surface soil. The artifacts were then placed in individual bags filled with distilled water and subjected to a 25-minute sonication bath. Following sonication, the liquid from each bag was carefully decanted into 50 mL test tubes for subsequent processing and microscopic analysis.

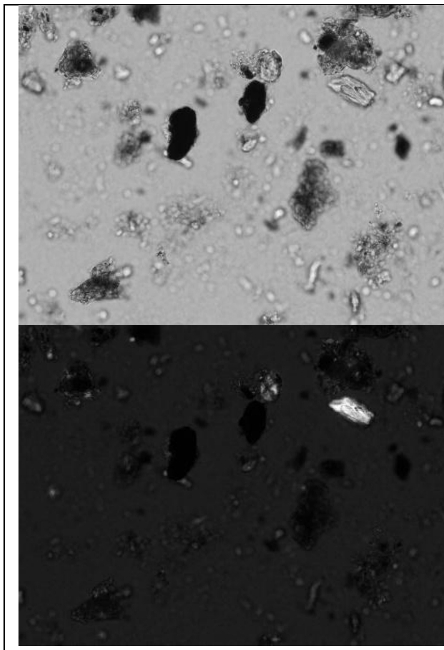
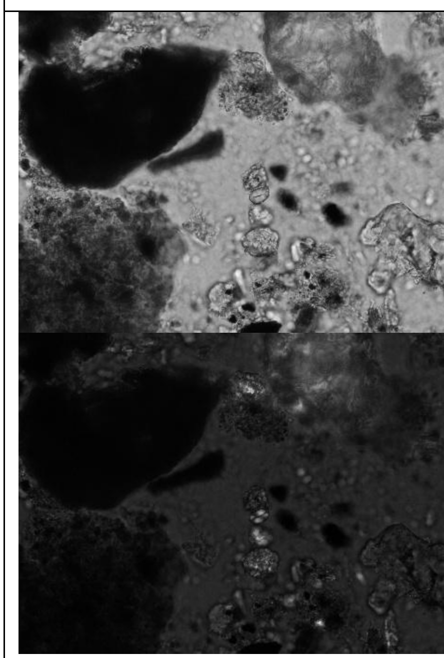
Starch testing documentation:

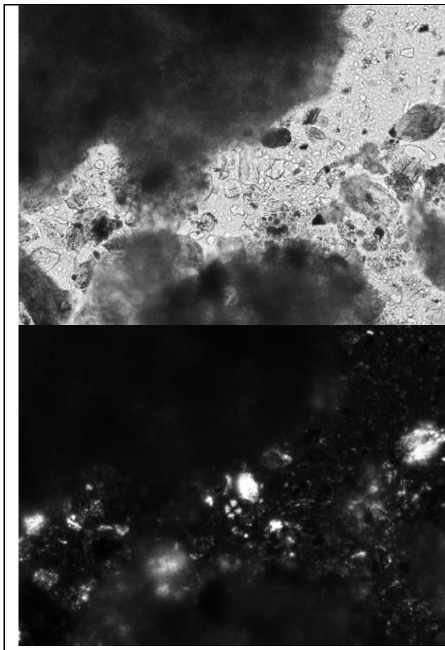
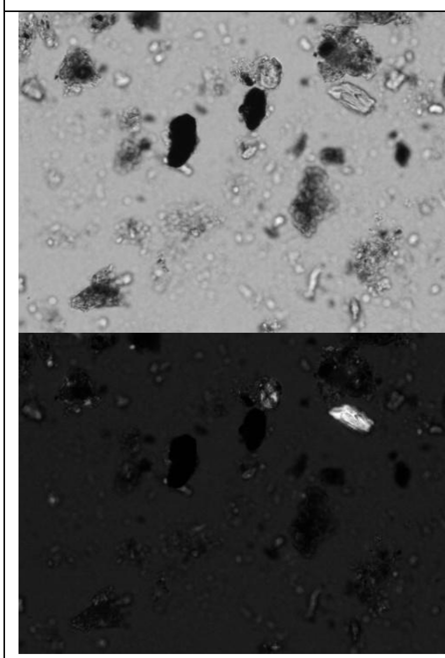
Slide ID: Artifact 1	
Artifact Photo:  	
Site: Las Cuevas	
Looks like hundreds of clumpy 4.5 µm in small cluster. 3.8? so tiny! All same starch from 3.5 to 4.2 µm. Strong extinction cross, completely round(spherical)	
Slide photo:	Coordinates and description:

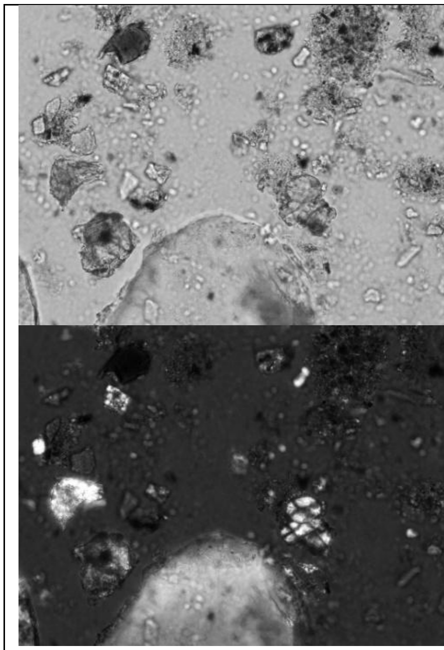
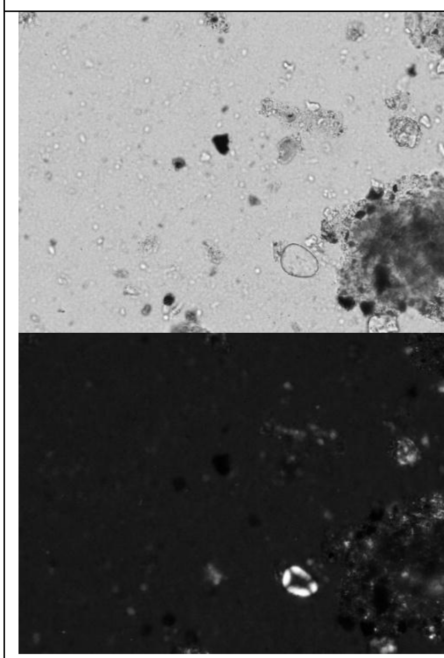
Slide ID: Artifact 1 rewash	
Artifact Photo:	
Notes: Some low? of contaminant starch (?)	
Slide photo:	Coordinates and description:
	Coordinates: 41.5x 103y Size: 15 by 11 µm Description/ID: Faceted, polygonal. Possible point hilum (impression at center). Slightly eccentric extinction cross with long shaky but defined arms.

	
	Coordinates: 44.5x 102y Size: 17 by 14 µm Description/ID: Large faceted, some possible damage that sort of looks like a fissure, but I don’t think it is. Very diffuse extinction cross that narrows at ends.

<table>
<tr><td colspan="2">Slide ID: Artifact 2 EWB</td></tr>
<tr><td colspan="2">Artifact Photo: 
</td></tr>
<tr><td colspan="2">Site: Las Cuevas</td></tr>
<tr><td colspan="2">Notes: Could be more Type A (this sheet) but cannot see under debris
Bean city</td></tr>
<tr><td>Slide photo:</td><td>Coordinates and description:</td></tr>
<tr><td></td><td>Coordinates: 32.1x 93y
Size:11.7 by 92. µm
Description/ID:
Semi elliptical, cross is eccentric, arms curve.</td></tr>
</table>

	Coordinates: 40.5 x 101.5y Size: 18.7 by 11.7 µm Description/ID: elliptical
	Coordinates:44.9x 102.5y Size: Description/ID: Bean? Type A? bisect

	Coordinates: 47x 102y Size: 11.4x by 10.2 µm Description/ID: circular
	Coordinates: 40.5x 101. 5y Size: 16 by 13.8 µm Description/ID: Cross flare, largely circular

	Coordinates: 46.5x 104.9y Size:23.1 by 17.5 µm Description/ID: maybe 3 elliptical Type A X3
	Coordinates:41.5 x 104.5y Size:26.4 by 19.6 µm Description/ID:

<table>
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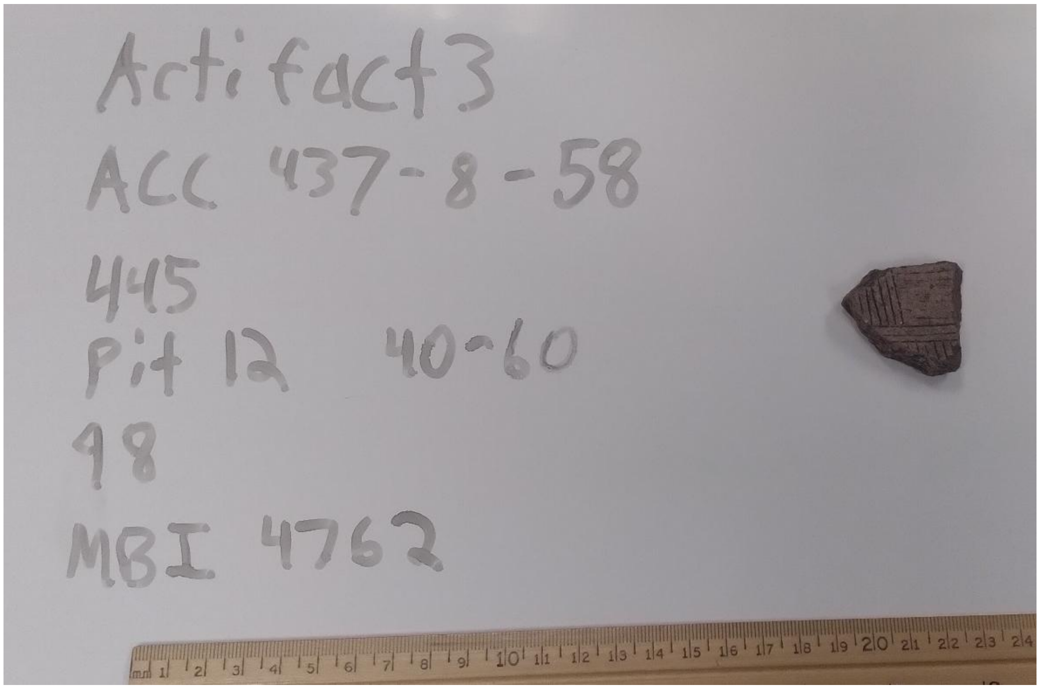
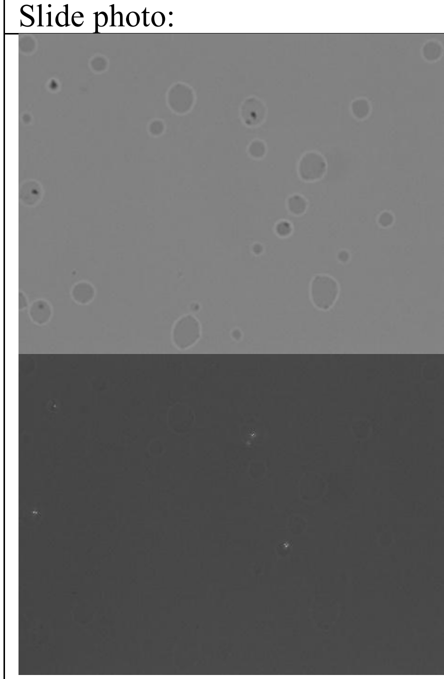
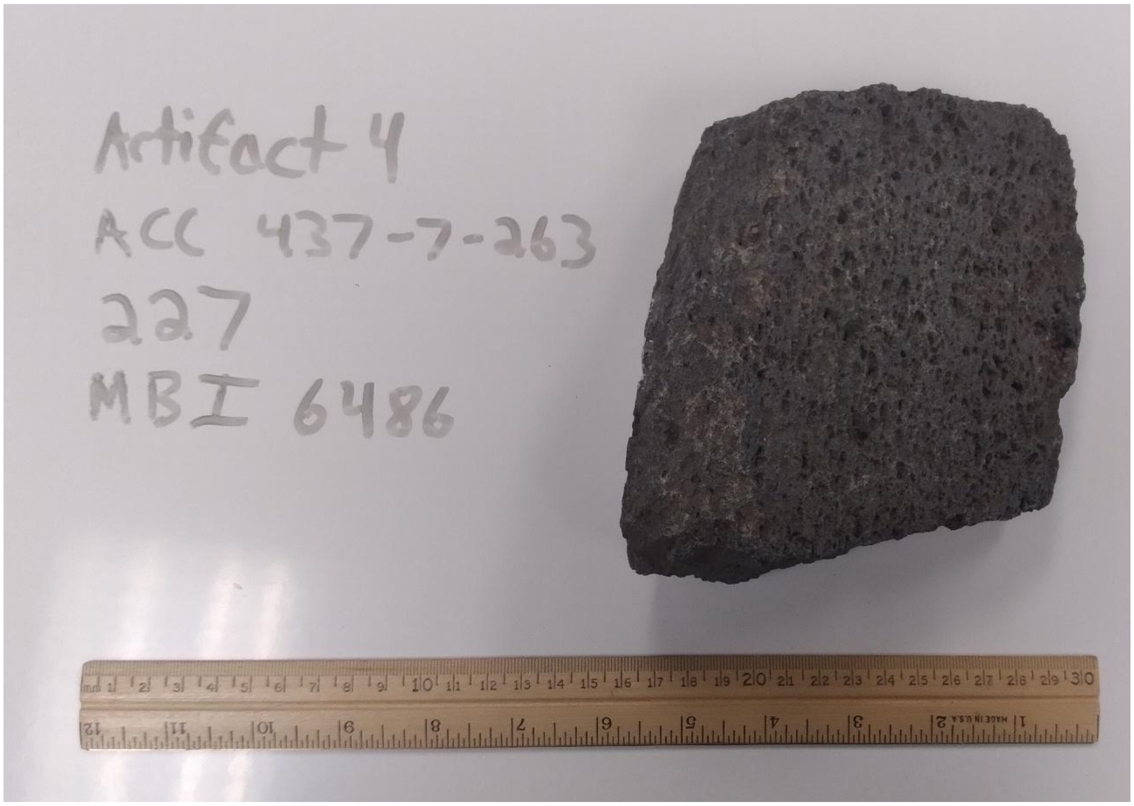

</td></tr>
<tr><td colspan="2">Site: Las Cuevas</td></tr>
<tr><td>Slide photo:</td><td>Coordinates and description:</td></tr>
<tr><td></td><td>Coordinates: 41.5x 102.5y
Size: 3.5 µm
Description/ID:
Collection of what may be miniscule juvenile starch or false starch – very tiny, can’t get good focus even at 100x.</td></tr>
</table>

<table>
<tr><td colspan="2">Slide ID: Artifact 4 ES</td></tr>
<tr><td colspan="2">Artifact Photo:


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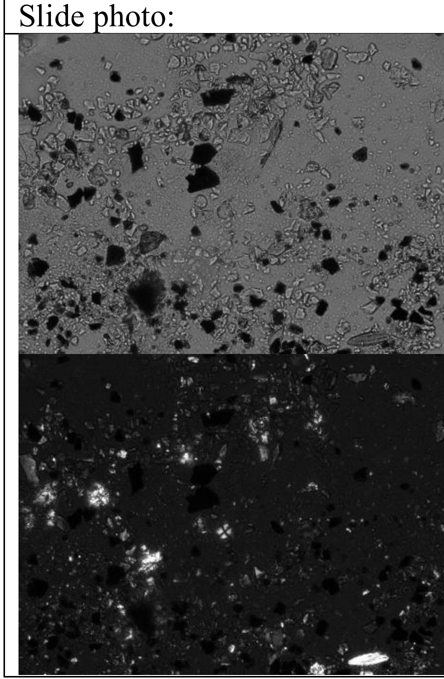
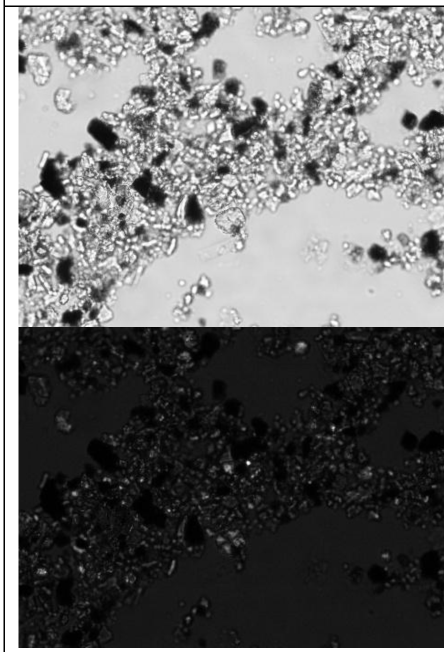
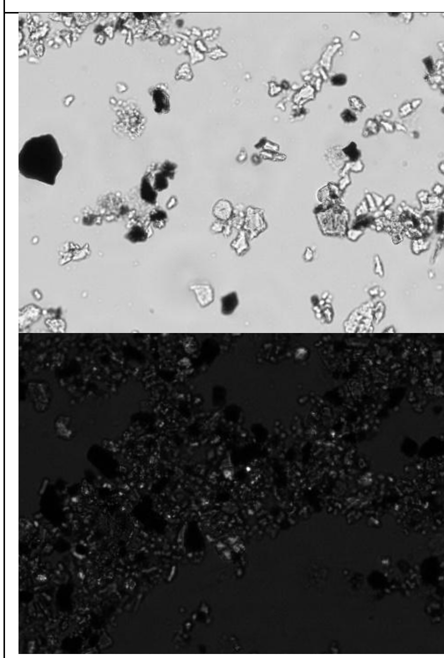
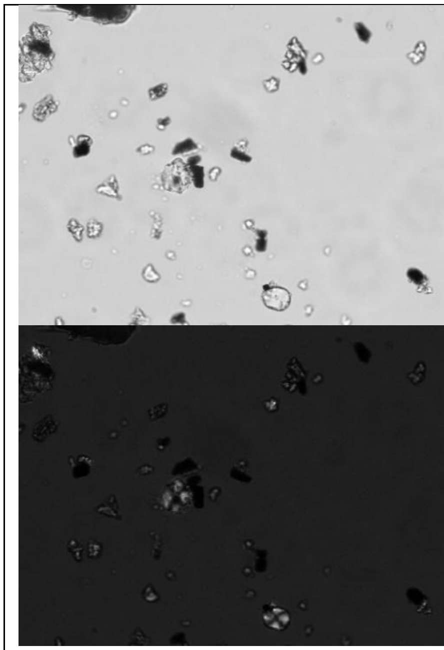
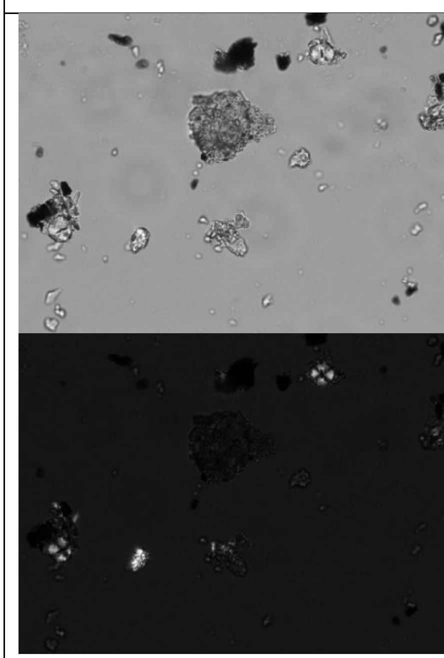
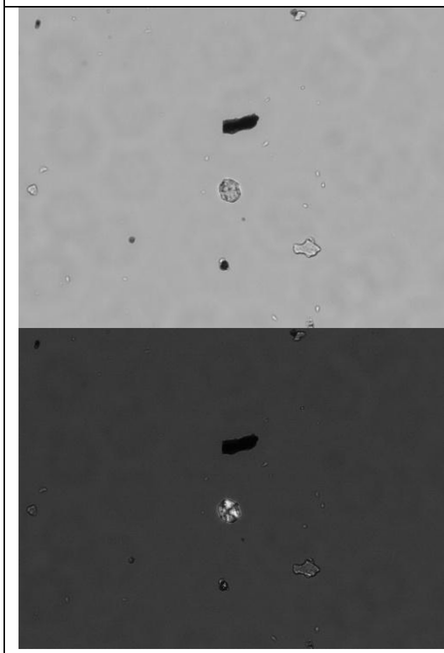
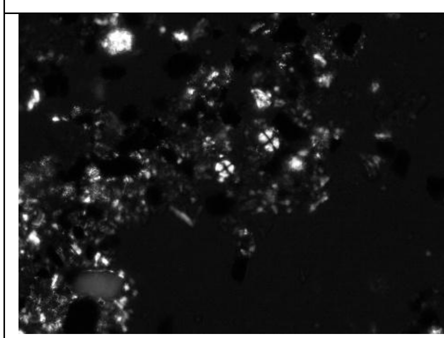
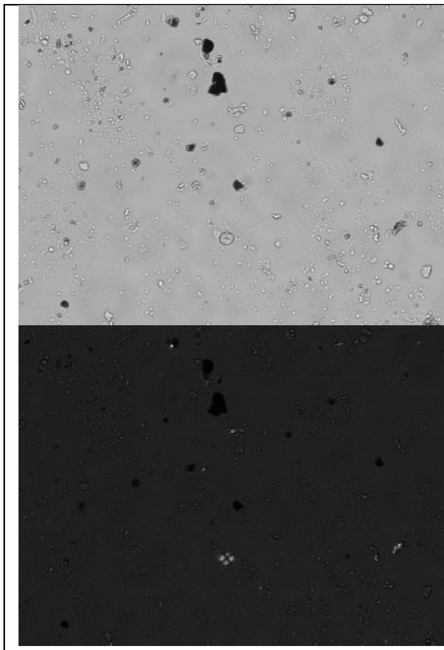
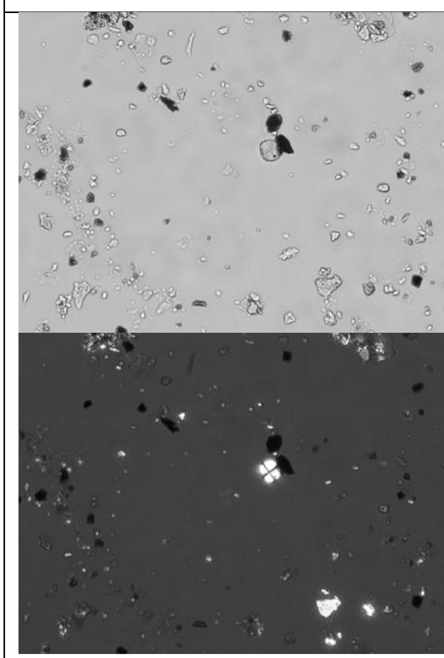
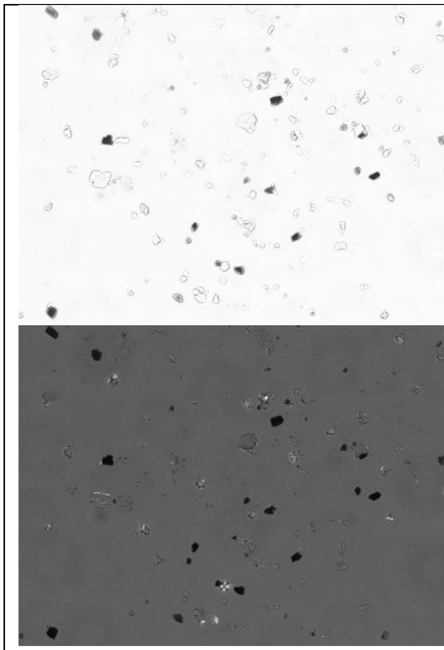
<tr><td>Slide photo:</td><td>Coordinates and description:</td></tr>
<tr><td></td><td>Coordinates:43.5x 106y
Size:10.3 by 11.6 µm
Description/ID:</td></tr>
</table>

