

THE PLACE OF STONE MONUMENTS

DUMBARTON OAKS PRE-COLUMBIAN SYMPOSIA AND COLLOQUIA



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THE PLACE OF STONE MONUMENTS

Context, Use, and Meaning
in Mesoamerica's Preclassic Transition

JULIA GUERNSEY, JOHN E. CLARK, AND BARBARA ARROYO
Editors

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FOREWORD

In 1967 Dumbarton Oaks held its first conference in the field of Pre-Columbian studies. The topic of the gathering was the Olmec, a culture that flourished in the Gulf Coast region of Mexico in the first millennium BC. A number of spectacular sculptures known as colossal heads had been discovered in the area over the course of the previous century, and this zone of Mesoamerica had become the focus of several innovative and important archaeological projects focusing on regional and interregional developments in the period known as the Preclassic. The 1967 conference was an opportunity to assess the state of the field in Olmec scholarship, which at the time was still a very young field. The papers from the conference were gathered and published in 1968 (Benson 1968).

Forty years and forty conferences later, the annual Pre-Columbian Studies symposium returned again to the subject of the Preclassic. The 2007 symposium, organized with the assistance of Barbara Arroyo, John E. Clark, and Julia Guernsey, focused on the place of stone monuments in the middle and later part of the Preclassic, the period between the precocious appearance of monumental sculpture at San Lorenzo ca 1000 BC and the rise of the Classic polities in the Maya region and Central Mexico. The editors of this volume refer to this period as the “Preclassic Transition,” mindful of the 1,200-year spread included under the rubric. But as the editors point out, chronological phase names are

never perfectly compatible with archaeological data. The long-entrenched tripartite division of Mesoamerican prehistory into Preclassic, Classic, and Postclassic has always carried with it implications of a biological metaphor of development, florescence, and decline, even though there is nothing tentative about the colossal heads of the Preclassic, and the achievements of the Postclassic Aztecs are nothing less than exuberant florescence. Rather, the editors—supported elegantly by the authors in this volume—remind us of the complexities of this pivotal period, for which easy assumptions are often belied by new, finer-grained archaeological data.

Indeed, the traditional divisions of our neat schemata are challenged by these new data. The present volume illuminates the stylistic diversity of Preclassic sculpture, rich in regional variations but often sharing intriguing commonalities. A particular focus of attention in this volume is the context of these works, both within a site and against the backdrop of the broader region. What can the placement of sculpture within a site tell us about the meaning and function of the particular work, or even the site itself? How does later reuse of a sculpture affect our interpretations? What can the patterns of distribution of a sculptural type across a region tell us about social and political organization? How do we interpret a growing preference for relief carving over fully three-dimensional

sculpture by the Late Preclassic? The chapters in this volume present abundant new data and new ways of thinking about Preclassic sculpture and society.

Over the past forty years we have seen a dramatic increase in research concerning the Preclassic, and this volume reflects the wealth of new data that have become available for the study of this period. Not surprisingly, new research has extended the traditional geographical and chronological boundaries of what have been considered Preclassic cultures. The term “Olmec” continues to be used, but the name does not fit comfortably for many of the polities discussed in the present volume. The chapters herein also call into question the traditional dividing line between Preclassic and what are thought of as Classic cultures, such as Maya. The examination of the life histories of sculptures and their contexts in this volume provides us with a fruitful way of rethinking the beginnings of Mesoamerican civilization.