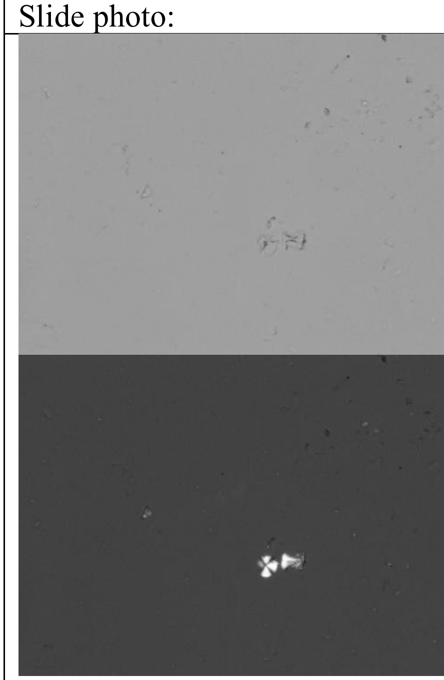
	Coordinates:44.5x 104y Size: 17.2 by 20.8 µm Description/ID: Semi-rectangular
	Coordinates:45.5x 104y Size:13.1 by 13.4 µm Description/ID: circular

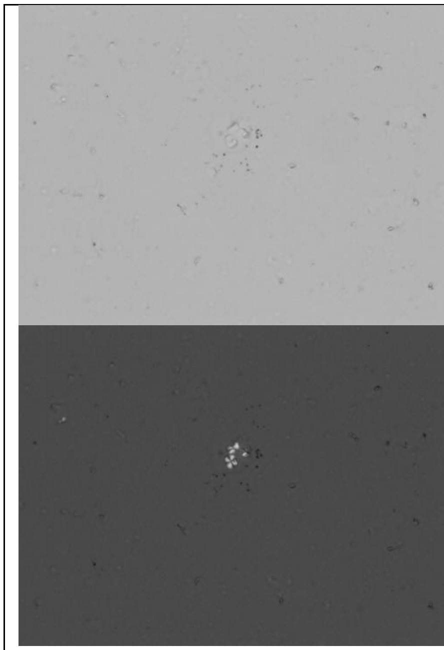
	Coordinates:49x 104y Size: 20.6 25.3 µm Description/ID: X2
See above	Coordinates:49x 104y Size: 18.6 by 15.2 µm Description/ID: A?
	Coordinates: 50x 104y Size:16.6 µm Description/ID: Type A X2
See above	Coordinates:50x 104y Size:16.3 µm Description/ID:

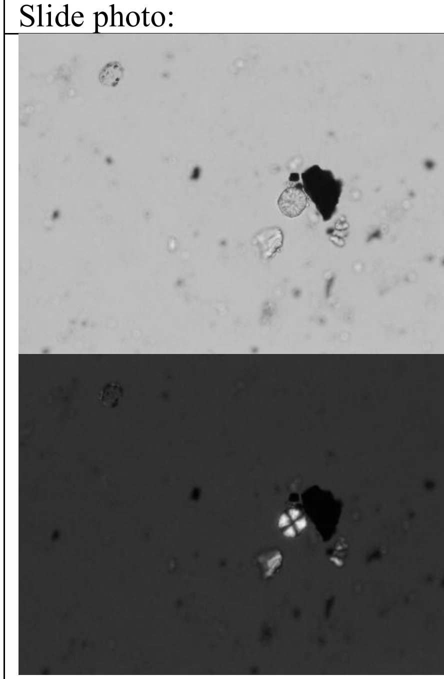
	Type A X2
	Coordinates:53x 104y Size: 16.8 by 14 µm Description/ID: hexagon
	Coordinates: 45x 103 y Size: 16.2 by 12.8 µm Description/ID: Type A X2
	Coordinates: 48.5x 103y Size: Description/ID: Think type A, but trapped behind junk.

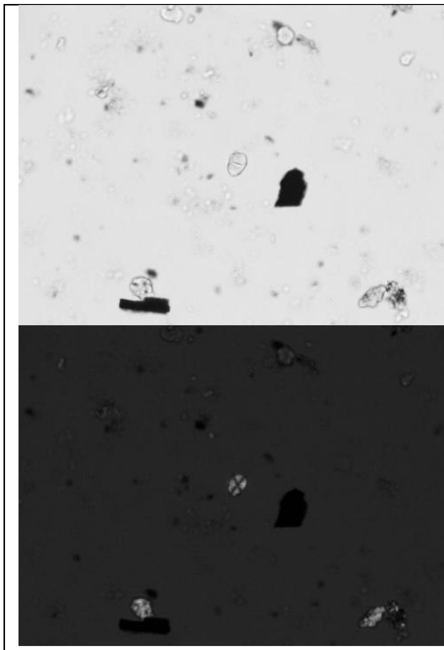
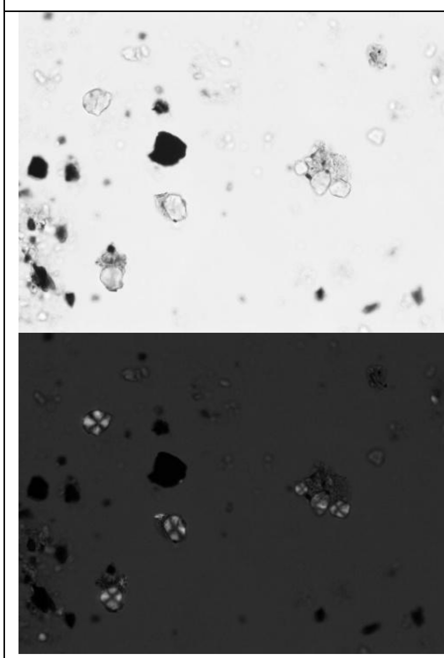
	Coordinates: 41x 92.5y Size: Description/ID: maize
	Coordinates:45x 93y Size:15.6 by 15 µm Description/ID:

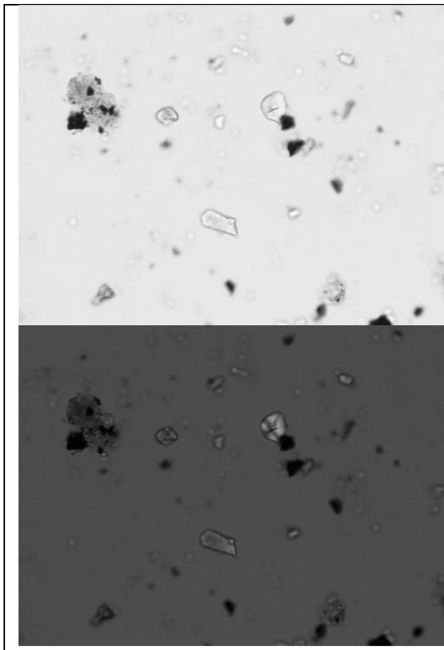
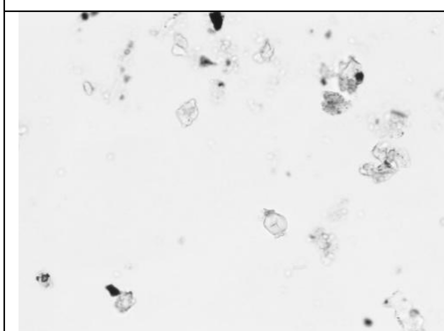
	Coordinates:42.8x 91.5y Size:6.4 by 6.4 µm Description/ID: Tiny and circular type c Central hilum maybe shaped but so small.

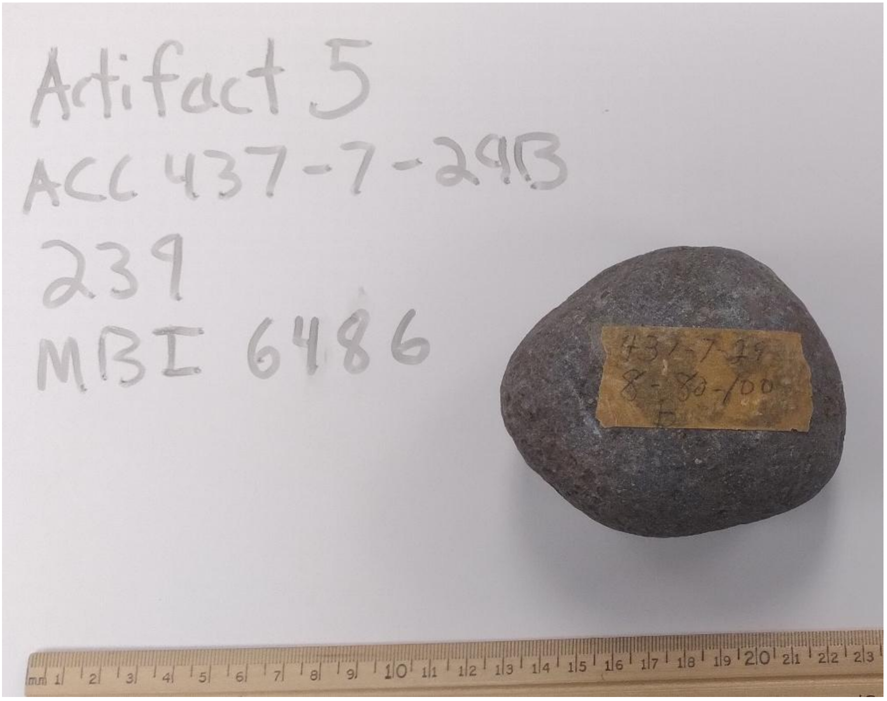
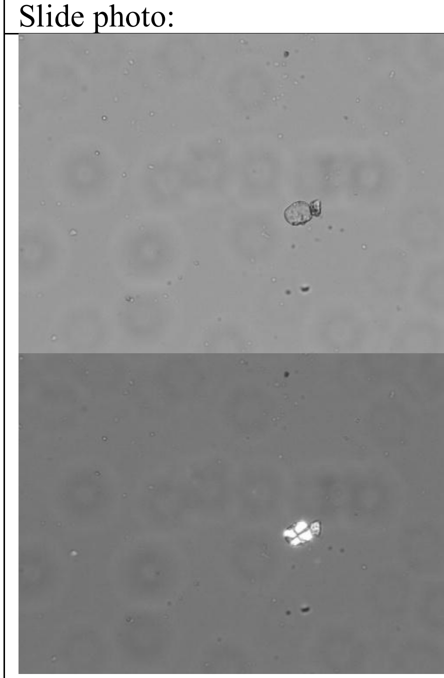
Slide ID: Artifact 4	
Slide photo:	Coordinates and description:
	Coordinates: 25.5x 100.5y Size: 13.9 by 14.4 µm Description/ID: Damaged- left portion missing. Straight slightly flaring arms on extinction cross. Possible hilum or fissure, but too damaged to tell.

	Coordinates: 18x 105y Size:9 by 8.8 µm Description/ID: Straight flaring arms for extinction cross. Eccentric dot hilum.

Slide ID: Artifact 4 EWB	
Notes: Because of starch density, I took few photos of types then tallied	
Slide photo:	Coordinates and description:
	Coordinates: 45.5x 103 y Size: 19.4by 192. µm Description/ID: Thick slightly flaring cross, no visible hilum, circular, potential radiating laminelle? Type 1 x6

	Coordinates: 46x 102y Size:16 by 10.9 µm Description/ID: Elliptical transverse fissure Type 2 X4
	Coordinates:45x 102y Size: Description/ID: Type 1 X6

	Coordinates:47x 102y Size:20.5 by 17.5 µm Description/ID: Type 2 Same as 46x 102y
	Coordinates: 44x 102y Size: Description/ID: Type 3

Slide ID: Artifact 5 ES	
Artifact Photo:  	
Site: Las Cuevas	
Notes: Very bubbly- bad slide preparation	
Slide photo:	Coordinates and description:
	Coordinates: 50x 101y Size: 21 by 20 µm Description/ID:

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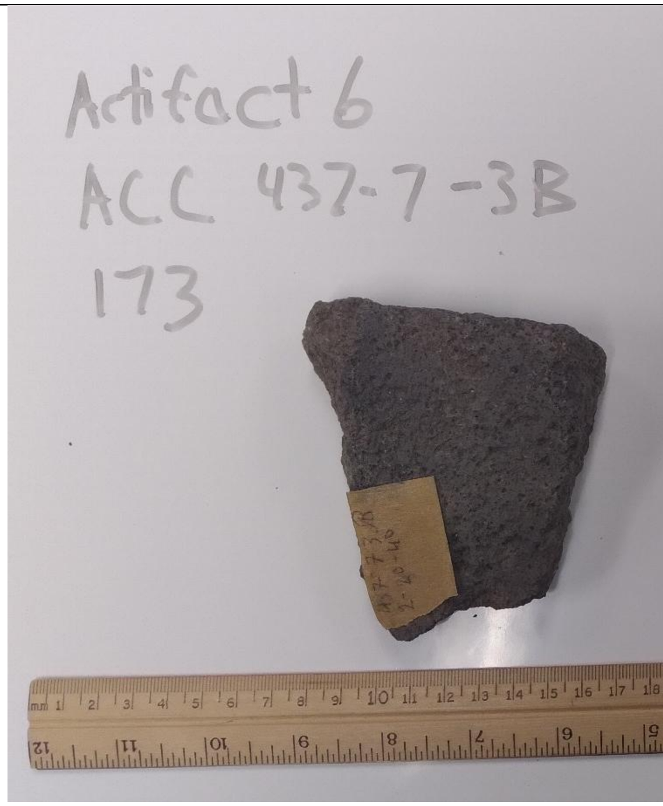
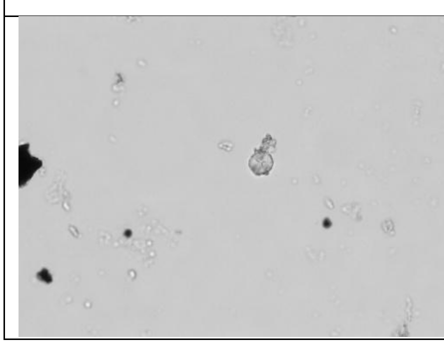
<tr><td colspan="2">Artifact Photo: 
</td></tr>
<tr><td colspan="2">Site: Las Cuevas</td></tr>
<tr><td>Slide photo:</td><td>Coordinates and description:</td></tr>
<tr><td></td><td>Coordinates: 40x 100.5y
Size:15.4 by 15.9 µm
Description/ID: Probably maize</td></tr>
<tr><td></td><td>Coordinates: 47x 102y
Size:17.1 by 15.4 µm
Description/ID: maize</td></tr>
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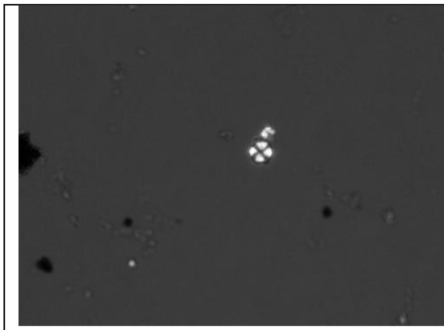
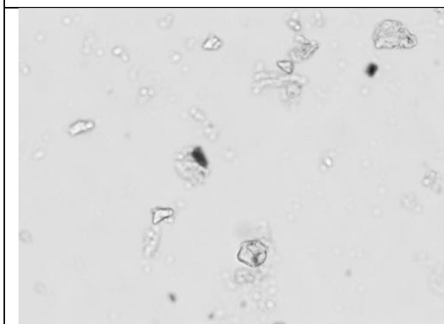
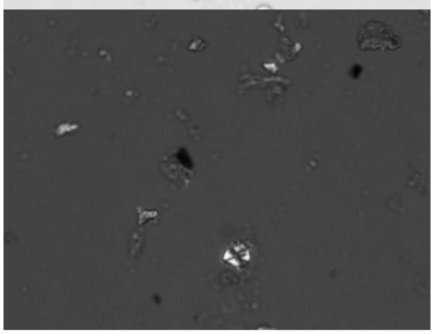
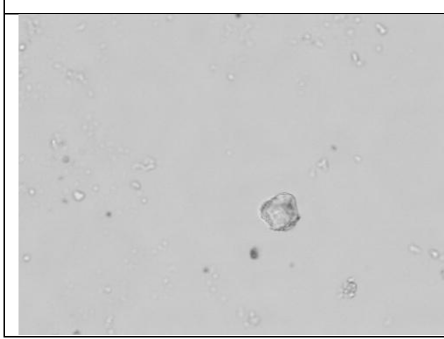
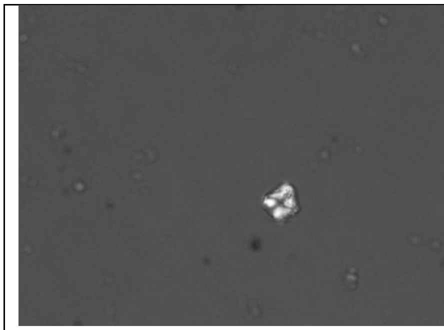
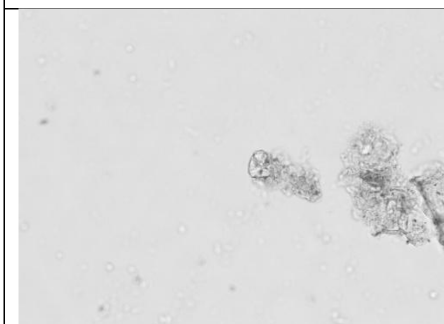
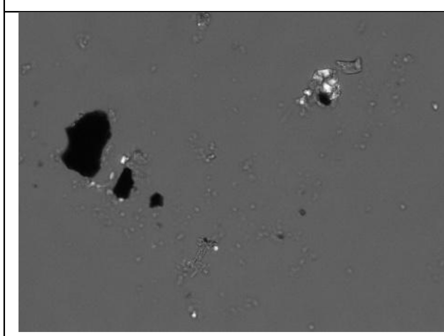
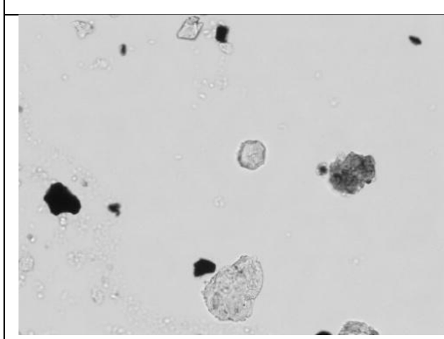
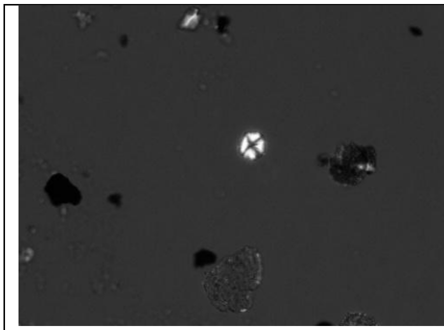
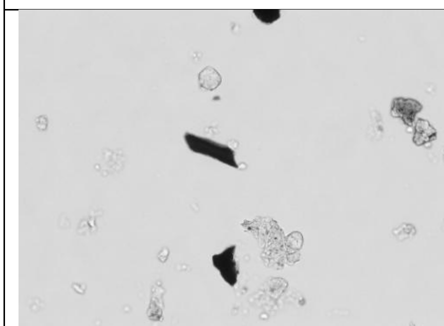
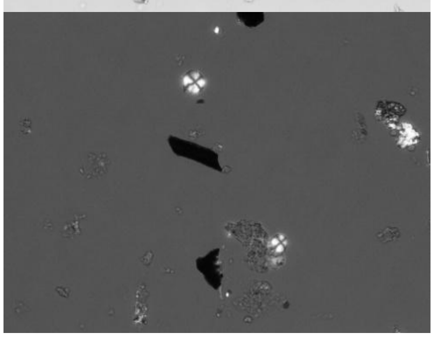
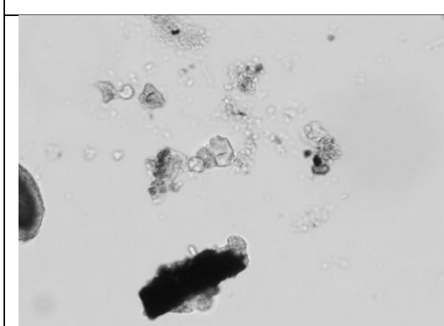
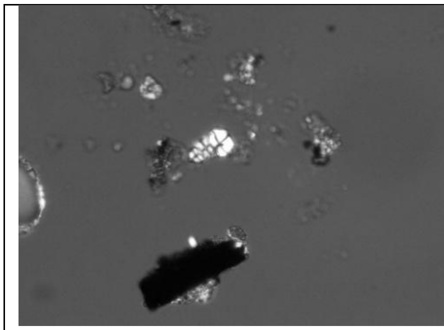
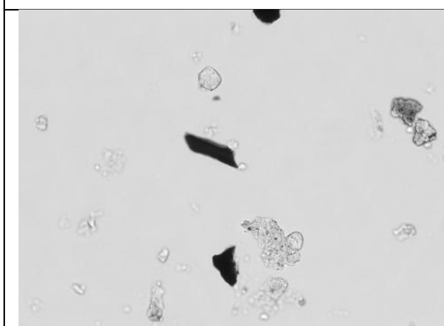
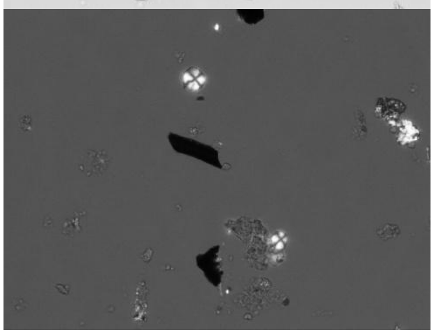
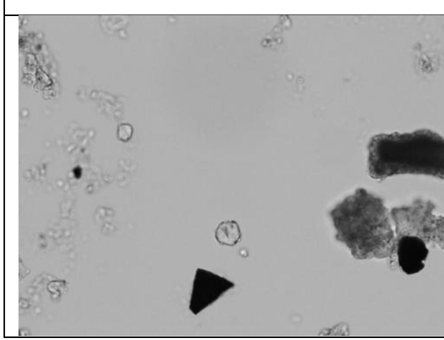
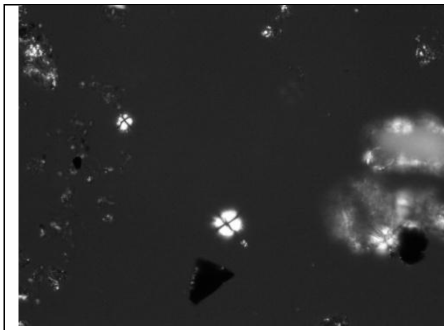
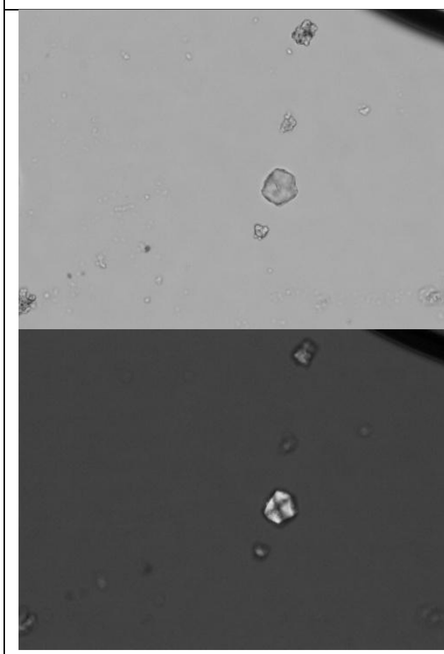
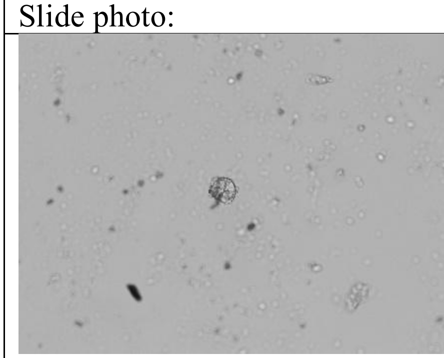
		
 		Coordinates:42.5 x 101y Size:19.7 by 17.7 µm Description/ID:
		Coordinates: 42x 99y Size:27.2 by 24.2 µm Description/ID: Small open hilum flaring extinction cross

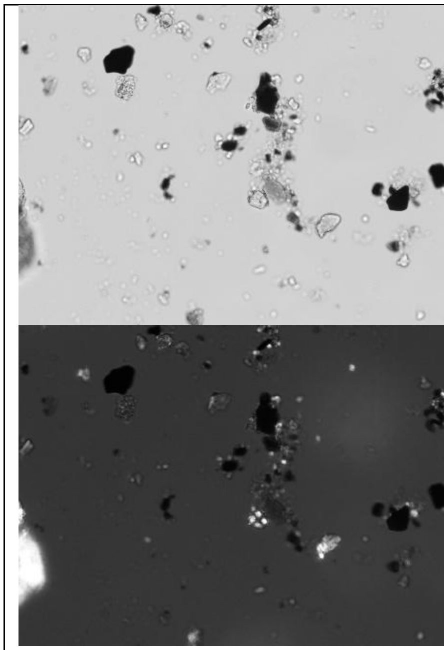
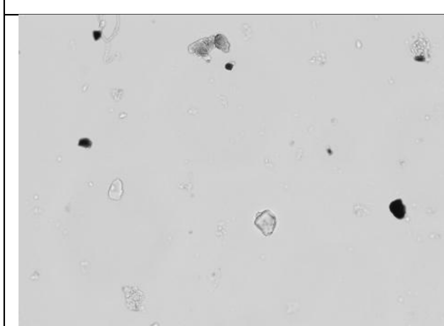
		
		Coordinates:43.5x 99y Size:19.6 by 17.3 µm Description/ID: Round and slightly eccentric hilum
		Coordinates:47x 104y Size:17.3 by 17 µm Description/ID:
		Coordinates: 46x 103.5y Size: 201. X 17.8 µm Description/ID: Centric hilum, very slightly flaring extinction cross, laminelle flaring from hilum

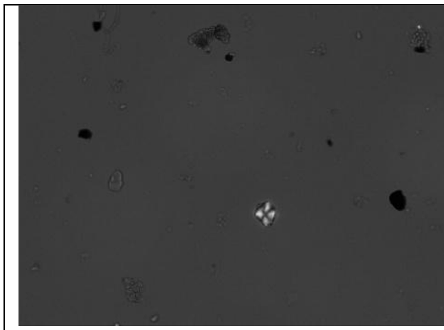
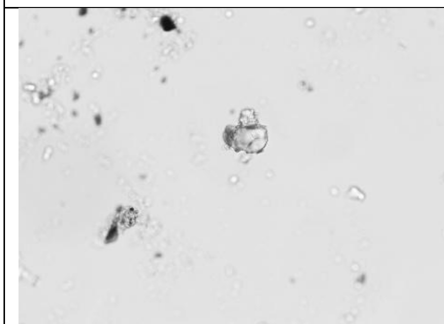
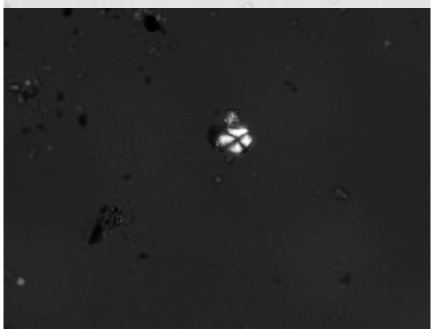
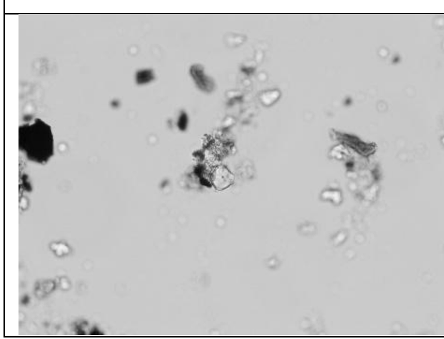
		
 		Coordinates: 40x 103y Size:15.2 by 15.2 µm Description/ID: Centric hilum, very cross arms X2
		Coordinates: 44.5 x 102y Size: 19.2 by 17.3 µm Description/ID: 12.6 by 12.4 µm 11.3 by 11 µm X3

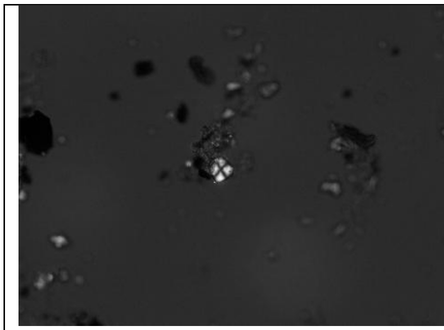
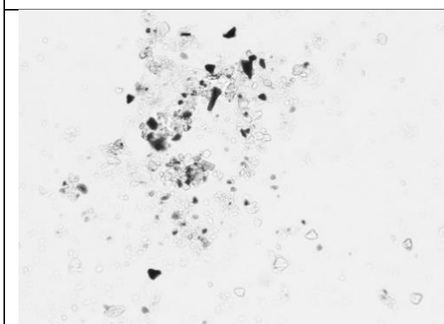
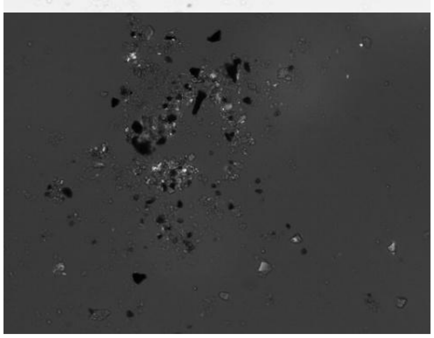
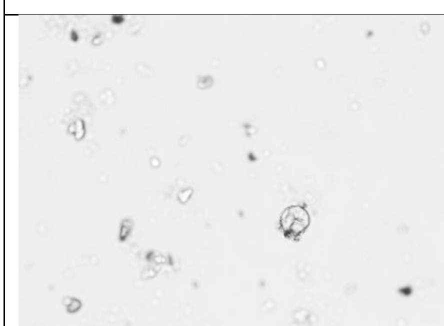
		
 		Coordinates:40x 103y Size: 12.4 by 11.7 µm Description/ID: Slightly flaring cross, arms at tips X2
		Coordinates:46x 102.5y Size: 15.7 by 16.4 µm Description/ID: 10.4 x 10.4 X2

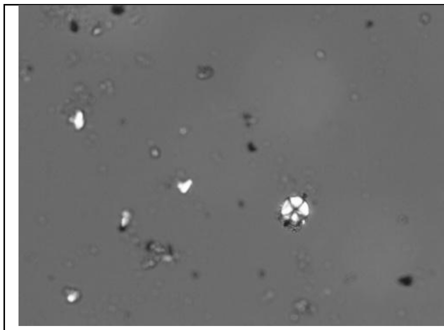
		
		Coordinates: 46.5x 102y Size: 24.8 by 21.6 µm Description/ID: Super diffuse cross, diffuse flaring cross, small slit hilum X11

Slide ID: Artifact 6 ES	
Artifact Photo:	
Slide photo:	Coordinates and description:
	Coordinates: 41.5x 101.5 Size: 16.8 by 15.3 µm Description/ID:

	Coordinates: 43.5x 100y Size: 15.2 by 13.3 µm Description/ID: Type 1
	Coordinates: 49.8x 102y Size: Description/ID: Type 1
	Coordinates:47x 99y Size: Description/ID:
	Coordinates: 44.8x 98y Size: 18.4 by 14.2 µm Description/ID: Faceted, lateral hilum

	
 	Coordinates:42.5x 101y Size:23.1 by 20.8 µm Description/ID: Looks like maize.
	Coordinates:42x 99y Size:17.3 by 15.4 µm Description/ID: Type 1

	
 	Coordinates:49x 93y Size: 4.6 by 4.2 µm Description/ID: 3 clumps
	Coordinates: 49x 99y Size: 22 by 19.6 µm Description/ID:

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<tr><td colspan="2">Site: Las Cuevas</td></tr>
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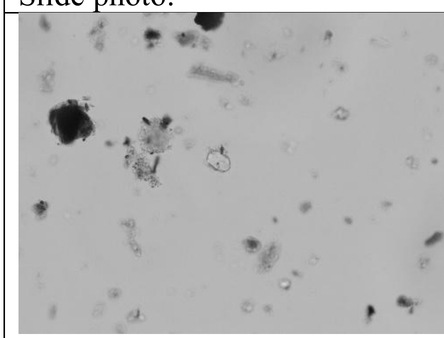
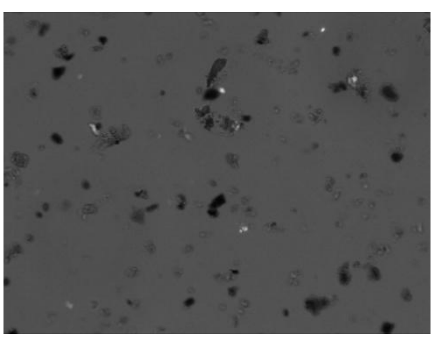
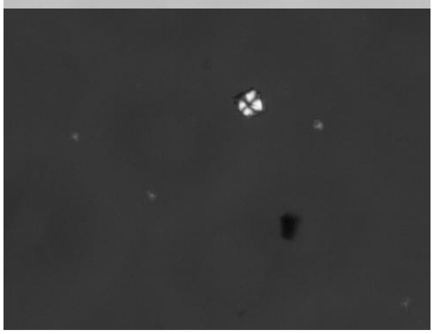
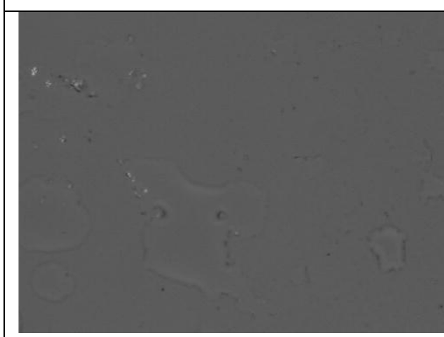
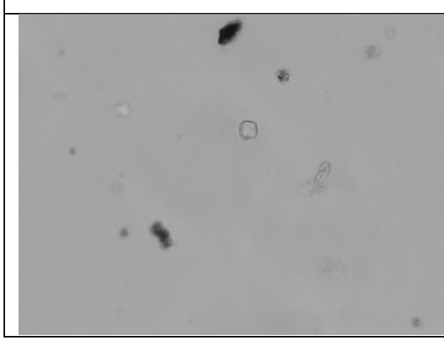
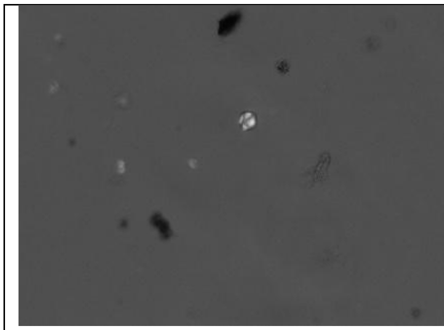
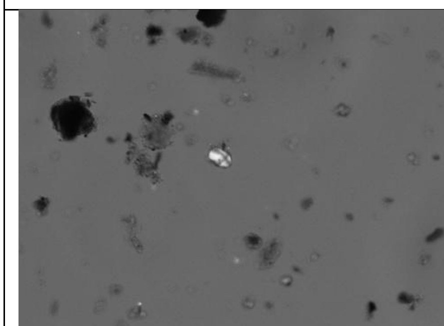
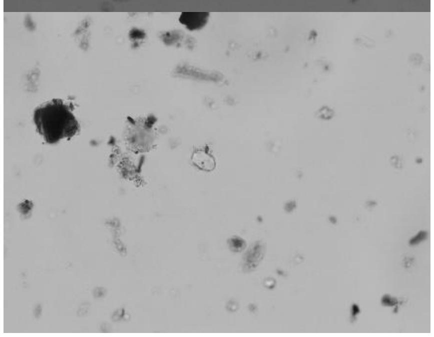
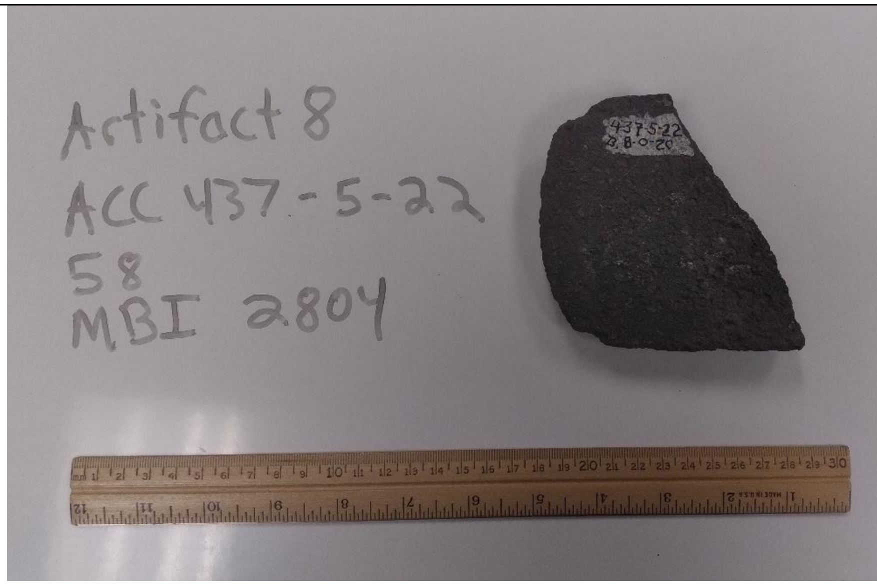
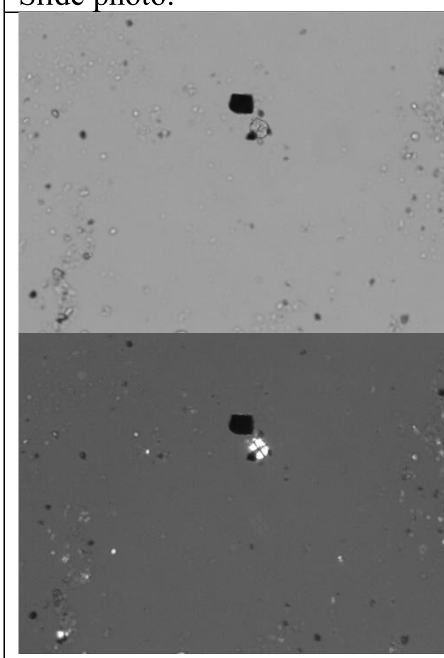
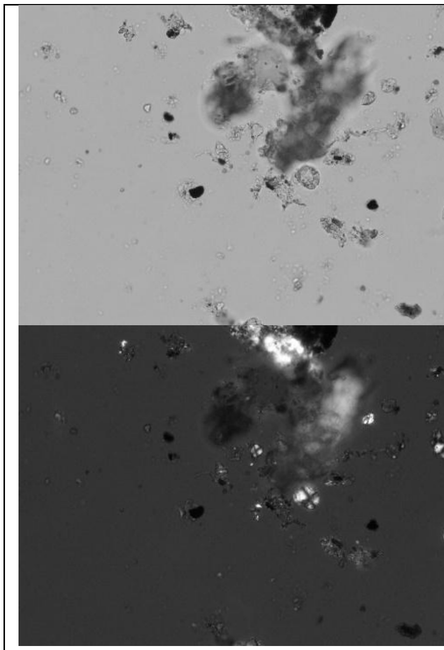
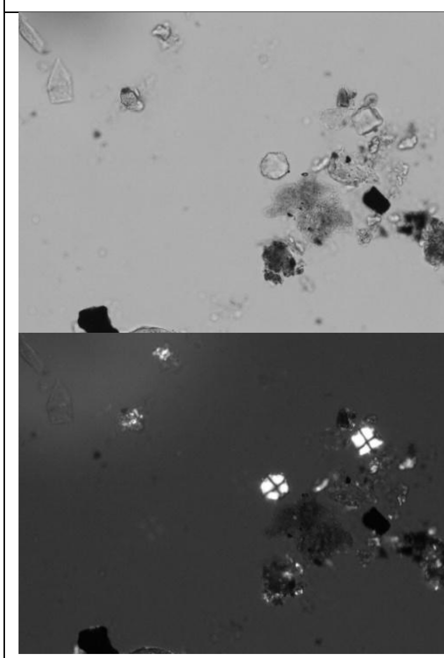
<tr><td>
</td><td>Coordinates: 43x 102y
Size:7 by 6 µm
Description/ID:
Spherical, round, straight extinction cross arms. No furrow/etc.

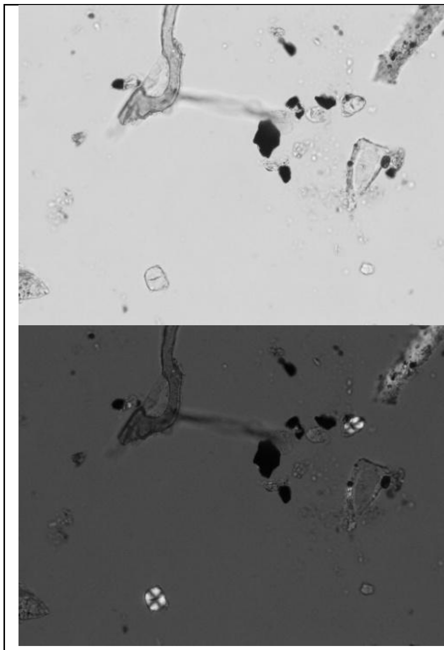
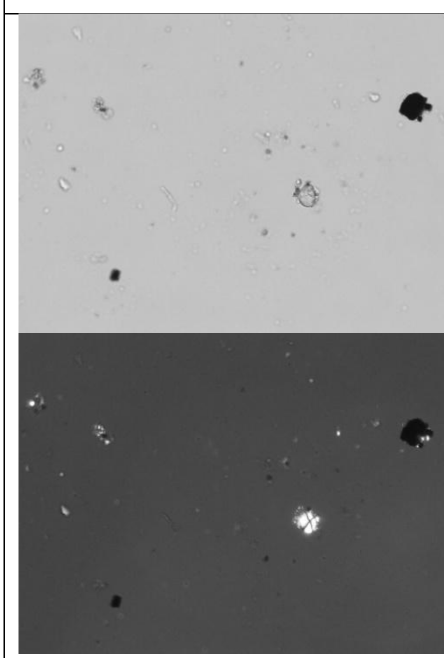
X30
X100</td></tr>
</table>

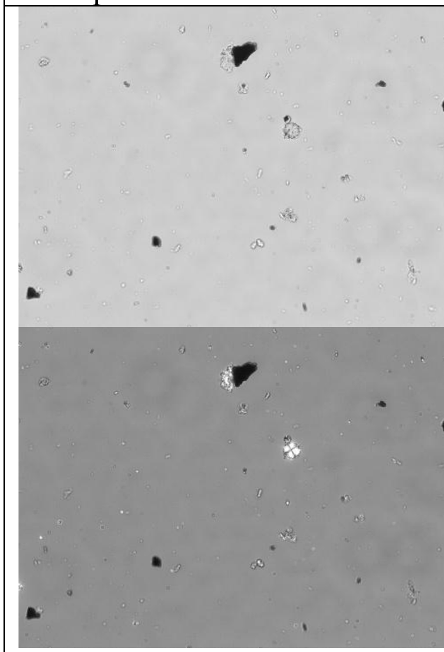
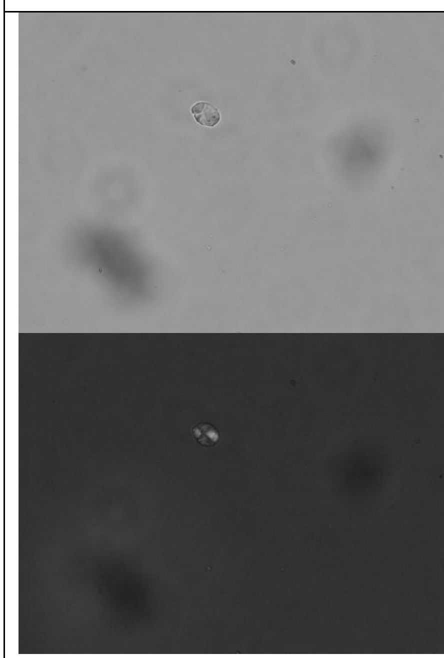
 	Coordinates: 44x 105.5y Size: 18 by 17 µm Description/ID: Faceted, straight eccentric cross, just slightly flaring at ends. Y fissure.
	Coordinates: 48x 100y Size: 7 by 4 µm Description/ID: Round, maybe a facet? Straight semi-flaring extinction cross. No furrow/hilum. X7 in one place
	Coordinates: 41x 102y Size: 13 by 13 µm Description/ID: Semi-square, faceted. Eccentric extinction cross with very diffuse flaring arms. Long transverse fissure. X3

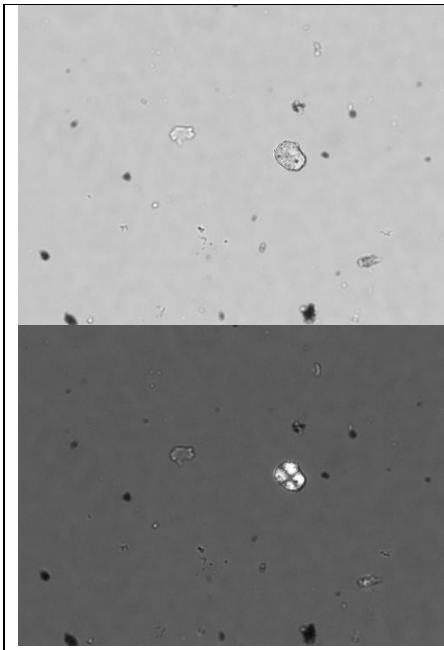
	
	Coordinates: 43x 102y Size:16 by 9 μm Description/ID: Elliptical. Eccentric extinction cross. Slightly wobbly, defined long arms.? some damage.