It is often said that the creation of the Pre-Columbian Studies Program at Dumbarton Oaks owes its existence to a chance encounter Robert Woods Bliss had with a Middle Preclassic jadeite sculpture in Paris at the beginning of the twentieth century (Taube 2004:67–73). Entranced by the figure (then identified as Aztec but now known to be Olmec), Bliss began a lifelong engagement with Pre-Columbian art that ultimately led to the creation of the program of scholarly meetings at Dumbarton Oaks. At the time of his purchase of the sculpture, the Olmec had yet to be identified archaeologically—indeed it is a striking, but not uncommon, phenomenon that one of the earliest great cultures was one of the last to be identified. By the time Bliss died in 1962, great strides had been made in understanding the Olmec in particular and Preclassic cultures in general. A richer history of the culture that produced the striking jadeite sculpture was becoming apparent. In the past forty years, the focus at Dumbarton Oaks shifted away from the acquisition of objects to the support of research in the form of fellowships, field grants, conferences, and publications. The Preclassic has been the focus of many Dumbarton Oaks

fellowship projects and publications since 1967, and we are pleased to have supported research on this topic over the years, including the 1993 symposium on social patterns in Preclassic Mesoamerica (Grove and Joyce 1999), and to be continuing the tradition with the present volume.

The chapters in this volume were originally presented at the Casa Santo Domingo in Antigua, Guatemala, on 5–6 October 2007. At that time, Dumbarton Oaks was in the midst of a renovation of the Main House, including the splendid Music Room, where symposia are normally held. The renovation at Dumbarton Oaks presented an opportunity for us to hold our scholarly gatherings elsewhere. In the early planning stages of the topic, Barbara Arroyo, John Clark, and Julia Guernsey suggested Antigua as a venue for the symposium. I am grateful to Edward Keenan, then director of Dumbarton Oaks, and the board of senior fellows, an advisory group including Elizabeth Boone, Warwick Bray, Clark Erickson, Virginia Fields, Louise Iseult Paradis, and David Webster, for their help and advice in the organization of this meeting. We were joined in Antigua by Jan Ziolkowski, who had assumed responsibilities as director of Dumbarton Oaks only a few months earlier. We are grateful for his participation in Antigua and for his support of the resulting publication. The symposium would not have been possible without the outstanding contributions of Emily Gulick, who coordinated the practical matters of this gathering. Her flawless planning ensured a productive and enjoyable meeting for the hundred-some attendees of the symposium. At the gathering itself, Emily was ably assisted by Mónica Antillón, Margarita Cossich Vielman, Adriana Linares Palma, and Lorena Paíz. We are also grateful for the assistance of numerous others who helped in various ways with both the symposium and the publication, including Miriam Doutriaux, Diego Gamboa, Bridget Gazzo, Gerardo Gutiérrez, Enrique Hurtado, Juan Antonio Murro, and Mary E. Pye. We are also grateful for the contributions of two anonymous reviewers, whose thoughtful comments on an initial draft of the manuscript were most helpful in the preparation of the final version of the volume. Two

papers presented at the Antigua symposium, those by Vida Prater and Richard Hansen, were not available for publication in the present volume. The publication was prepared with the kind assistance of Arlene Colman of the New World Archaeological Foundation, with additional help from Emily Gulick and Emily Kline. The production of the volume was overseen by Kathy Sparkes, publications manager at Dumbarton Oaks, and Sara M. Taylor, art and archaeology editor. I offer everyone hearty thanks for their roles in seeing the symposium come to proper fruition as a publication.

Finally, I thank Barbara Arroyo, John Clark, and Julia Guernsey for their inspiration and hard

work. They identified a topic of great potential—a topic ripe with new data and new ideas, but one in need of rigorous examination. The symposium transformed our understanding of the place of sculpture in the Preclassic, in the multiple senses of “place,” as so elegantly argued by the editors in their preface. As is true of any good conference, the gathering may have prompted as many questions as it resolved, but the field is much richer for the efforts of the editors and authors of this volume.