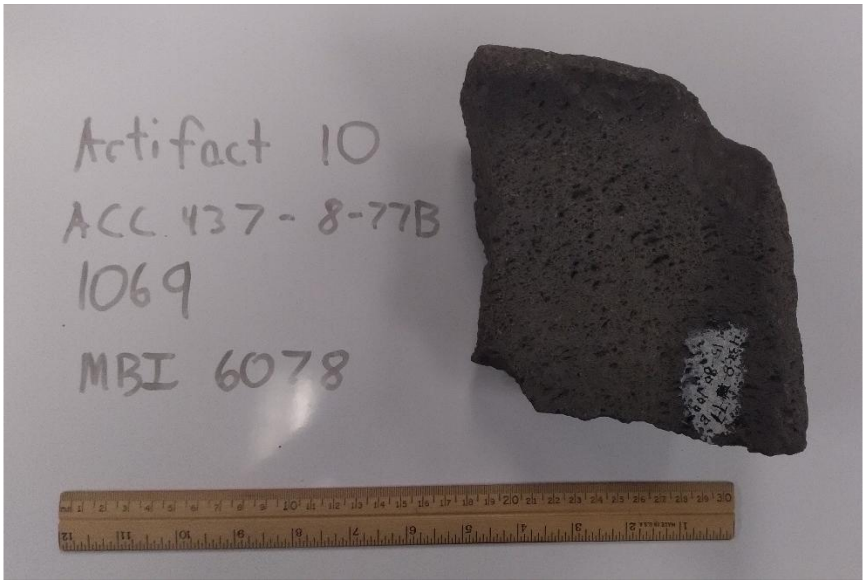
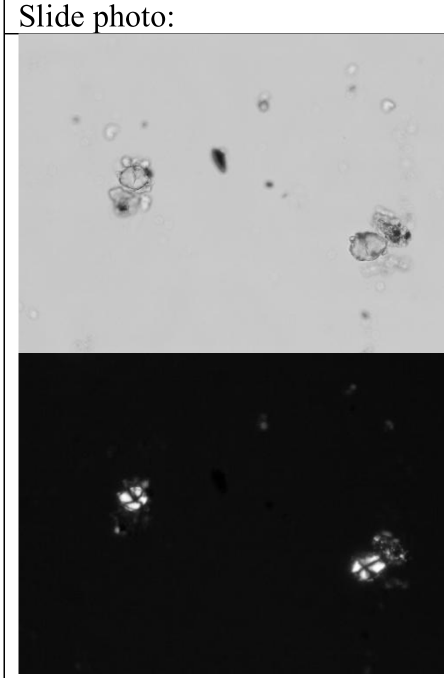
Slide ID: Artifact 8 EWB	
Artifact Photo: 	
Site: Las Cuevas	
Notes: Lots of mineral deposition in this one.	
Slide photo:	Coordinates and description:
	Coordinates: 41.5x 101y Size:14.1 by 13.8 µm Description/ID:

	Coordinates:42.5x 101y Size:17.8 by 16.7 µm Description/ID:
	Coordinates: 43.5x 101y Size: 23.4 by 19.7 µm Description/ID:
See above	Coordinates:43.5x 101y Size:16.9 by 19.6 µm Description/ID: X2

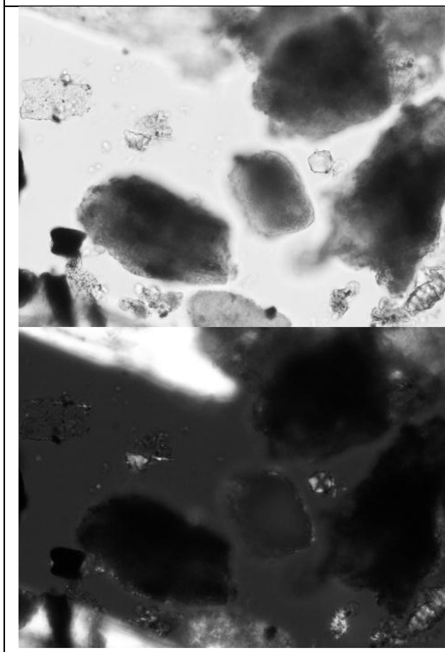
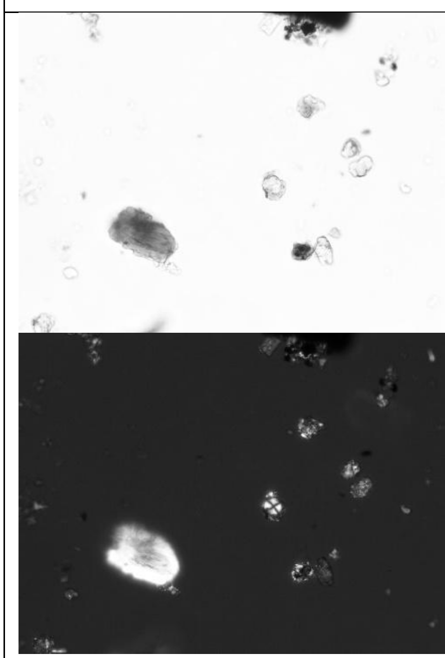
	Coordinates: 42x 99y Size: 16.2 by 13.2 µm Description/ID: Type A
See above	Coordinates:42x 99y Size:14.8 by 10.5 µm Description/ID: Slightly elliptical, transverse fissure Type A X2
	Coordinates: 44x 99y Size: 14.7 by 14.3 µm Description/ID:

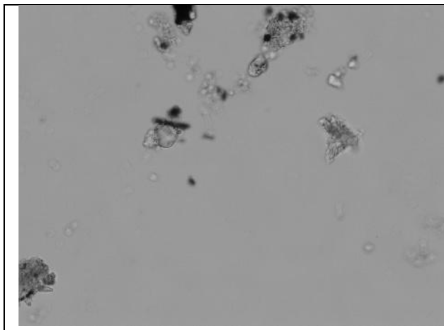
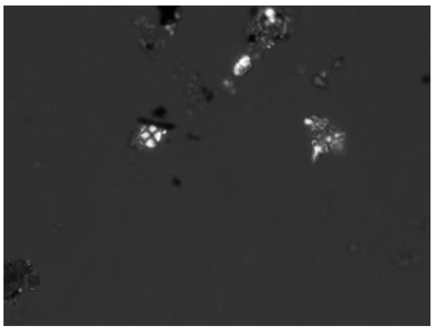
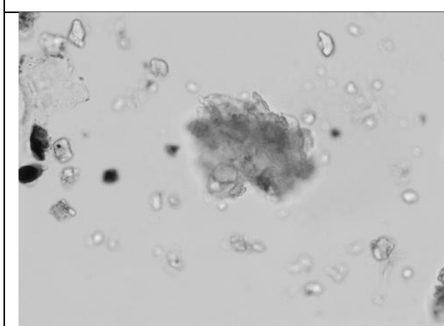
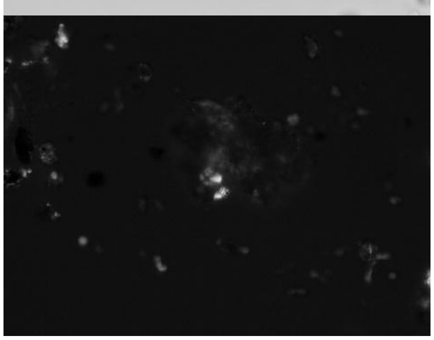
Slide ID: Artifact 8 ES	
Slide photo:	Coordinates and description:
	Coordinates: 43.5x 94y Size: 11 by 10.7 µm Description/ID: 2 dots hilum? Looks like there may be milling damage
	Coordinates:51x 103y Size: 14.7 by 20.1 µm Description/ID: oblong

	Coordinates:49.5 x 103.5y Size: 22.1 by 17.3 μm Description/ID: Damaged but maybe a little kidney bean shaped.

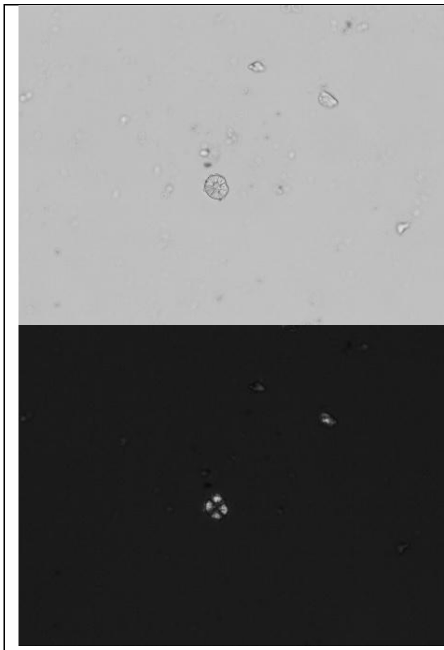
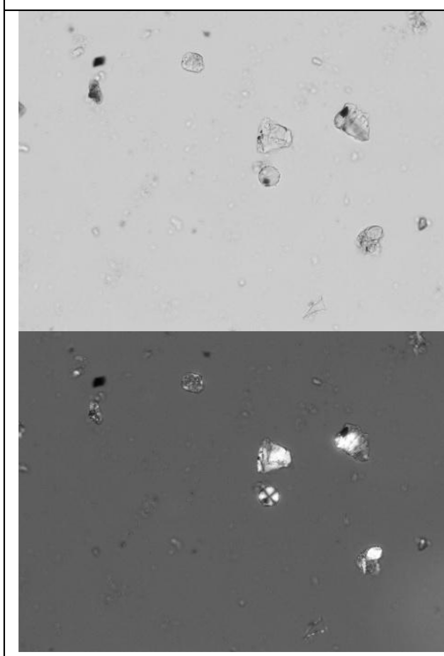
<table>
<tr><td colspan="2">Slide ID: Artifact 10 EWB</td></tr>
<tr><td colspan="2">Artifact Photo:

</td></tr>
<tr><td colspan="2">Site: Las Cuevas</td></tr>
<tr><td colspan="2">Notes: Overall, lots of debris and starch, tallied 11 of first starch location</td></tr>
<tr><td>Slide photo:</td><td>Coordinates and description:</td></tr>
<tr><td></td><td>Coordinates: 38.5 x 100y
Size:19 by 15 µm, 23 by 19.3 µm
Description/ID:
Almost hexagonal, bent polarized arms, very probable faceted, y shaped fissure.

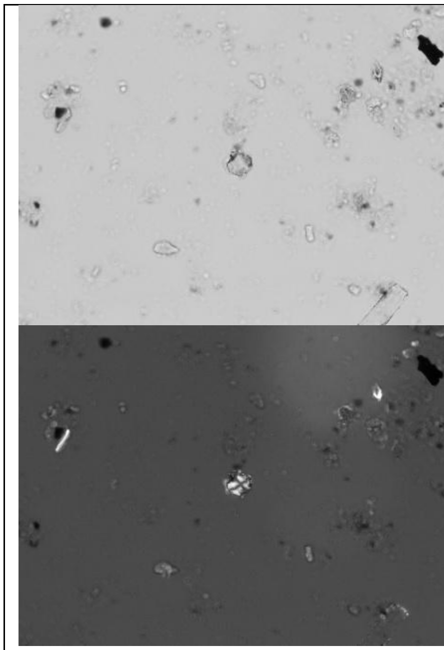
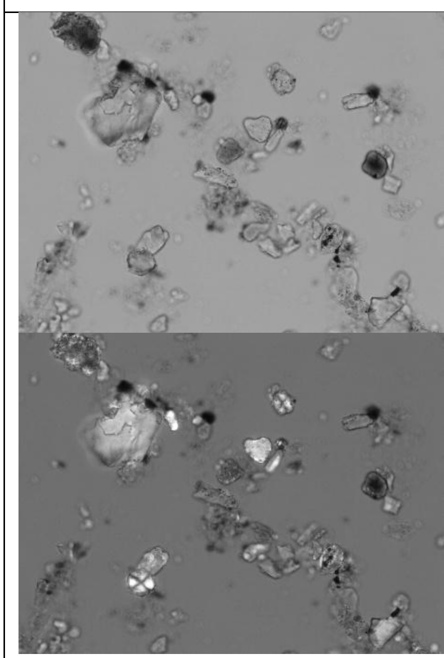
x11</td></tr>
<tr><td></td><td>Coordinates: 45x 110.5 y
Size:16.8 by 13.5 µm
Description/ID:</td></tr>
</table>

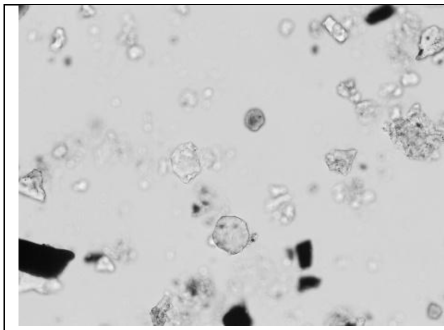
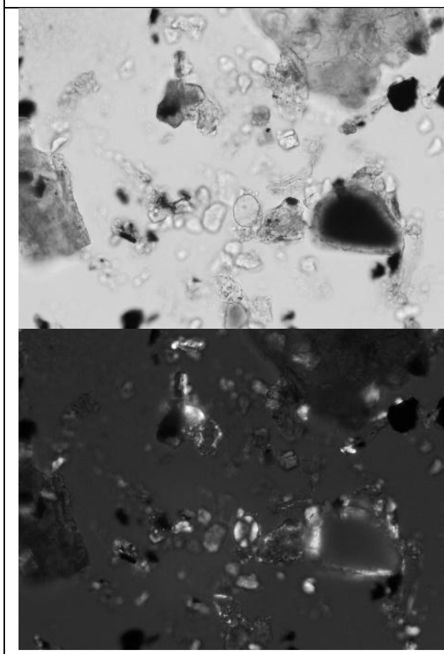
	Slightly oval to elliptical, straight arms, transverse fissure straight
	Coordinates:45x 101 y Size:16.1 by 16 µm Description/ID: Faceted, polygonal, no visible fissure, flaring diffuse cross
	Coordinates: 44x 102.5y Size: 12 by 12.7 µm Description/ID: Circular, straight cross with slight flare at end. Pinprick center or no visible hilum.

 	Coordinates: 38x 101.5y Size: 15.9 by 14.7 µm Description/ID: Could be same as at coordinate 45x 101y, faceted polygonal, straight arms, no visible fissure, but possible radiating laminelle
 	Coordinates:49x 102.5y Size:14.6 by 14.7 µm Description/ID: Weird blob, faint diffuse eccentric cross. Hard to see, stuck behind debris.

Slide ID: Artifact 10 ES	
Notes: Many	
Slide photo:	Coordinates and description:

	Coordinates: 49.5x 91y Size: 15.4 by 16.2 µm Description/ID: X2
	Coordinates: 48x 100y Size: 14.5 by 14 µm Description/ID: Circle X3

	Coordinates: 38.5x 99y Size:17.1 by 16 µm Description/ID:
	Coordinates: 46x 100y Size: 18 by 18,1 µm and 16.9 by 13.4 µm Description/ID: X2

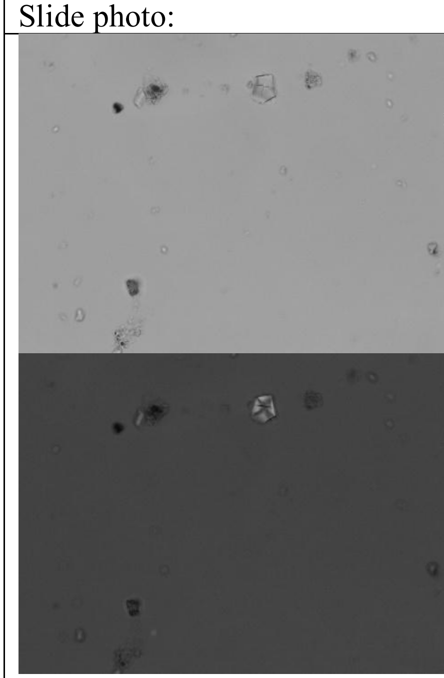
	Coordinates: 45.5x 99y Size: 26 by 25 µm Description/ID: X3
	Coordinates:44.5x 101y Size: 21.2 by 16.2 µm Description/ID: Elliptical X3

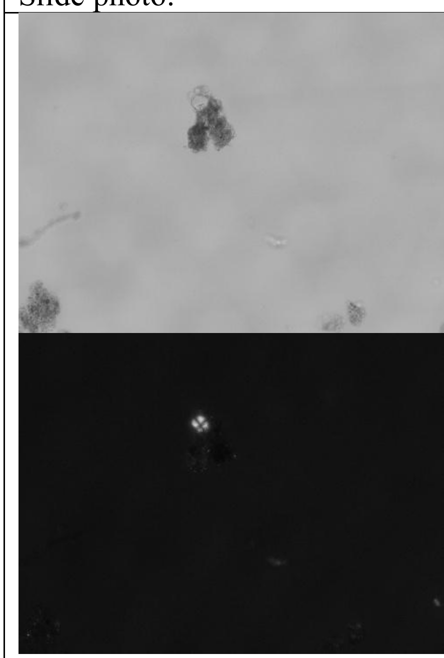
Slide ID: Artifact 11

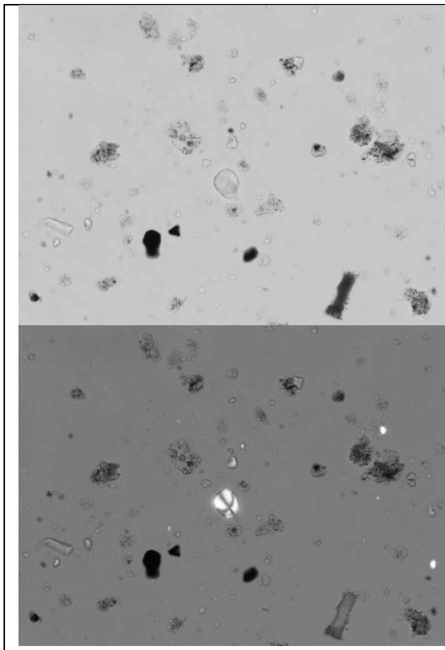
Artifact Photo:

Site: Los Guachimontones

Notes: Layer of debris (like 7 for example)

Slide photo:	Coordinates and description:
	Coordinates: 41x 99y Size:18 by 14 µm Description/ID: Pentagonal shape, faceted flaring diffuse extinction cross. X, possible y fissure.

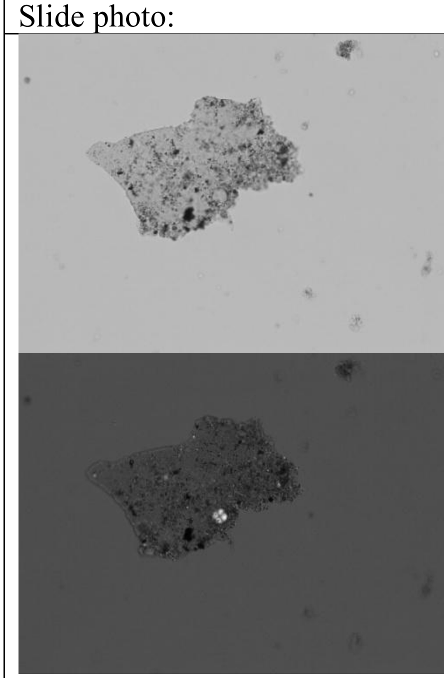
Slide ID: Artifact 12	
Artifact Photo: 	
Site: Los Guachimontones	
Slide photo:	Coordinates and description:
	Coordinates: 39.5x 103y Size:11 by 11 µm Description/ID: Seem like one facet straight, only slightly flaring extinction cross. Straight transverse fissure.

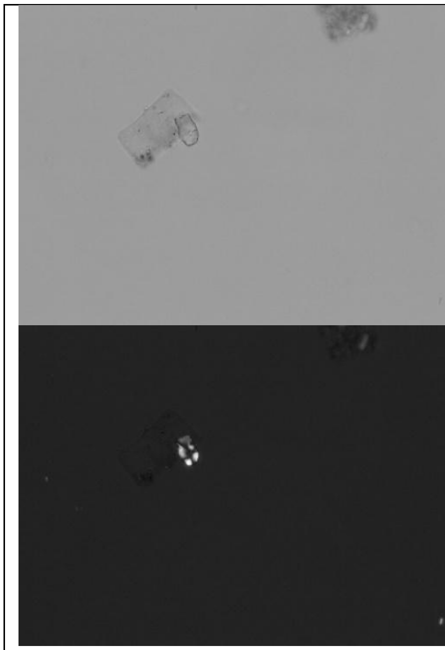
	Coordinates: 33.5x 101y Size: 20 by 17 µm Description/ID : Large, semi-elliptical. Curved extinction cross on one arms. Faceted. V shaped fissure. No laminelle.

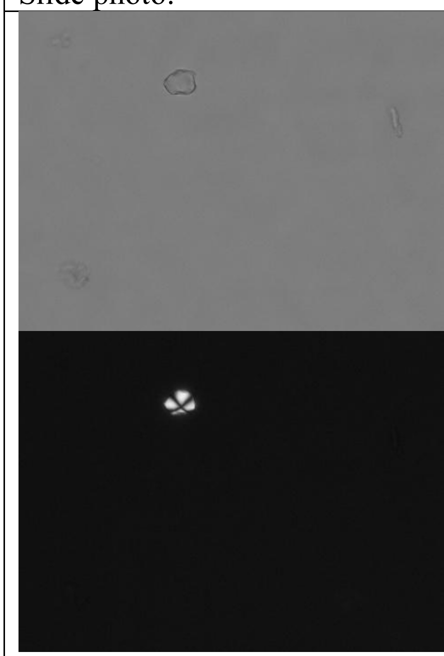
Slide ID: Artifact 15

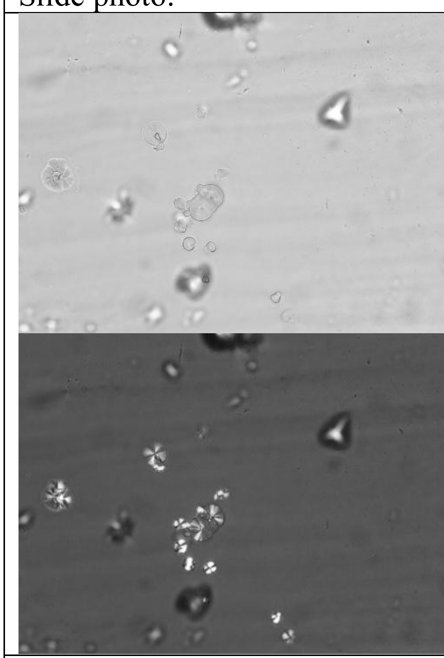
Artifact Photo: 

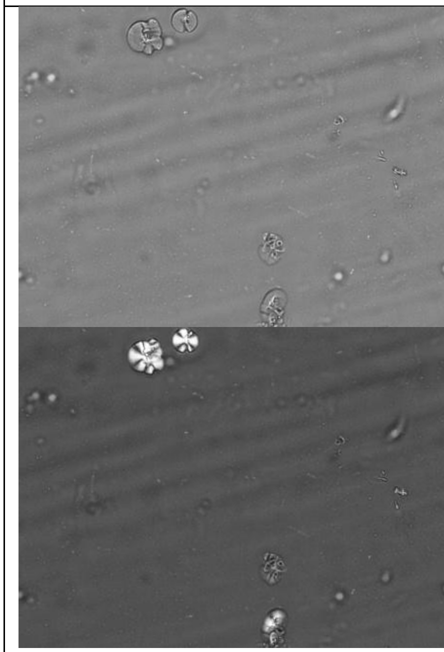
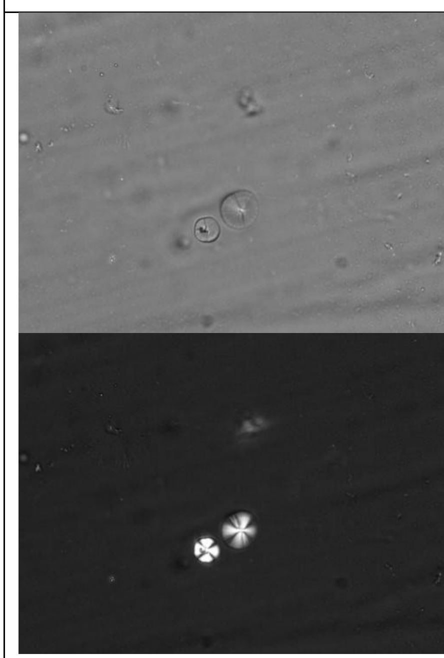
Site: Los Guachimontones Talleres 2

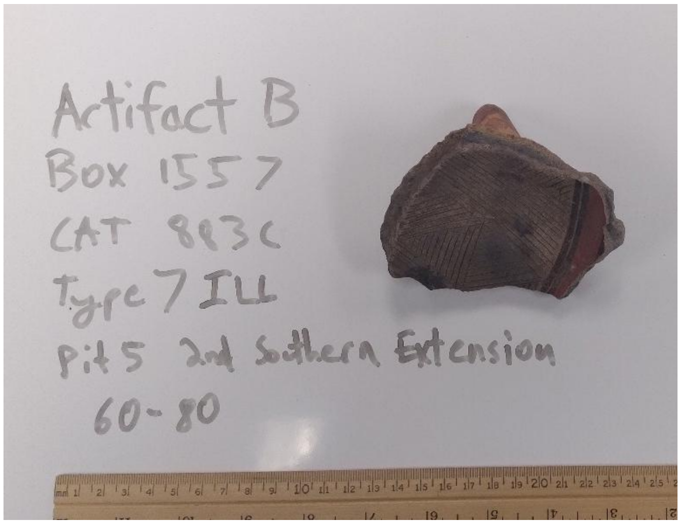
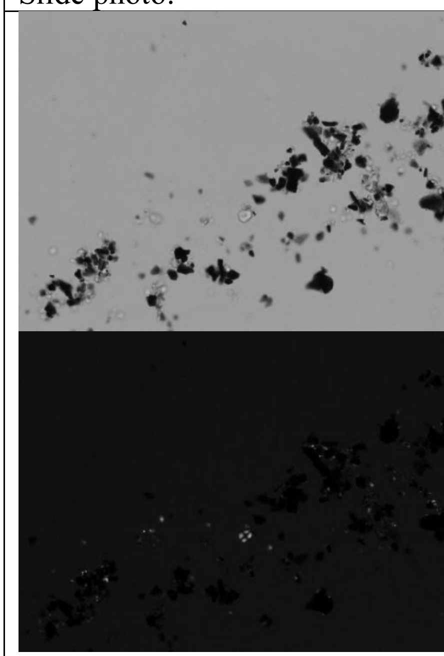
Slide photo:	Coordinates and description:
	Coordinates: 31.5x 99y Size: 10.5 by 11.2 µm Description/ID: Round. Straight extinction cross. Difficult to see- object on top. No Visible hilum.