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PREFACE

This book addresses the early development and spread of Mesoamerican civilization and the role(s) of stone monuments in that process. Book chapters grew from papers presented and discussed at the Dumbarton Oaks conference on early Mesoamerican sculpture held in Antigua, Guatemala, in October 2007, titled “The Place of Sculpture in Mesoamerica’s Preclassic Transition: Context, Use, and Meaning.” Conference participants considered the functions, uses, and meanings of stone monuments as they related to the growth and spread of Mesoamerican civilization. As with all Dumbarton Oaks conferences, focused and achievable goals were proposed for discussion, and participation was limited to a handful of invited presenters and an informed audience of listeners who engaged speakers in lively debate over a three-day period. The fruits of this creative dialogue are apparent in the following chapters, all of which were extensively revised and improved following the conference. Even the title for this book was adjusted based on discussions there. We replaced “sculpture” with “stone monuments” because many special, deliberately placed stones in early Mesoamerica were natural boulders rather than carved sculptures, a point explored in the final chapter of this book.

The conference focused on the interval bracketed by the twilight of Mesoamerica’s first civilization, San Lorenzo (1000 BC), and the dawn of its

first empire, Teotihuacan (AD 200). This prolonged, 1,200-year transition witnessed the development of civilization as plurality and diversity. Our goal at the conference was to illuminate this transformative epoch through a systematic study of its stone sculpture. In this temporal framework, it was not possible or feasible to discuss all the important centers of the Middle/Late Preclassic period. This deficiency, in itself, is testimony of the proliferation of cities and stone monuments by Late Preclassic times. For the conference we chose archaeological cases, among those realistically available, that filled gaps in current knowledge. The aim was to build on the strengths of previous research and to redress weaknesses. Thus we privileged case studies and data that are poorly known or inadequately published in English.

We did not consider stone monuments as ends in themselves but rather as aids to understanding how Mesoamerican civilization grew and spread. Presenters at the conference considered stone monuments in their sociohistorical contexts and settings as a means of recovering their ancient uses and meanings. Sculptural programs were evaluated against the backdrop of created centers, sacred landscapes, and “spatial experience” (Smith 2003:5). Participants were encouraged to go beyond common considerations of sacred space and to focus on monuments as dynamic objects deployed in elite claims to power and authority—claims that

also included buildings, plazas, natural features of the landscape, and human constructions that mimicked natural features, such as pyramids qua mountains. We believed that examination of specific sites in terms of their sculptural programs, built environments, and associated artifacts would provide a better understanding of the changing nature of authority and of social and political organization during the Preclassic period. It would also highlight public representations as dynamic forces in the construction and manipulation of such authority.

The approaches to the analysis of stone monuments presented in the following chapters blend the best aspects of political economy, semiotics, and phenomenology. We are just as interested in how and why monuments were made as in what they meant at different times and places to different observers. The time and labor required to quarry, haul, and carve a monument were as important to its meaning as the images carved on it. Likewise, it made a significant difference where the monument was placed, what was beside it, who got to see it, and on what occasions. These are all issues of individual monument biography and context.

Most studies of stone monuments are necessarily limited to the final use and/or abuse of the monuments, and this is true for the contributions in this book. There are inherent limitations on possible analyses of function and meaning that derive from different histories of monument discovery and the conditions of their preservation. Conference participants focused on context at the most specific level that the monuments available for study allowed. For some sites, data are available on the final placement and uses of monuments in plazas and next to buildings and offerings. For others, detailed archaeological data are lacking, so context is approached in terms of broader chronological or stylistic patterns. At some sites, the monument program consisted of putting up a single sculpture. By itself, one data point may appear unimpressive

or uninformative, but viewed in regional and inter-regional contexts these singular instances constitute significant distributional data. As discussed in the first chapter, part of understanding the uses and meanings of Preclassic monuments is to identify when and where they did *not* occur.

Conference participants examined the sculptural programs of many Preclassic sites representative of different cultural groups to help interpret the rise of civilization instead of viewing sculpture solely as a product of civilization. This focus represents a shift in perspective from traditional studies, which consider Mesoamerican sculptures as the result of increasing social and political complexity, to the more dynamic view that these sculptures were a means through which these social and political forces were articulated and defined. Stone monuments in Preclassic Mesoamerica were more than the manifestation of artistic achievement. Their creation and deployment were integral to the initial rise and spread of civilization.