	Coordinates: 26x 92y Size:16.1 by 12.4 µm Description/ID: Elliptical. Flaring arms on extinction cross. X hilum in center. Some milling or damage.

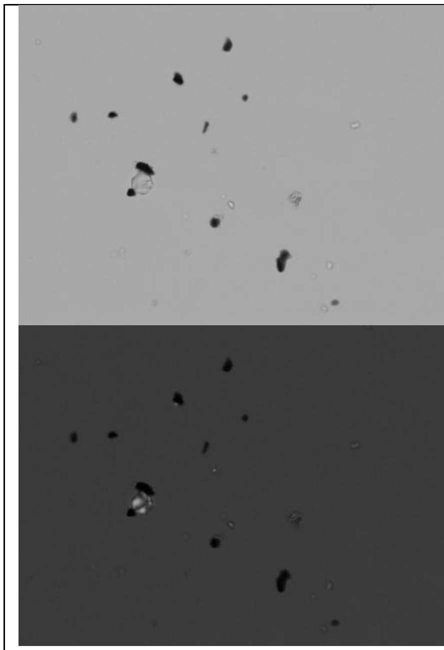
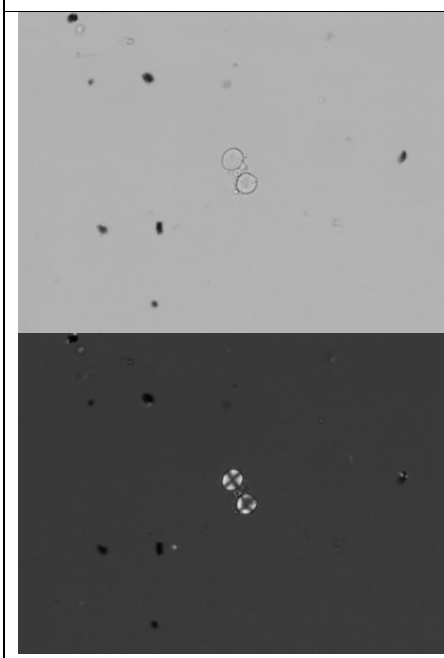
Slide ID: Artifact 18	
Artifact Photo: 	
Site: Los Guachimontones Circulo 10	
Slide photo:	Coordinates and description:
	Coordinates: 52x 92y Size:20.1 by 17.7 µm Description/ID: Semi-trapezoidal? Appears to have facets, semi-hexagonal. Well defined, only slightly curving extinction cross (flares only slightly) slight dimple on one side?

Slide ID: Artifact 23	
Artifact Photo: 	
Site: Los Guachimontones	
Slide photo:	Coordinates and description:
	Coordinates: 40.5x 99y Size: 16 by 16 µm Description/ID: Large spherical with extremely flared extinction cross and laminelle. Central hilum. Type 1 X3 +1 damaged?
See above	Coordinates: 40.5x 99y Size: 8 by 8 µm Description/ID: Seem to be bimodal starch based on clustering of. Type 2

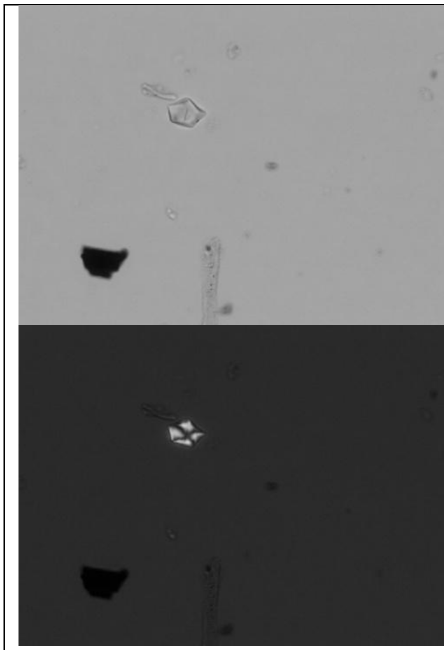
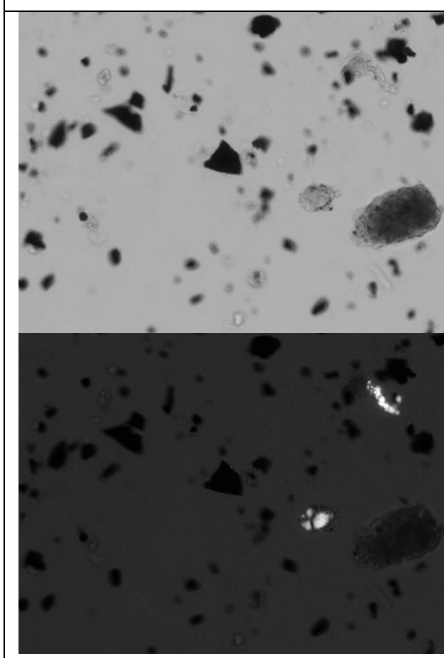
	X8
	Coordinates: 32.5x 99.5y Size: Description/ID: Type 1 x2 Type 2x3
	Coordinates: 38x 99.5y Size:25 by 20 µm Description/ID: Type 1 x2 Some very very large

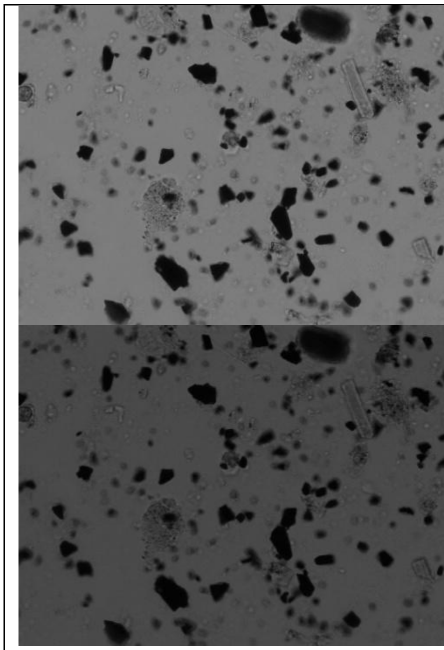
<table>
<tr><td colspan="2">Slide ID: Artifact B WB</td></tr>
<tr><td colspan="2">Artifact Photo:

</td></tr>
<tr><td colspan="2">Site: Las Cuevas</td></tr>
<tr><td>Slide photo:</td><td>Coordinates and description:</td></tr>
<tr><td></td><td>Coordinates: 31.5x 101.5y
Size: 8.4 by 7.9 µm
Description/ID:

Very large diffraction cross center with short arms. No visible hilum, no facets, displaced center?</td></tr>
</table>

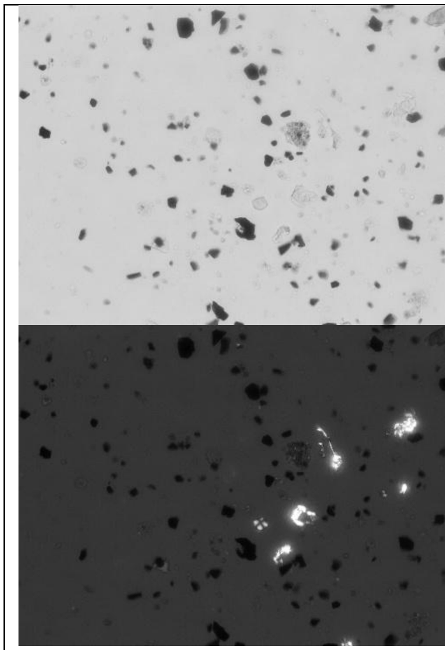
	Coordinates: 29x 101y Size:14.7 by 16.2 µm Description/ID: Faceted(hexagonal) eccentric extinction cross with slightly shaky arms- center is to one side. Possible straight-line hilum or damage.
	Coordinates: 29x 100y Size: 13 by 13.5 µm Description/ID: Slightly flaring straight extinction cross. No hilum, circular Type A X2

Slide ID: Artifact D WB	
Artifact Photo:  	
Site: Las Cuevas	
Notes: lots of debris	
Slide photo:	Coordinates and description:

	Coordinates: 49.5 x 99y Size:18 by 22.2 µm Description/ID: Faceted- 5 side Extinction cross clear and wavy. Longitudinal straight hilum. Type 1
	Coordinates: 44x 93y Size: 22.7 by 15.5 µm Description/ID: Type 2 Semi-elliptical Possible hilum or cut on short side. Extinction cross strong x, slightly flaring legs

	Coordinates: 43.5 x 104y Size: 12.8 by 13.6 μm Description/ID: Type 3 Hard to see – debris on top. Spherical, extinction cross very difficult to see. Maybe wavy or non-distinct?

Slide ID: Artifact E WB	
Artifact Photo:  	
Site: Las Cuevas	
Slide photo:	Coordinates and description:

	Coordinates: 44x 101.5y Size: 8.6 by 9.1 µm Description/ID: Faceted, squarish. strong straight extinction cross, no visible hilum

<table>
<tr><td colspan="2">Slide ID: Artifact F WB</td></tr>
<tr><td colspan="2">Artifact Photo:

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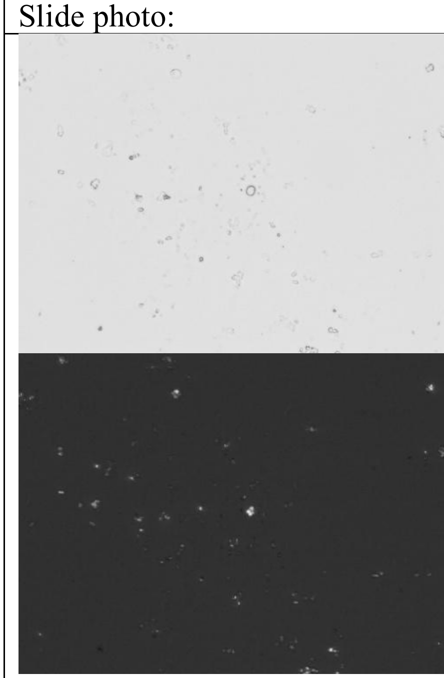
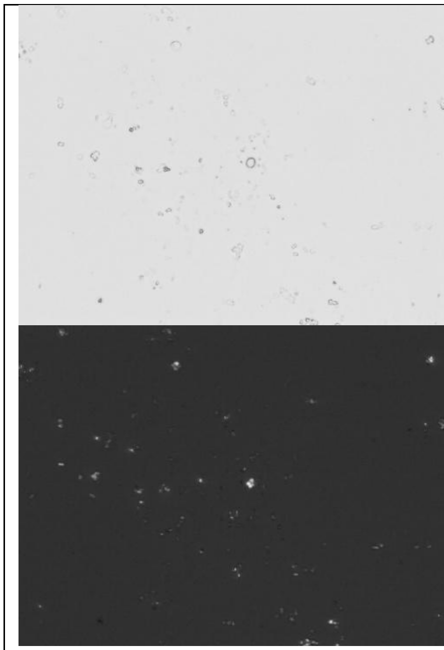
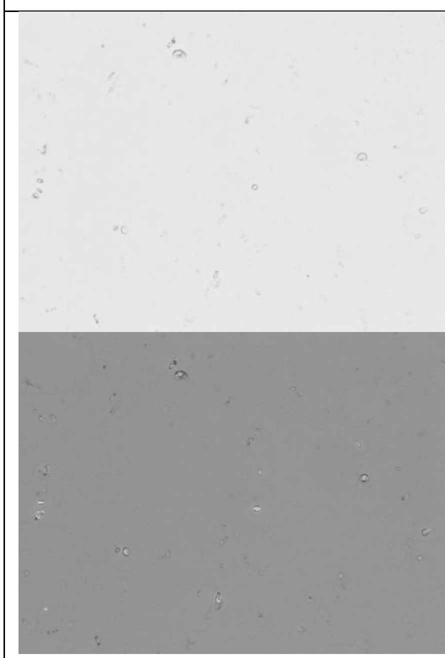
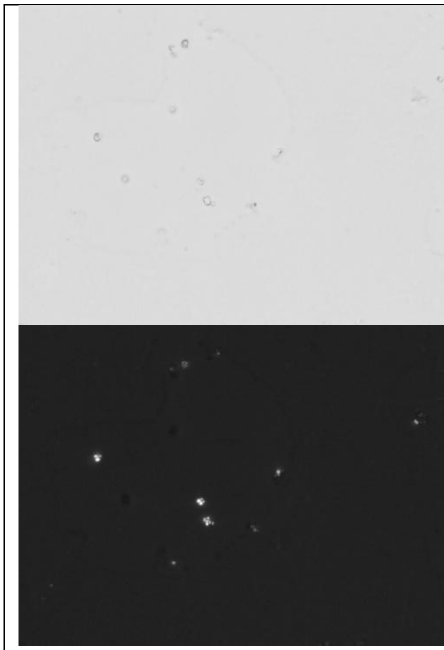
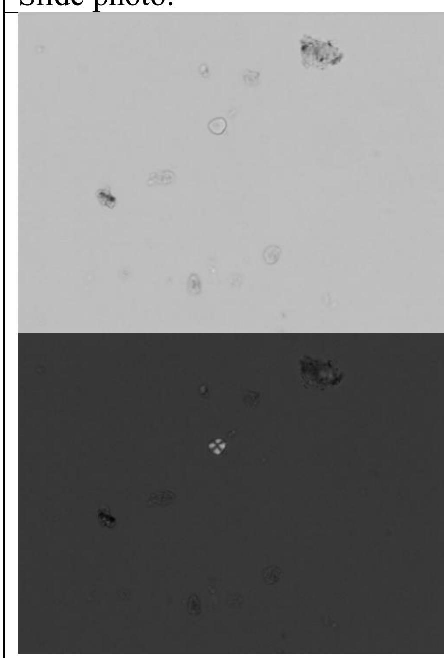
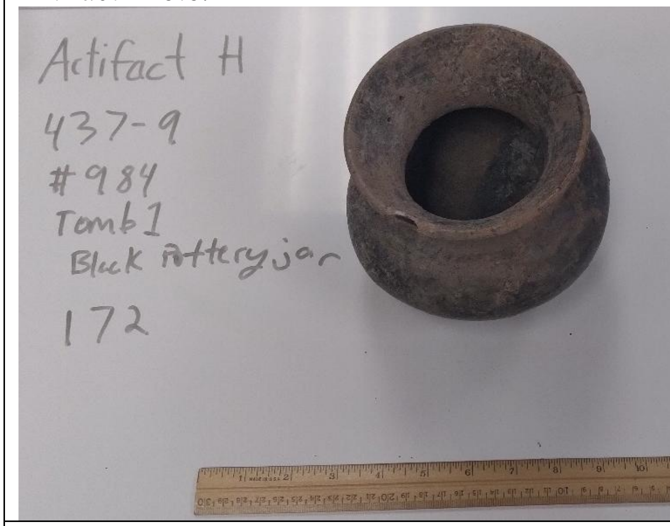
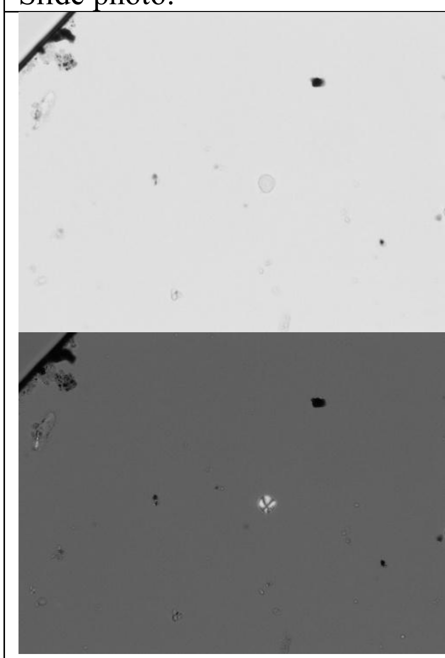
<tr><td colspan="2">Site: Las Cuevas</td></tr>
<tr><td colspan="2">Notes: All on same region of slide</td></tr>
<tr><td>Slide photo:</td><td>Coordinates and description:</td></tr>
<tr><td></td><td>Coordinates: 37.5x 97y
Size:4.9 by 5.7 µm
Description/ID:
Flaring at ends extinction cross. Straight, circular. No visible hilum, but perhaps dimpling in center?</td></tr>
</table>

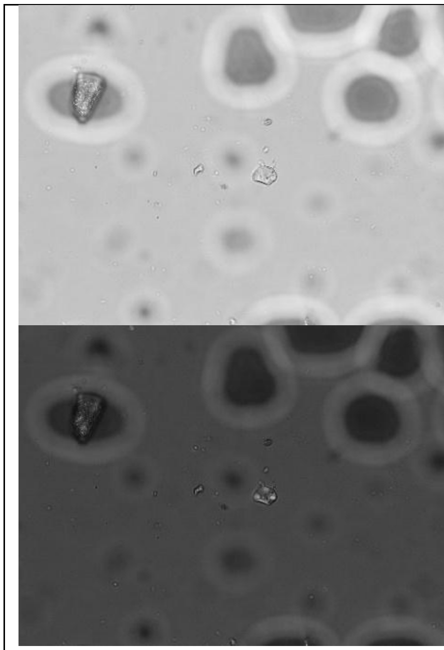
	Coordinates: 37.5x 97y Size: 5.6 by 6.7 µm Description/ID: Partially gelatinized? Curving extinction cross, slightly hexagonal? Same photo as above
	Coordinates: 36.5x 97y Size:3.3 by 3.6 µm Description/ID: Circular, straight arms on extinction cross with slightly flaring ends. No hilum. Same photo

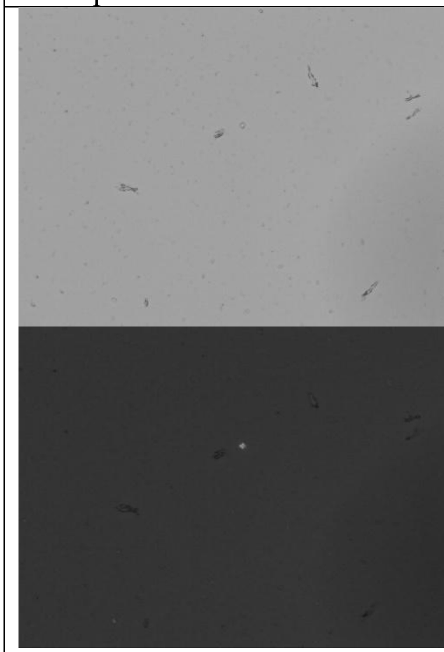
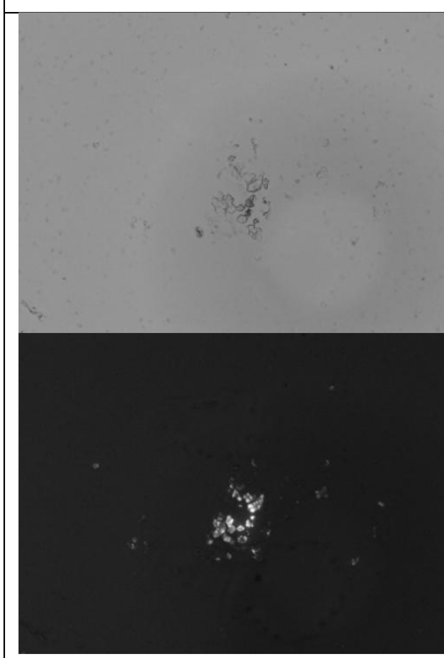
	Coordinates: 32x 95y Size: 4.9 by 4.9 µm Description/ID: X3

Slide ID: Artifact G SB	
Artifact Photo:  	
Site: Las Cuevas	
Slide photo:	Coordinates and description:
	Coordinates: 30.5x 101.2y Size:10.8 by 10.8 µm Description/ID: Spherical, straight flaring extinction cross. Faint, y shaped hilum.

Slide ID: Artifact H SB	
Artifact Photo: 	
Site: Las Cuevas	
Slide photo:	Coordinates and description:
	Coordinates: 44x 101y Size:11.2 by 10.9 µm Description/ID: Eccentric slightly wavy extinction cross. Y shaped hilum?

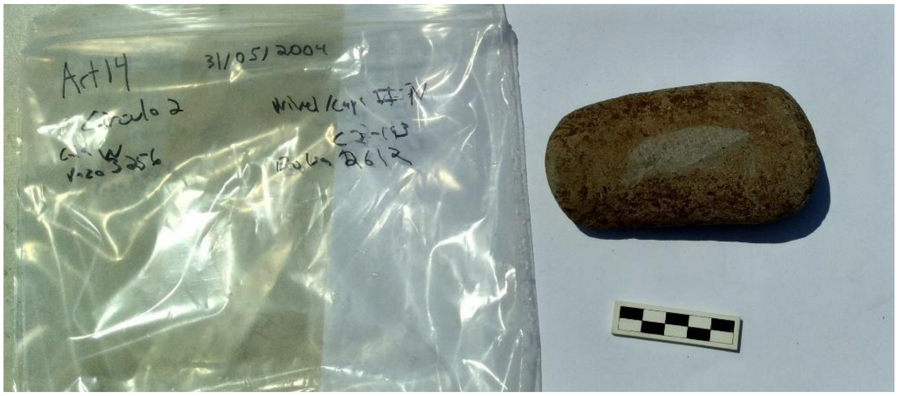
Slide ID: Art HWB	
Artifact Photo:	
Slide photo:	Coordinates and description:

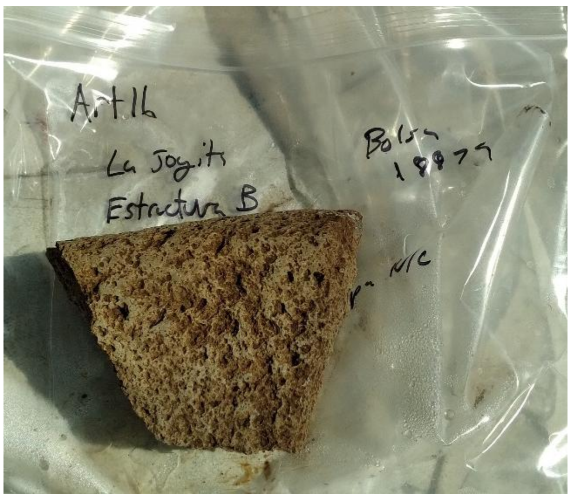
	Coordinates: 26.5x 104y Size:14 by 15 µm Description/ID: Faceted, some possible damaged cracks. Fissure. Diffuse flaring extinction cross.
	Coordinates: 27.6x 105y Size: Description/ID: Large circular, hard to see because of debris, could not be photographed.

<table>
<tr><td colspan="2">Slide ID: 7.19.22 control</td></tr>
<tr><td colspan="2">Artifact Photo: N/A</td></tr>
<tr><td colspan="2">Notes: Lots of weird shapes/ possible extinction crosses. But are they ripped up or gelatinized starch?
Messy</td></tr>
<tr><td>Slide photo:</td><td>Coordinates and description:</td></tr>
<tr><td></td><td>Coordinates: 60.5x 104.5y
Size: 3.8 by 3.2 µm
Description/ID:
???</td></tr>
<tr><td></td><td>Coordinates: 55x 104.5y
Size:6.4 by 6.7 range to 3.8 by 3.2 µm
Description/ID:
messy</td></tr>
</table>

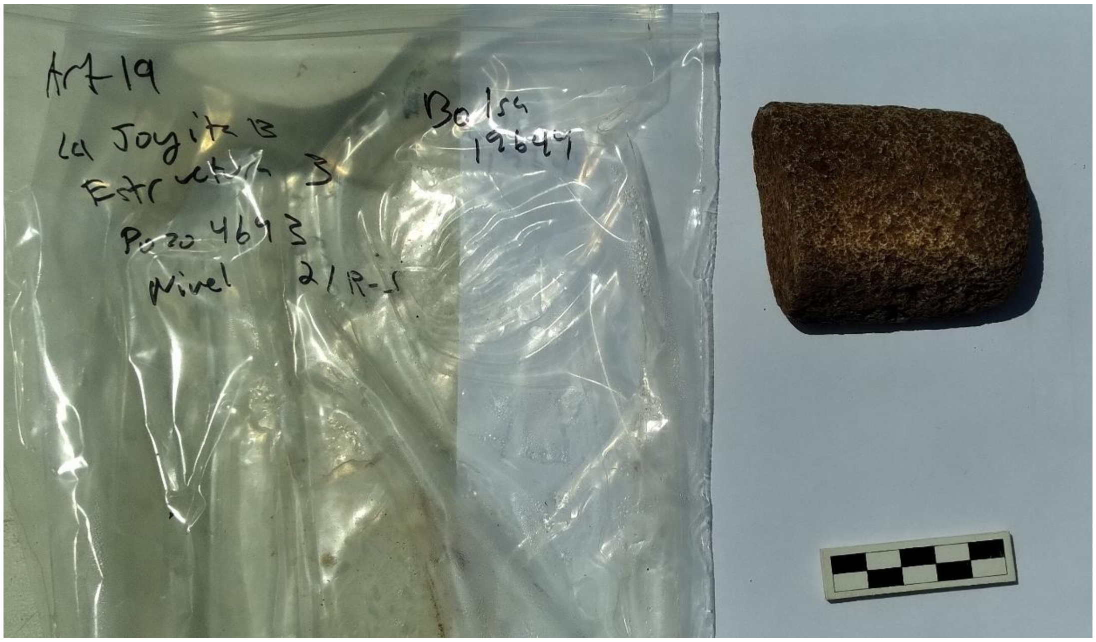
No starch recovered:

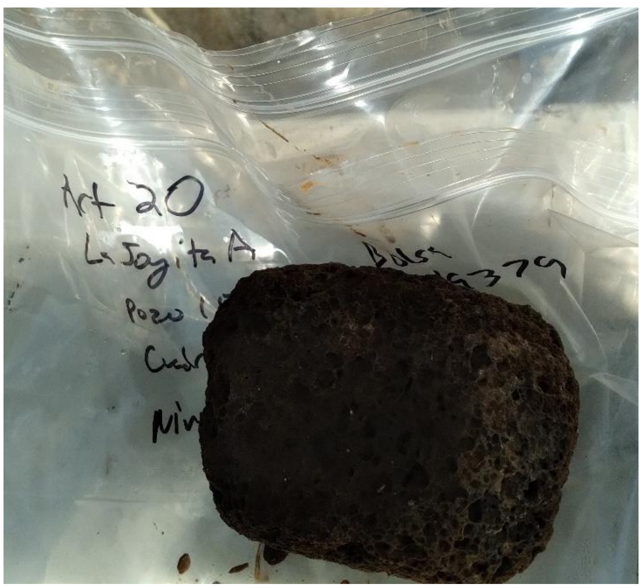

Artifact C
Box 4793
Feature 19 Item 7
Cat 916
Nence? Item 4


Art14
31/05/2004
Circulo 2


Art16
Estructura B


Art17
30/06/2004
Circulo 7
Pozo 2536


Art 19
Estructura 3
Bolsa

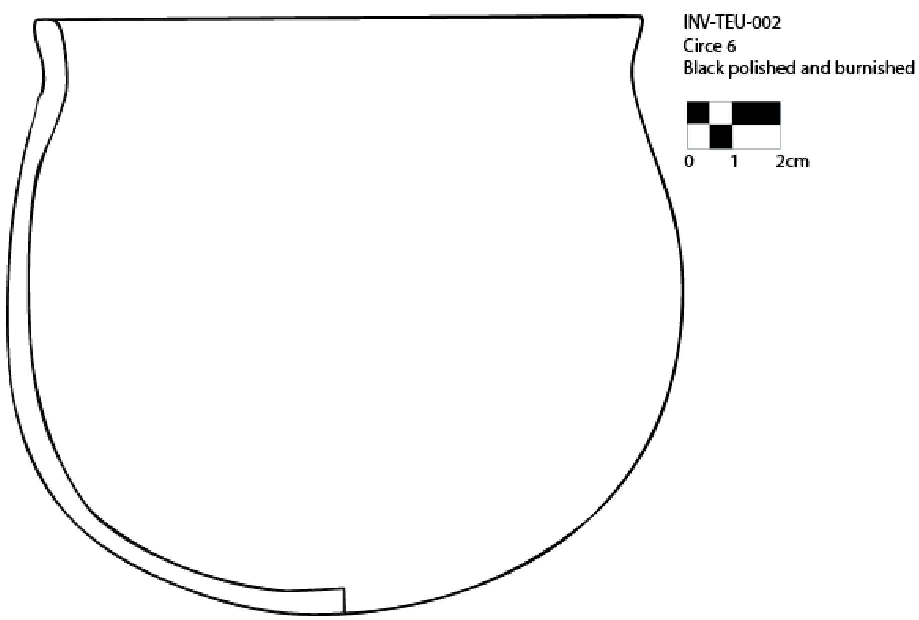

Art 20
Bolsa

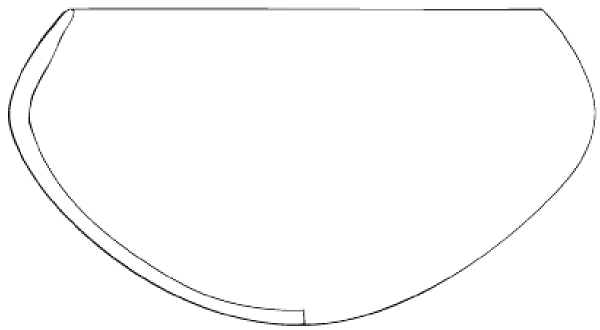

Art 21
Estructura 3
Pozo 26
Nivel 7


Art 24
Taller 1
Cala 3
Bolsa 13353

Appendix B: Ceramic Drawings

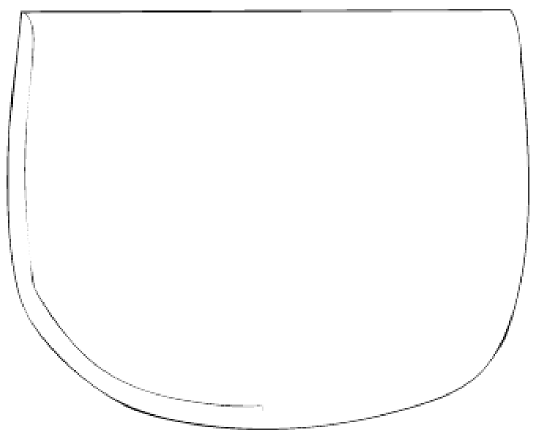
This appendix provides an additional set of ceramic drawings created as part of the morphological analysis. These illustrations provide a consistent record of vessel forms and rim treatments, helping to highlight variation in shape, proportion, and decoration across the assemblage. Their inclusion here is intended to give readers a clearer sense of the materials behind the analysis and to serve as a visual reference for those interested. All drawings presented here are objects from the site of Los Guachimontones





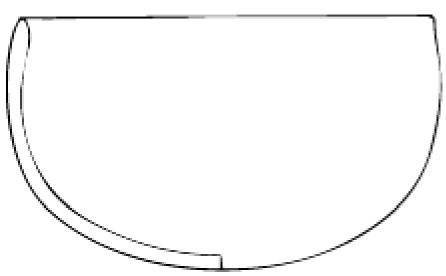
INV-TEU-008
Circle 6
Black/Grey polished and burnished

0 1 2cm



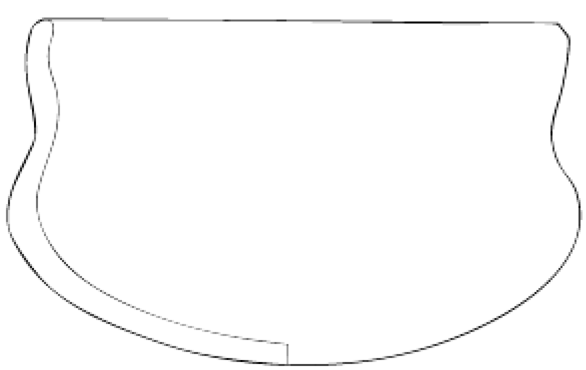
INV-TEU-016
La Joyita
Estructura 4
9 cm height 11 cm diameter
red on white, buffed polished