Although all participants subscribed to the same goals, differences in the nature of available data sets fostered fundamental differences in the approaches taken for reconstructing the functions and meanings of Preclassic stone monuments for individual sites and regions. Of the original thirteen presentations at the conference, eleven are published here. Two scholars invited to the conference could not come, and two participants could not accommodate Dumbarton Oaks's publication deadlines. Hence, the desired detailed treatments for Chalcatzingo, Tiltepec, Kaminaljuyu, and the Mirador Basin are not part of this volume. Chapters are organized by region, starting in Central Mexico and moving south to Guatemala. The introductory chapter attends to Preclassic sites and monuments not covered in other chapters.

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Revisiting Kaminaljuyu Monument 65 in Three-Dimensional High Definition

TRAVIS F. DOERING AND LORI D. COLLINS

THREE-DIMENSIONAL LASER SCANNING IS A state-of-the-art spatial data acquisition technology that significantly improves, enhances, and increases the extraction of detail and information carved on Preclassic sculptures. The extremely high resolution, accuracy, and density of the data acquired by three-dimensional scanning can be used for a number of purposes. Minimally, this technique provides the finest archival documentation possible through the implementation of “best-available technologies” for museum or collection registration, heritage preservation planning and management, and educational applications (United Nations 2005). Perhaps the most exciting capability of three-dimensional scanning, however, is its ability to capture data that can be used to rescue or resurrect details of damaged monuments that have not been previously recognized. Our purpose in this chapter is to demonstrate the utility of three-dimensional laser scanning for capturing such detail. In particular, we showcase Monument 65 from Kaminaljuyu in highland

Guatemala to demonstrate the power and potential of this technique.

Kaminaljuyu is considered one of the most significant and politically influential Preclassic settlements in southern Mesoamerica (Coe 1999; Evans 2003; Kaplan 1995; Michels 1979; Parsons 1988). Stone sculpture created during the Miraflores phase of the site’s occupation (400 BC–AD 200) is regarded as a “forerunner of the Classic Maya” (Coe 1999:71). In the site’s sculptural corpus Monument 65 is deemed “a most important stone, the largest sculpture at Kaminaljuyu” (Parsons 1986:57–58). Furthermore, the two discrete low-relief images carved on opposite faces of this monument are interpreted as early depictions of Mesoamerican “rulership ideology” (Kaplan 2000:185). We believe the scenes on the two faces differ substantially in content, style, and presentation, but both were precursors of Classic Maya symbolic representations of rulership and political acquiescence.

The iconographic significance of the carving on Monument 65 is noteworthy and merits close

scrutiny. The information presented in this chapter was generated by an innovative application of ultrahigh-definition three-dimensional laser scanning that was used to record and analyze the stone and its carvings. The scan data produced substantial new imagery and clarified earlier representations. Examination of these new images suggests alternative possibilities for, and interpretations of, its carved scenes. The data resulting from the laser scans also permit a partial reconstruction of the monument's history of use and reuse. Before detailing new observations, we provide some technical background on three-dimensional laser scanning and its use on Preclassic sculptures. Subsequent discussion focuses on Monument 65 and its context, use, and meaning.

Three-Dimensional Laser Scanning

As the name implies, three-dimensional laser scanning allows researchers to visualize sculpted objects as three-dimensional images. Such images also raise new questions and open fresh avenues of inquiry. We selected Kaminaljuyu Monument 65 to test this new technology, because this sculpture embodies many of the diverse factors and problematic conditions that are regularly encountered with early monuments. Monument 65 presents two carved faces, abraded and eroded surfaces, illegible details, and evidence of reuse and recycling, all obstacles to archaeological interpretation that laser scanning data can help overcome.