0 1 2cm



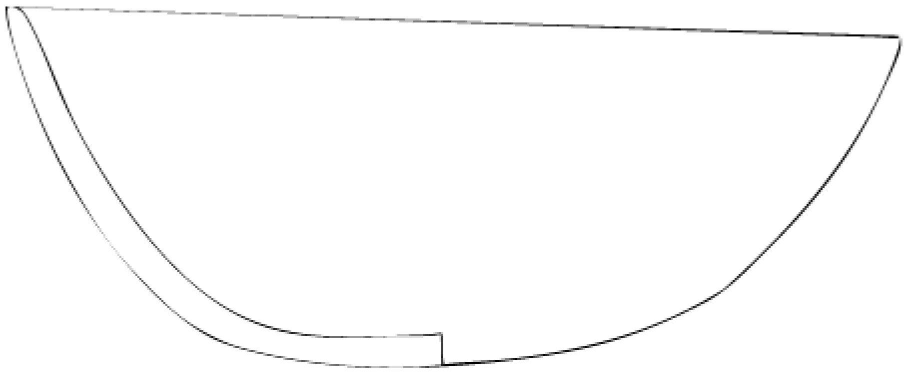
INV-TEU-018

0 1 2cm



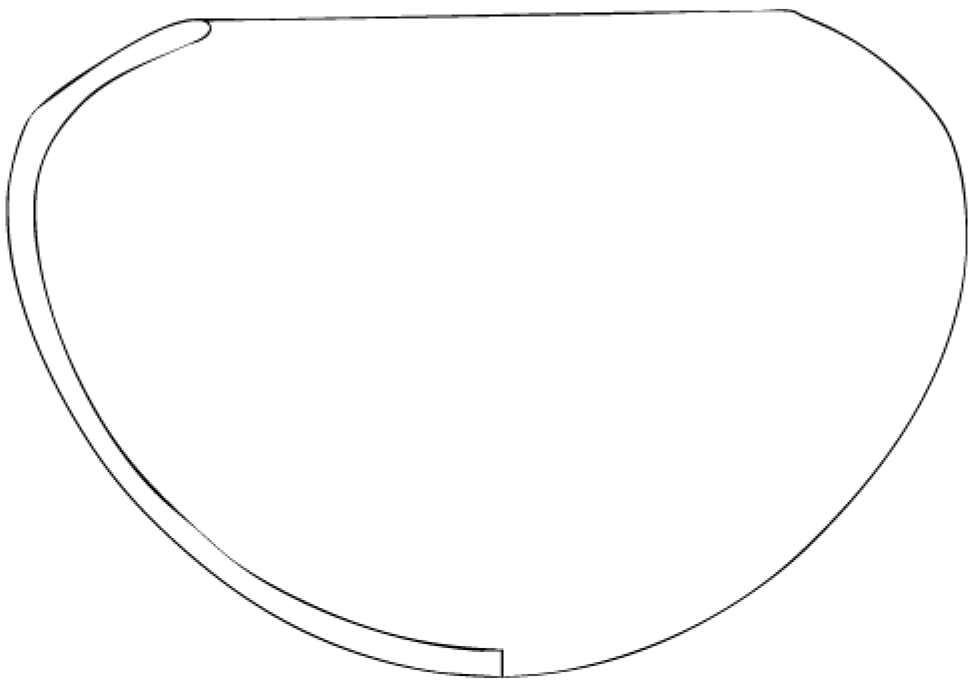
INV-TEU-052
Circulo 1
Plaza Interior

0 1 2cm



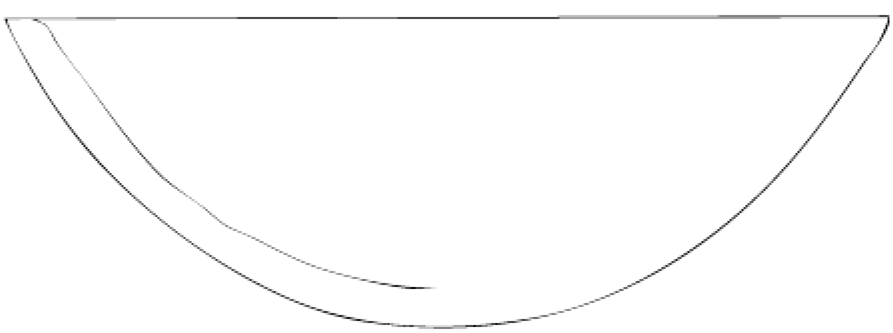
INV-TEU-112
Circulo 6

0 1 2cm



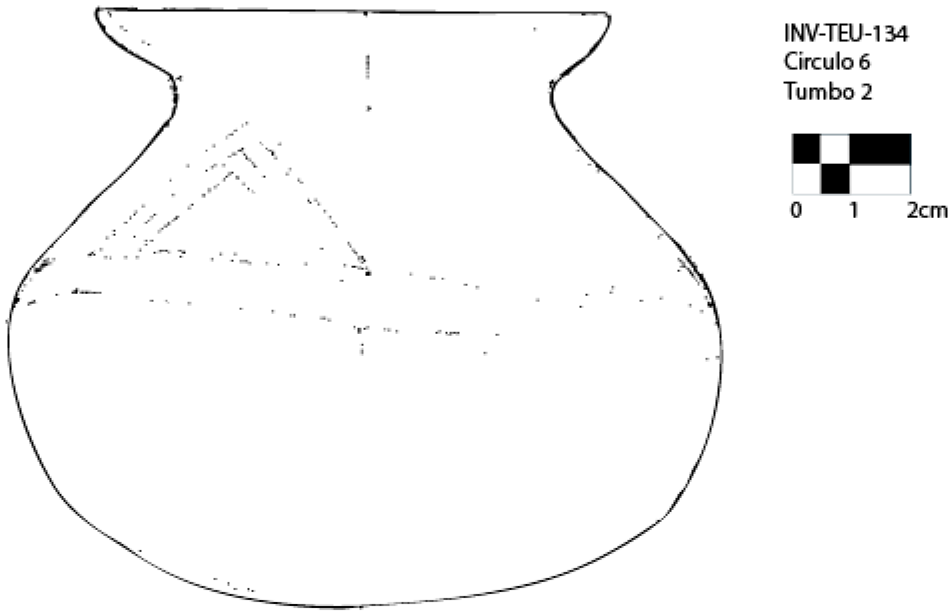
INV-TEU-113
Circulo 6

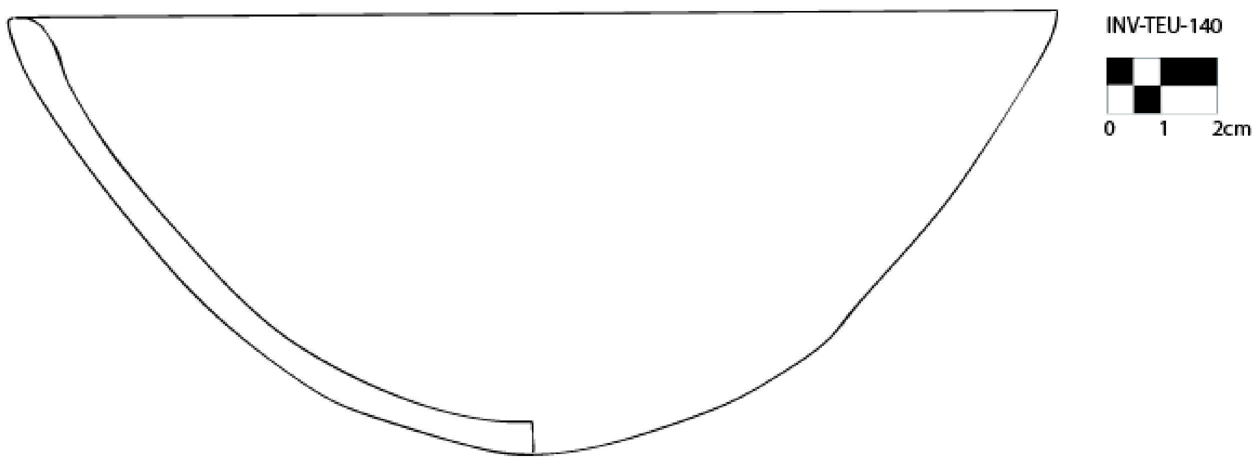
0 1 2cm

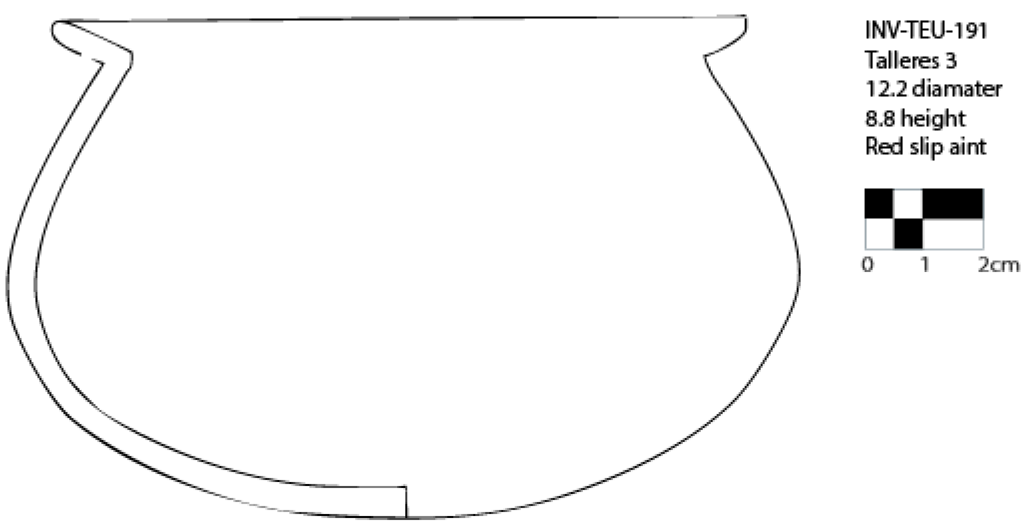


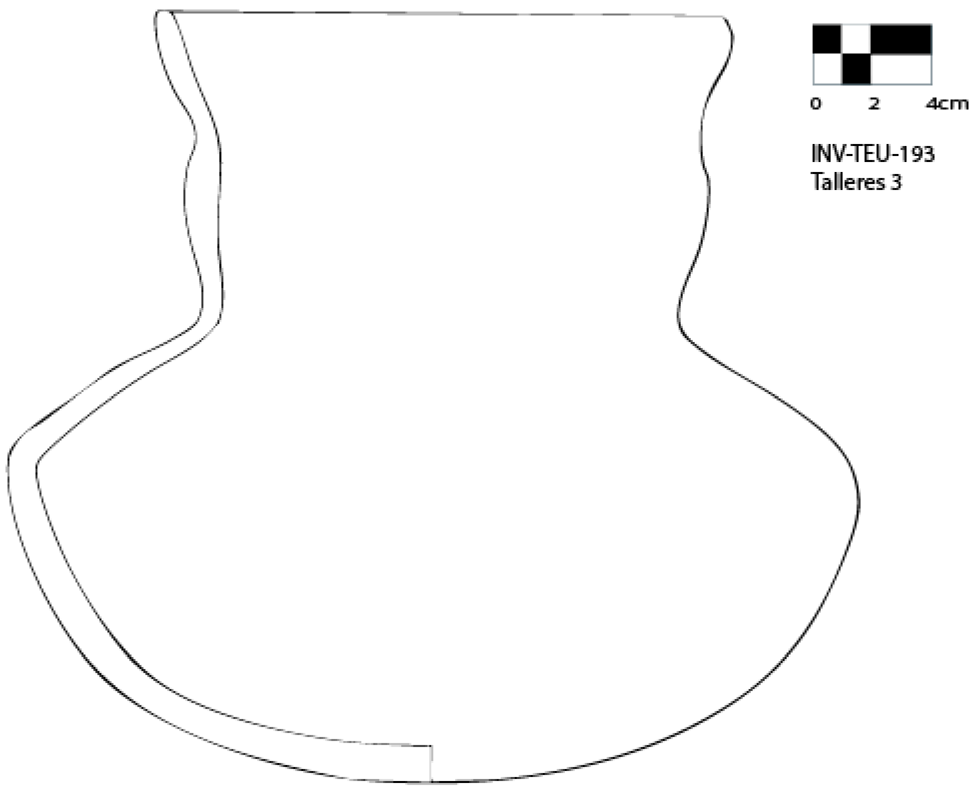
INV-TEU-130
Circulo 6
Tumbo 5

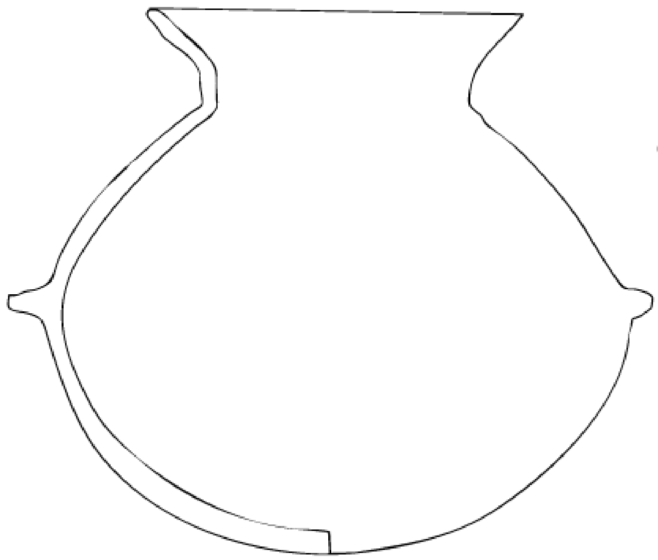
0 1 2cm


INV-TEU-134
Circulo 6
Tumbo 2
0 1 2cm

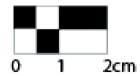

INV-TEU-140
0 1 2cm

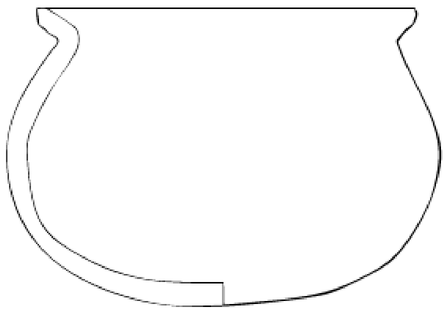

INV-TEU-191
Talleres 3
12.2 diamater
8.8 height
Red slip aint
0 1 2cm


0 2 4cm
INV-TEU-193
Talleres 3

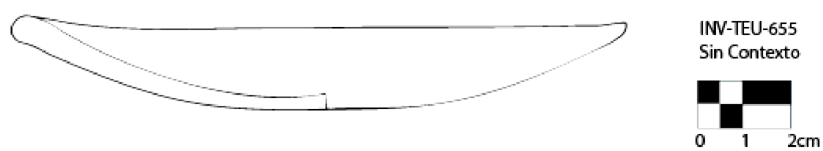


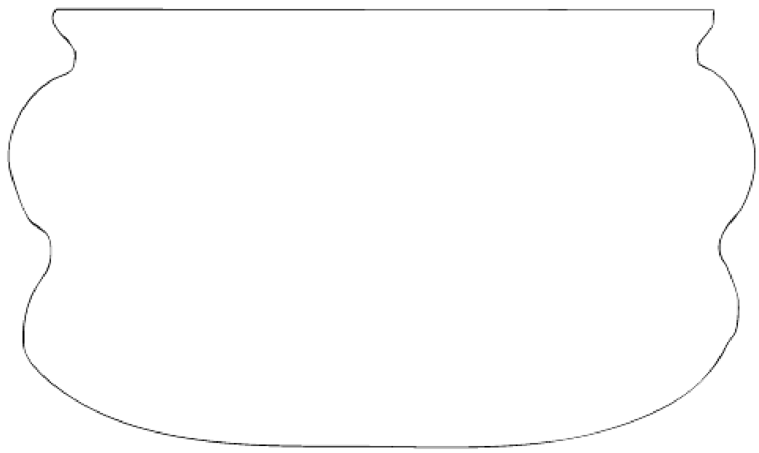
INV-TEU-249
Talleres 3





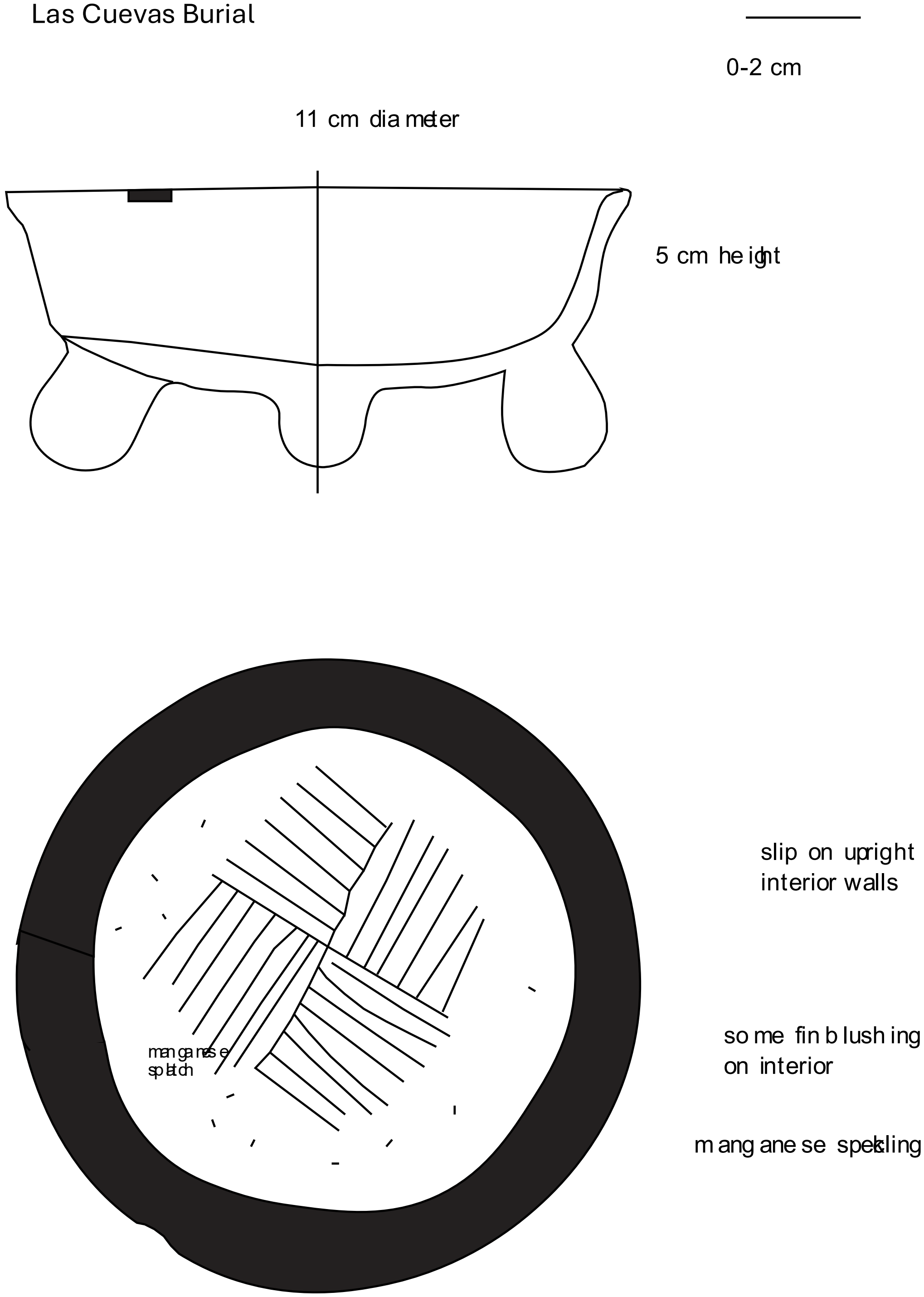
INV-TEU-259
Talleres 3
8.5 cm diameter 6.5 cm height
red on white,
Rim red paintied and on internal rim, faint verticle stripes


INV-TEU-655
Sin Contexto
0 1 2cm



INV-TEU- ?
Large gourd vessel on display
14.5 cm in diameter

El Grillo phase grater bowl from
Las Cuevas Burial

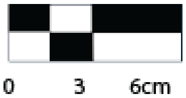


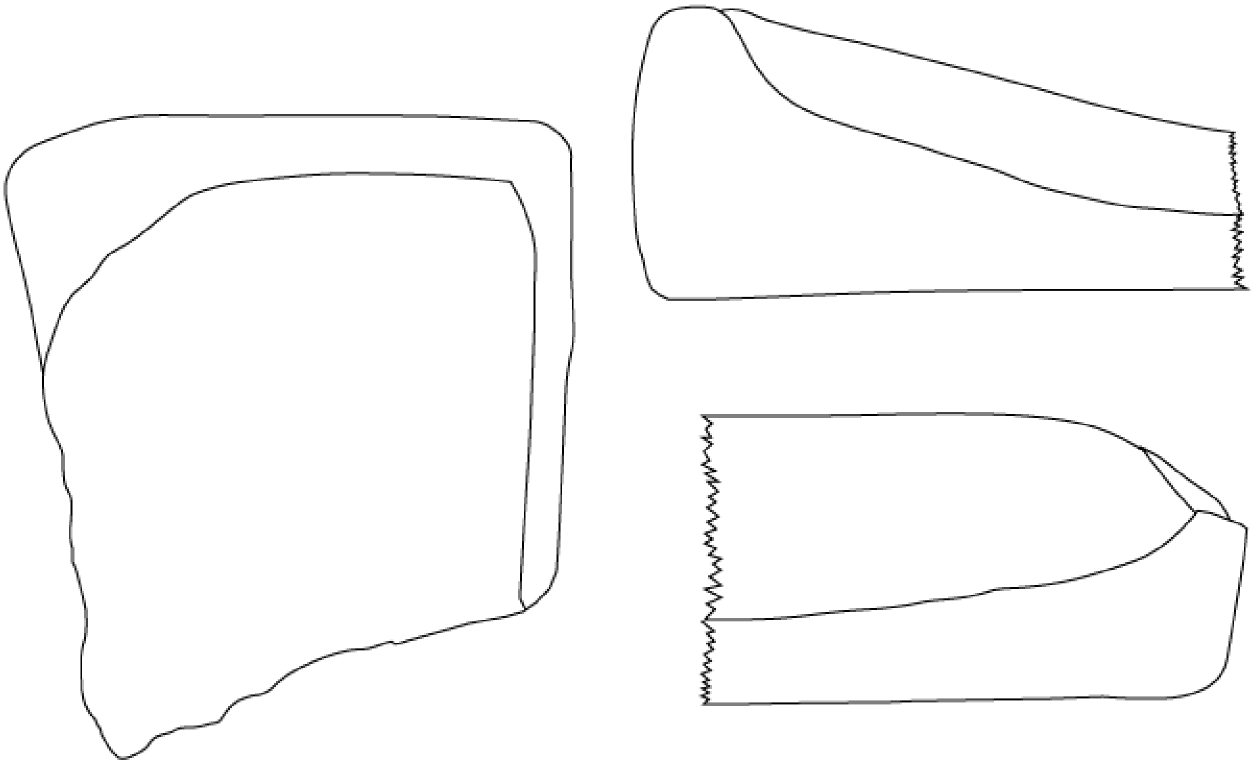
Appendix C: Groundstone Drawings

This appendix presents a series of groundstone drawings produced during morphological analysis. The illustrations provide a consistent record of artifact shapes and surface features, making it easier to compare forms and identify variation across the assemblage. Their inclusion here is intended to give readers a clearer sense of the materials behind the analysis and to serve as a visual reference for those interested in the finer details of groundstone morphology.

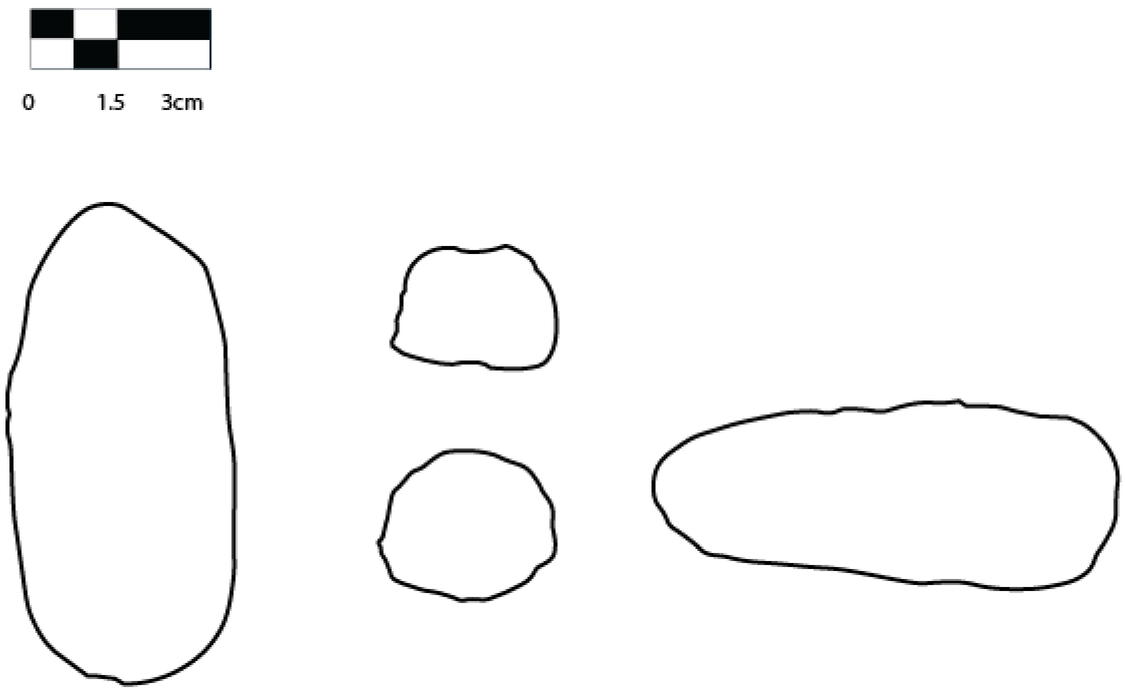
The following image provides a legend for how these drawings should be read:

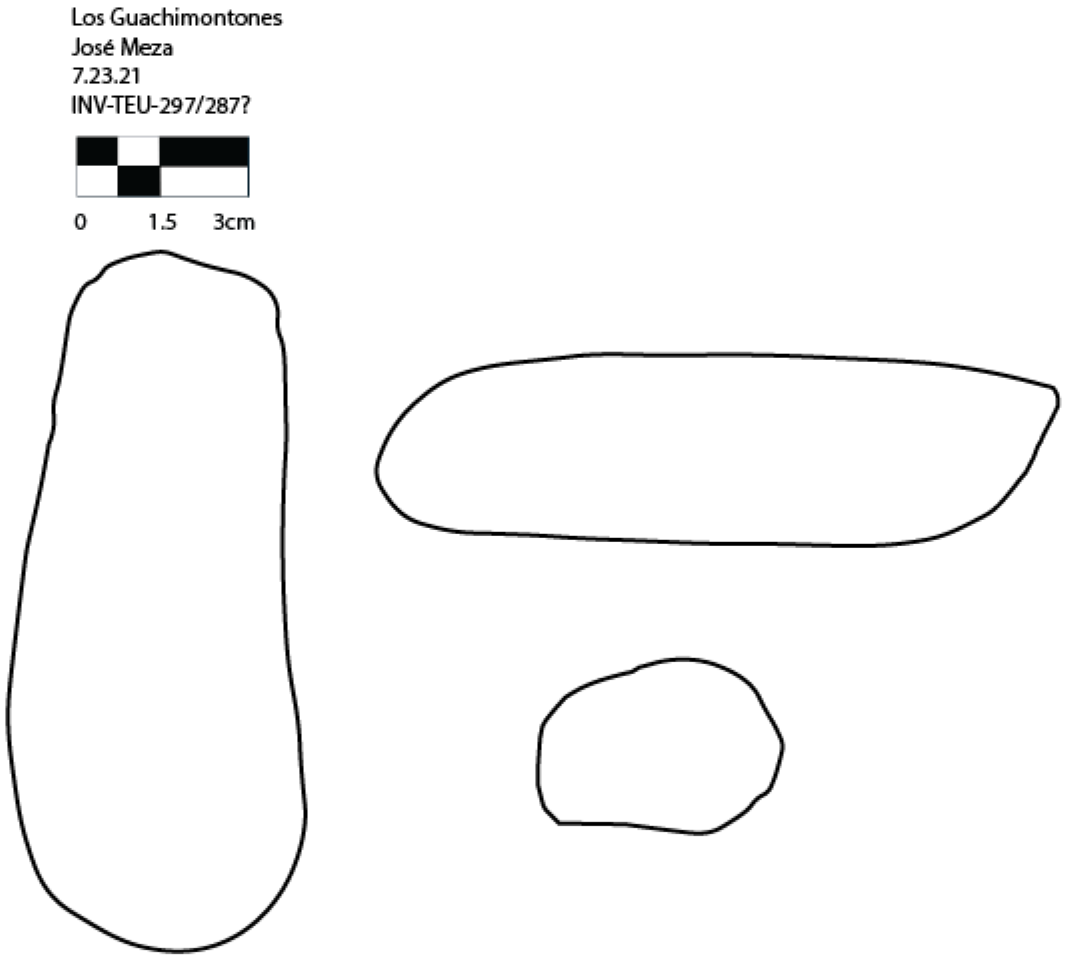
Los Guachimontones
José Meza
7.20.21



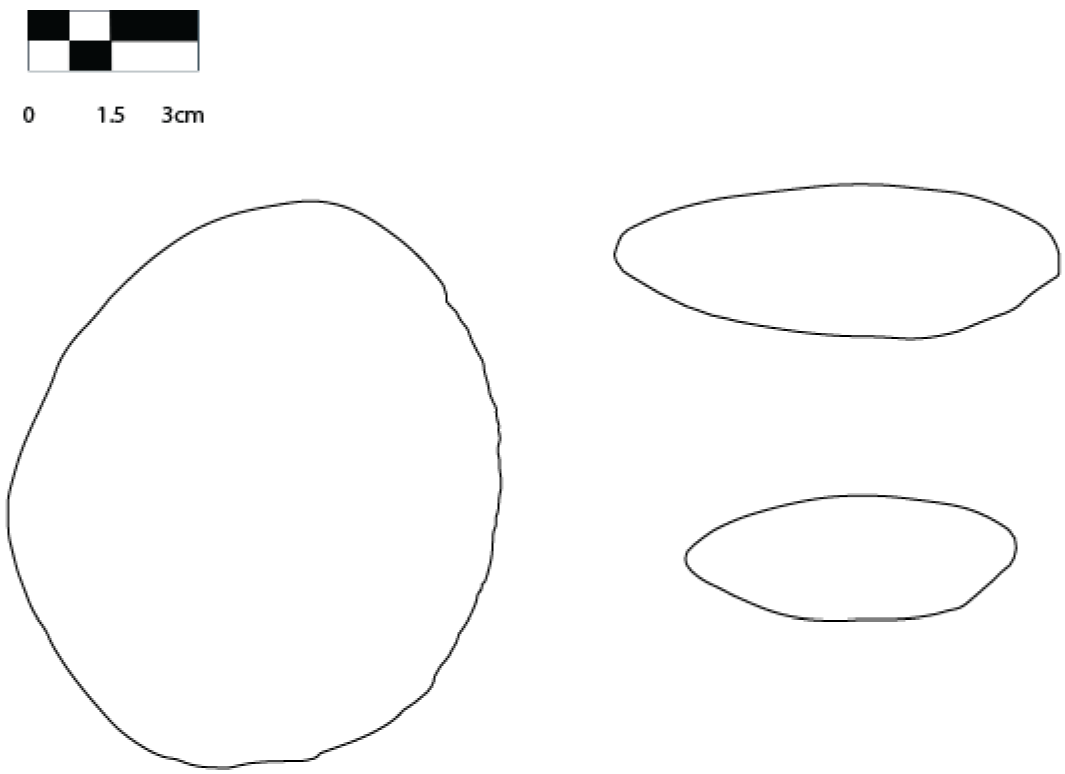


Los Guachimontones
José Meza
7.23.21
INV-TEU-367

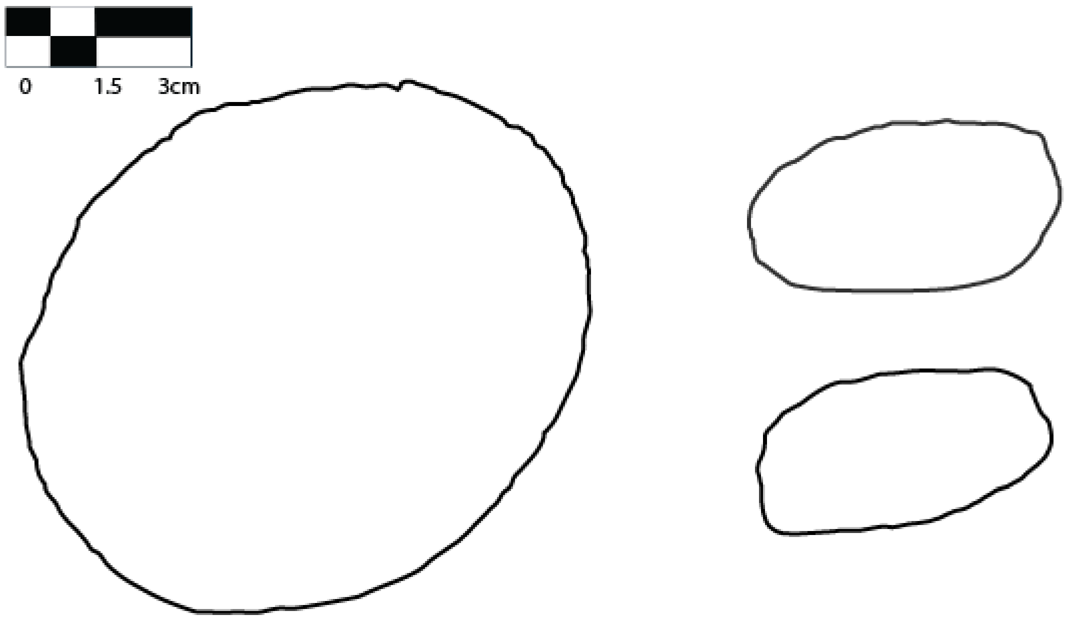



Los Guachimontones
José Meza
7.23.21
INV-TEU-297/287?
0
1.5
3cm

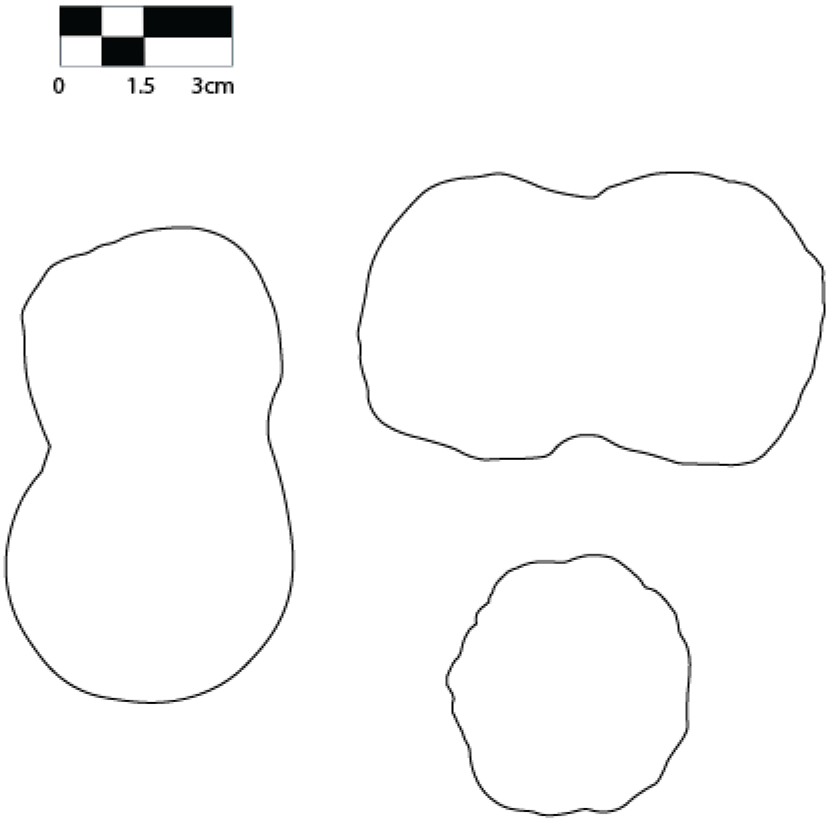
Los Guachimontones
José Meza
7.23.21
INV-TEU-336

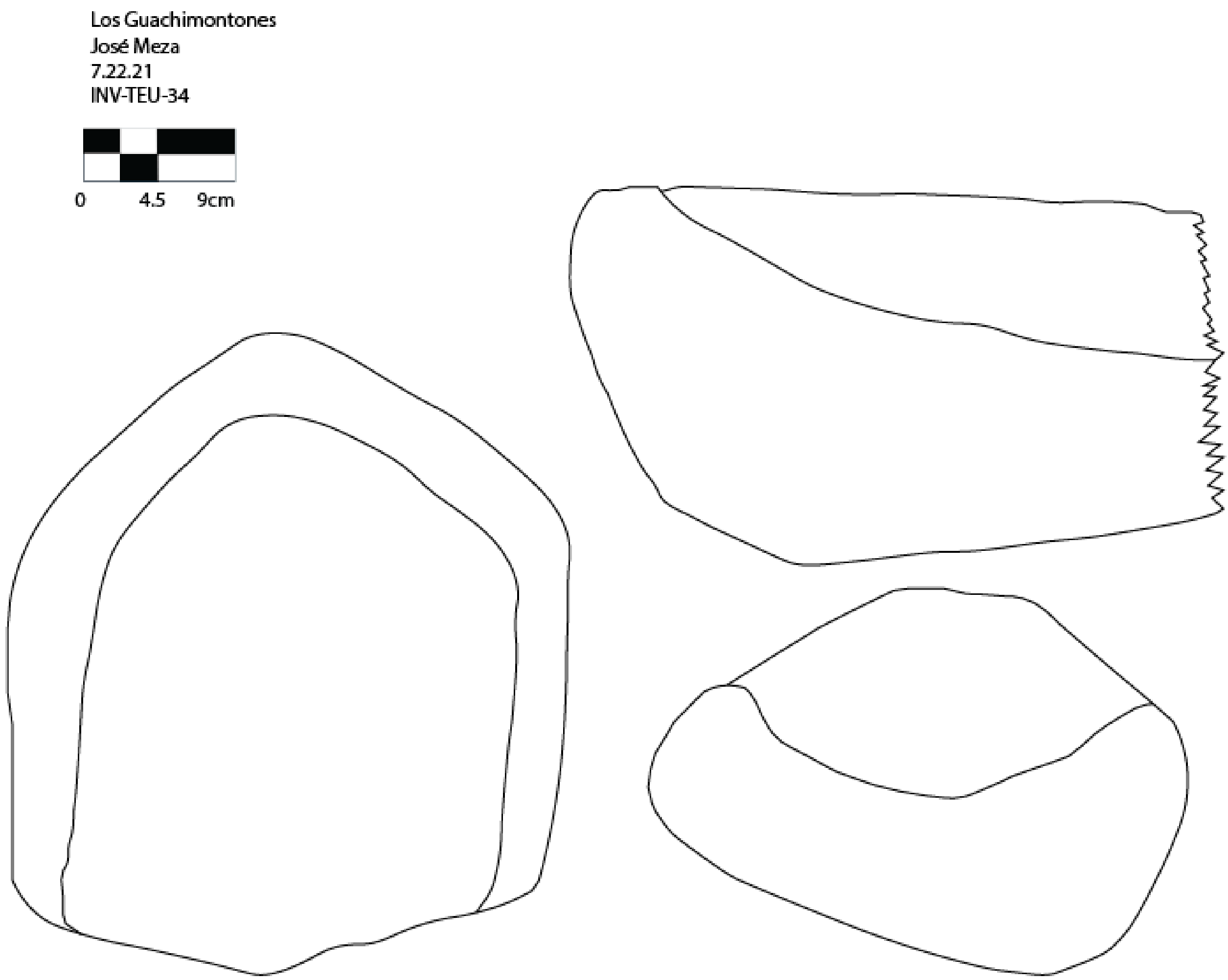


Los Guachimontones
José Meza
7.23.21
INV-TEU-802

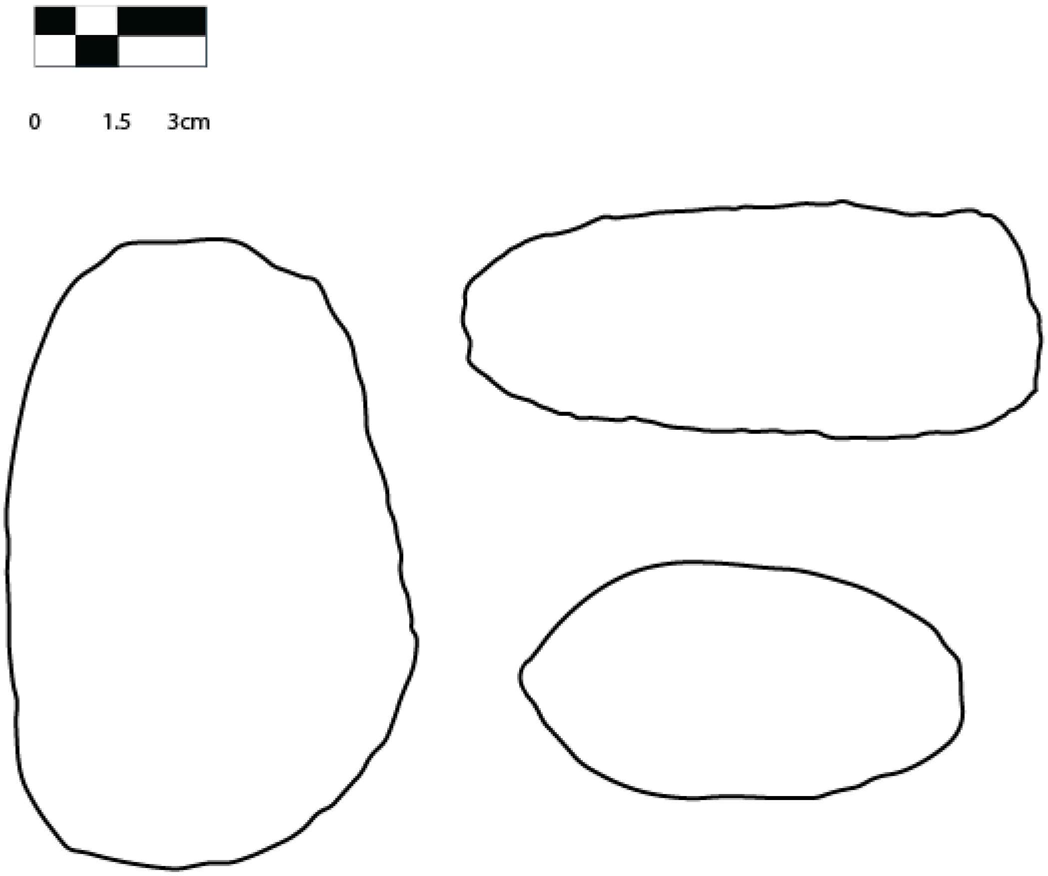


Los Guachimontones
José Meza
7.23.21
INV-TEU-352/TT1481

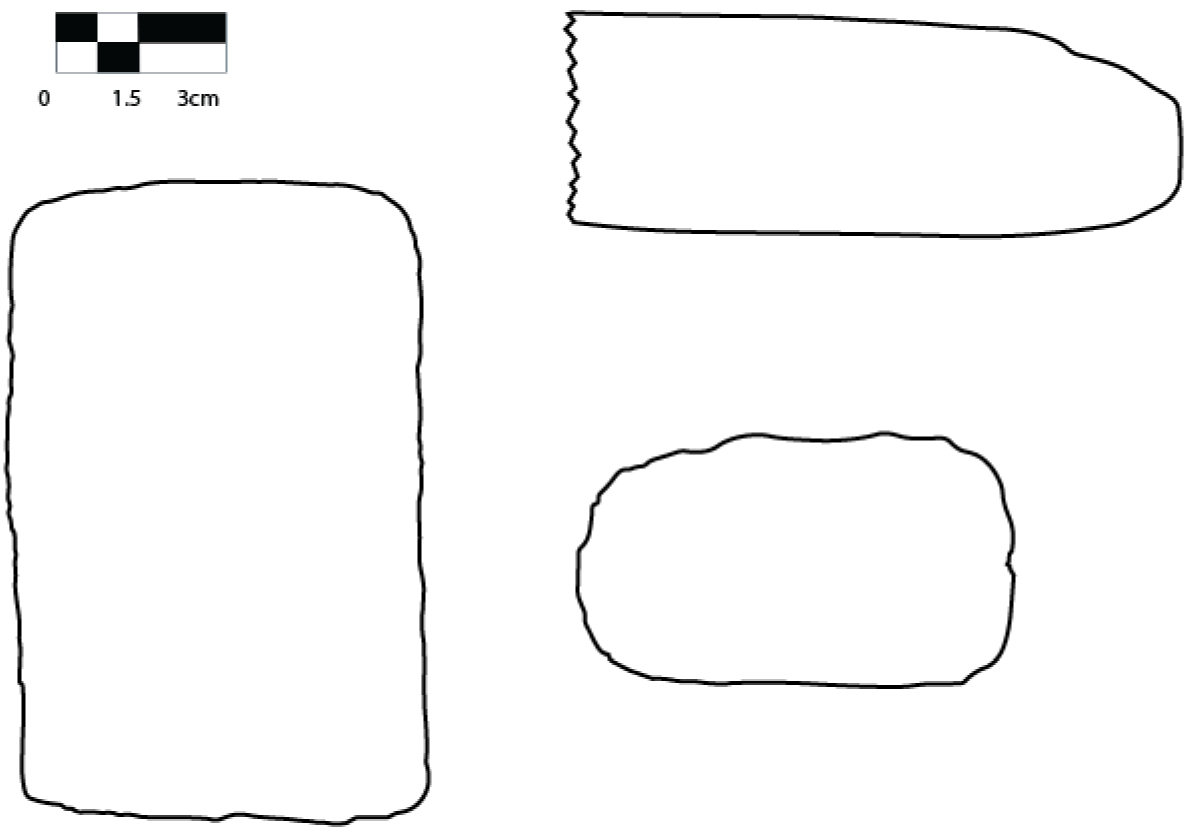



Los Guachimontones
José Meza
7.22.21
INV-TEU-34
0
4.5
9cm

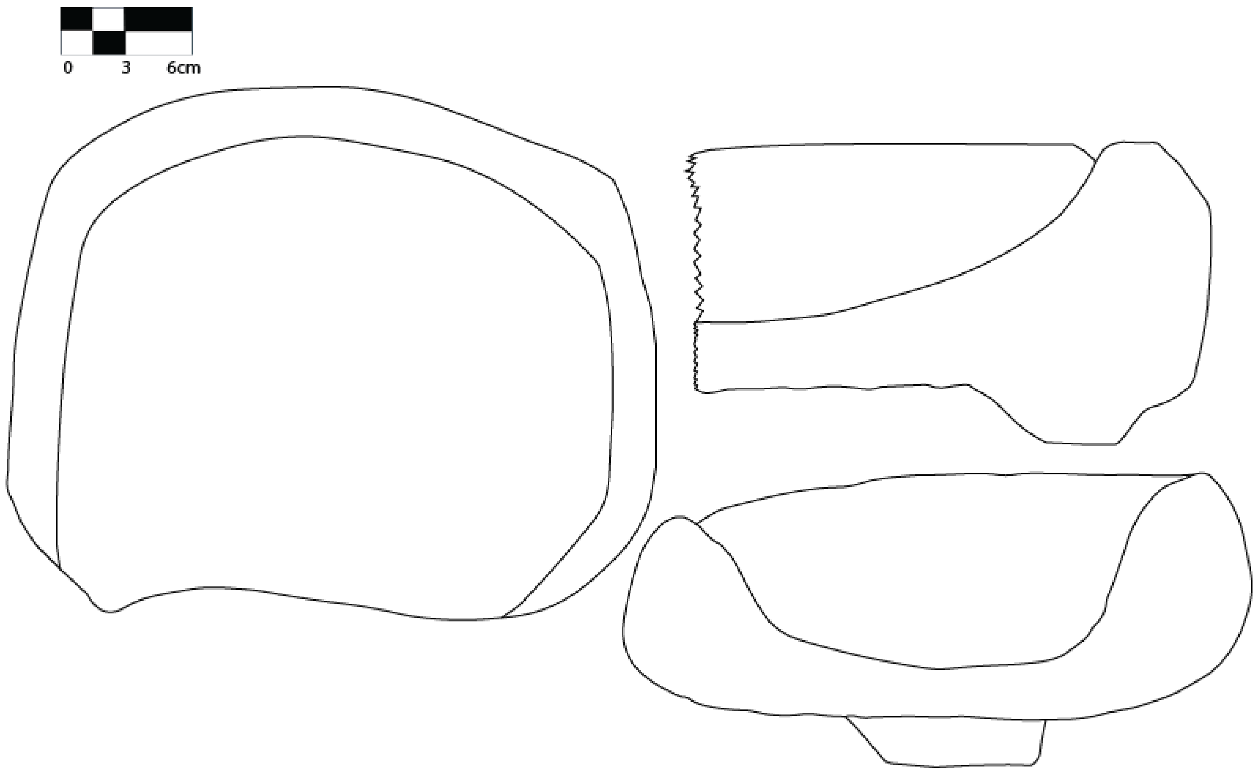
Los Guachimontones
José Meza
7.23.21
INV-TEU-376

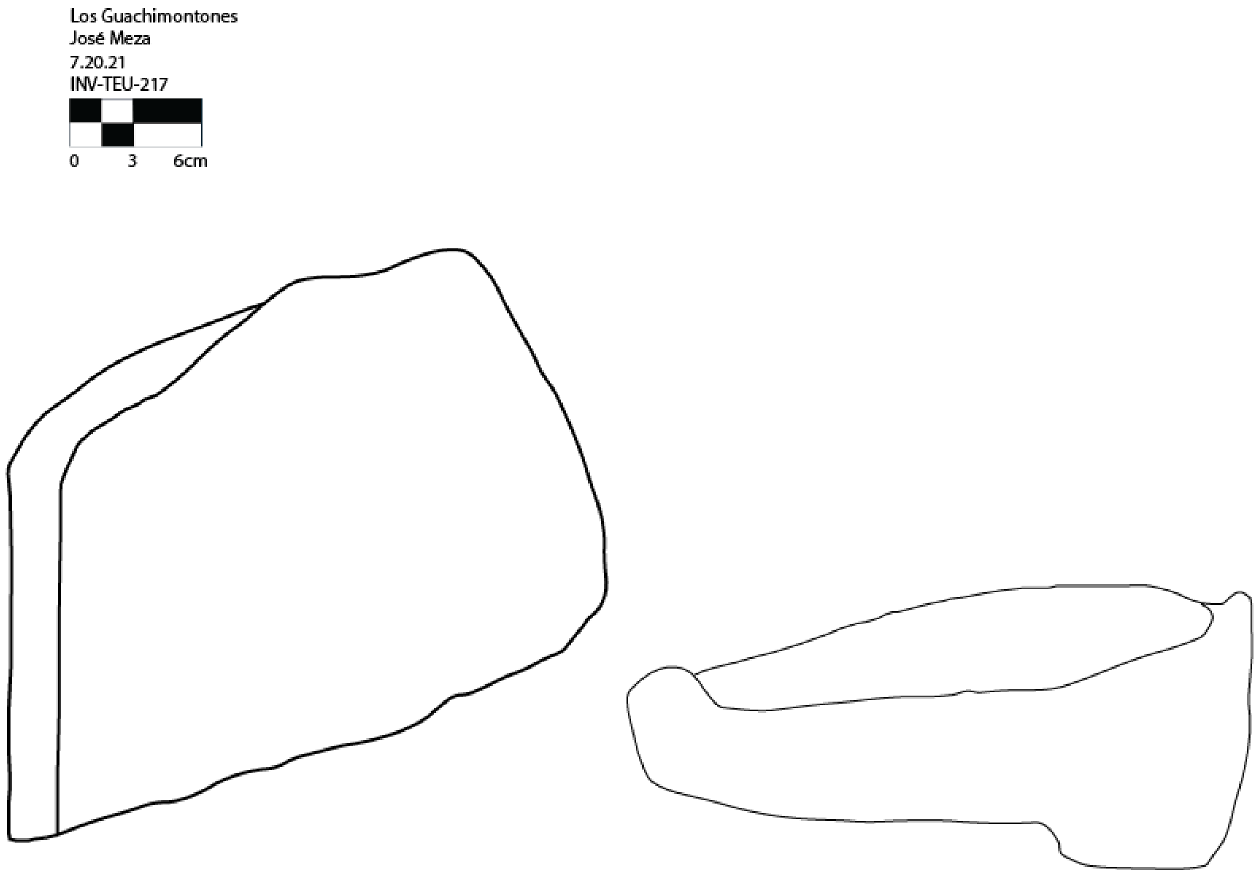


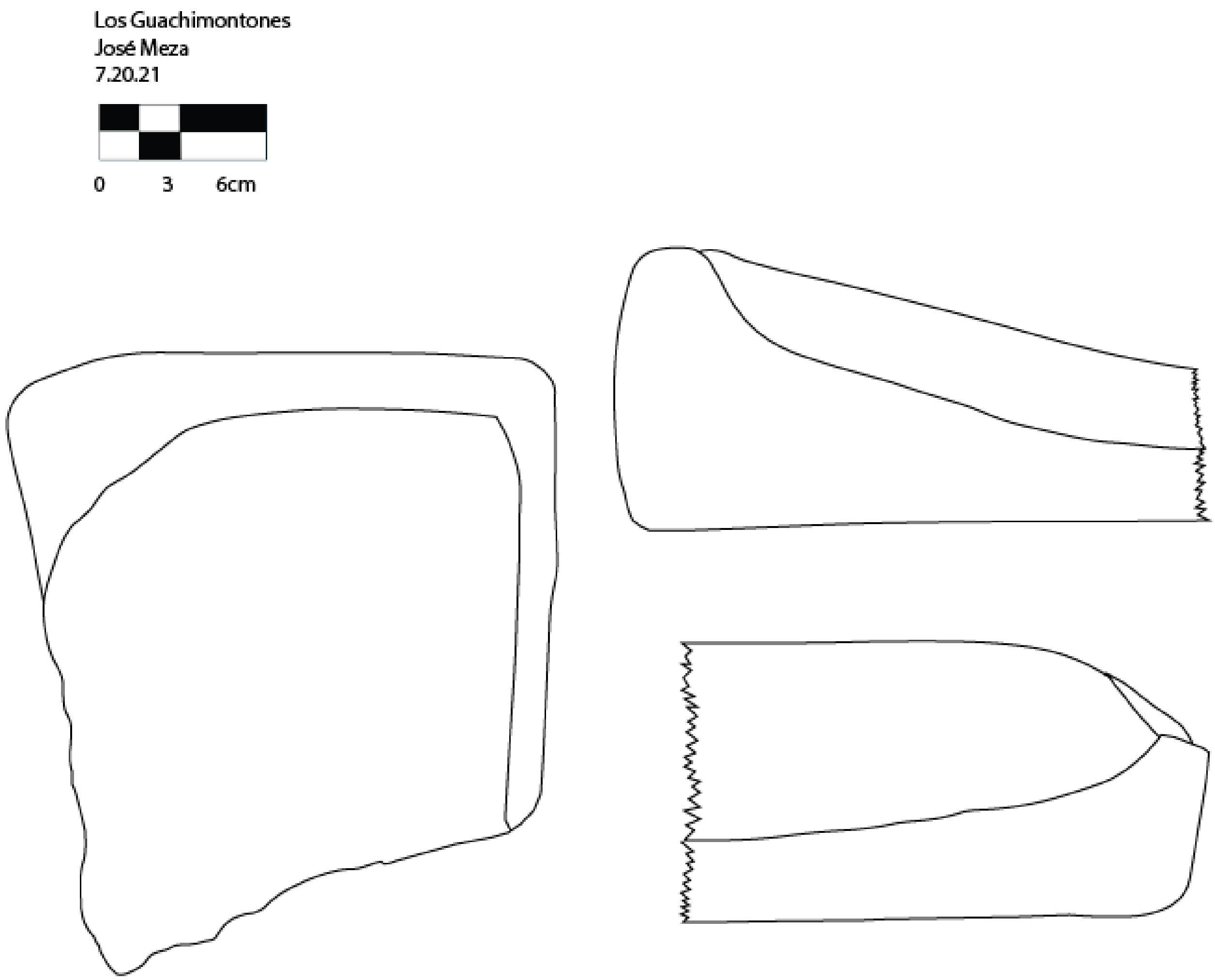
Los Guachimontones
José Meza
7.23.21
INV-TEU-8b1/T-bc-100F?



Los Guachimontones
José Meza
7.21.21
INV-TEU-319




Los Guachimontones
José Meza
7.20.21
INV-TEU-217
0
3
6cm


Los Guachimontones
José Meza
7.20.21
0
3
6cm

Appendix D: Mass Spectrometry Protocol

Mass spectrometry was employed to test for the alkaloids scopolamine, mescaline, and atropine—compounds associated with psychotropic plants such as *Datura* and *Peyote*, which are well attested in the ethnographic record (Furst, etc.). Samples were taken by sonication bath from the same materials used for starch analysis (see Appendix A). However, the methods available in this study may not have been sufficiently sensitive to detect these specific alkaloids, or taphonomic processes might have destroyed them before testing. Thus, the absence of results does not indicate that these compounds were not present; rather, it reflects the limitations of the analytical approach, which cannot provide definitive evidence for or against the presence of these alkaloids.

Sample preparation protocol:

The 15 mL Falcone test tubes containing concentrated residues extracted from the archaeological

objects were treated with a 50/50 Water/Methanol mixture. Reserpine at a concentration of 50 moles was added as an internal standard (IS) to every tube during sample processing. The samples were vortexed thoroughly, sonicated for 15 minutes, and centrifuged at 2000 x g for 5 min. The supernatant was transferred to 1.5 mL microcentrifuges test tubes and dried down in a low-speed vacuum sample concentrator. The samples were reconstituted in 30 µl of Water/Methanol/ Formic Acid (v.v.v 95/5/0.1) mixture, vortexed thoroughly, and centrifuged at 16000 x g for 5 minutes. The supernatant was transferred to HPLC vials, and 20 µl was injected into an HPLC triple quadrupole mass spectrometer system for analysis.

Liquid Chromatography-Tandem Mass Spectrometry LC-MS/MS

Analysis of compound levels was conducted at the UCLA Pasarow Mass Spectrometry Lab under the supervision of Dr. Gazmend Elezi. A targeted LC-MS/MS assay was developed for each compound using the multiple reaction monitoring (MRM) acquisition method on a 6460 triple quadrupole mass spectrometer (Agilent Technologies) coupled to a 1290 Infinity HPLC system (Agilent Technologies) with a Phenomenex analytical column (Kinetex 1.7 µm 150 x 2.1 mm UP). The HPLC method utilized a mixture of solvent A (99.9/1 Water/Formic Acid) and solvent B (99.9/1 Acetonitrile/Formic Acid), and a gradient was used for the elution of the compounds (min/%B: 0/5, 5/5, 25/100, 27/5, 35/5). The transition from precursor to product ions originating from each compound, Mescaline (m/z 212 to 165), Atropine (m/z 290 to 124), and Scopolamine (m/z 304 to 138), was monitored in positive mode at specific liquid chromatographic retention times to ensure characterization specificity and accuracy of the targeted analytes.

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