Laser scanning is a noncontact, noninvasive, and nondestructive technique for accurately and, in most cases, more completely recording sculpted artifacts than can be done using conventional methods of documentation.¹ Typically, high-definition scanning is considered to be the systematic and automated collection of three-dimensional data of a particular surface or object at a relatively high rate and in near real time (Boehler et al. 2001, 2004; Frei et al. 2004). Because of the extreme accuracy and exceptional density of the three-dimensional data acquired, objects can be analyzed, visualized, measured, and evaluated

more effectively and precisely than if the researcher were in the field or had the physical object in her presence. Once an object has been scanned in the field, detailed and comprehensive examinations of the stone and its sculpture can be conducted for the captured data in a virtual environment. The objects can be virtually rotated 360° and viewed in true three dimensions. The virtual light sources of the laser images can be manipulated to observe and accentuate the object from any angle, submillimeter measurements can be made of any portion of the piece on the computer screen, and numerous visualization techniques can be used to enhance and clarify details.

Over the past six years, we have developed three-dimensional data acquisition and post-processing techniques that significantly improve and facilitate the ability to visualize and analyze Mesoamerican sculptures (Collins and Doering 2006; Doering and Collins 2007, 2008; Doering et al. 2006). The continued development of these techniques is an ongoing effort that will provide archaeologists, epigraphers, iconographers, and other researchers increased capacity to recognize and interpret information that ancient peoples left on their stone monuments. These techniques well complement conventional methods (e.g., photography and drawings) for the study of stone sculpture. Additionally, the life history of a stone can be traced through the identification of tool and other marks on it that can assist in determining the manufacturing process, detect transport methods, and distinguish reuse and recycling of the stone.

Three-dimensional laser scanning is also critical for the documentation of monuments. As Price (1996:30) stated, "If we cannot preserve stone forever, it is imperative that we make the best possible record of it. Indeed, one could argue that recording should have a higher priority than preserving the stone itself." Photographic techniques have, until now, been the most common methods used to record stone sculptures and, while exceptional results have been achieved, there are considerable limitations on its use as a stand-alone method. Stereophotography offers only an illusion of depth and is limited to a single viewpoint,

and similar drawbacks are present in photogrammetry (Price 1996). Raking-light photography is a method in which the light source is placed at an acute angle to the stone to cast shadows across the surface in an effort to enhance faint details and reveal contours carved in a stone (see Kaplan 2000:187, 188, 190). This technique is helpful in many cases but is laborious and presents fundamental problems of spatial control and the introduction of parallax, the visual displacement of an object caused by the position or angle from which the image was acquired. This type of spatial distortion causes a progressively increasing dimensional error when used for analysis or the production of drawings from photographs. Furthermore, the intentionally created shadows can hide significant details and exaggerate others, a point addressed by Graham (1989:242–243), who noted that such inconsistencies can result in misconceptions or hinder interpretation. Another consideration is that these types of produced images, although visually striking, do not provide a measurable or quantifiable record.

Inherent in traditional techniques of recording are also problems and limitations imposed by the subjective nature of the procedures. Decisions as to what is important, what is recorded, and what is not exposed are some of the biases that are introduced into conventional documentation methods. Outstanding or obvious elements may be recorded at the expense of others deemed unimportant by an individual recorder that in reality may be vital to the interpretation of the artifact. The singular or limited viewpoint can prevent the visualization of details and thus skew the interpretation of elements critical to understanding the object and its meaning. Drawings made from photographs or rubbings introduce a second level of subjectivity. Well aware of these interpretive dangers, Graham (1989:243) stated that “our apprehension of [Preclassic] art has also suffered greatly” through “distortions in repeatedly republished drawings” that result in erroneous observations. Most Preclassic sculpture has not been sufficiently documented to permit critical comparative morphologic, iconographic, or epigraphic analyses.

Although three-dimensional scanning can substantially lessen many of the difficulties and limitations of photography and other more subjective methods of documentation, it has its own limitations. Nevertheless, in the majority of cases, three-dimensional scanning is considerably more rapid and acquires more robust and accurate data than any other method of documentation presently available. Because the scan data can include the entire piece and supply a precise, quantifiable digitization of the actual surface of the object (accurate to 50 microns or 0.002 inch), the initial level of recorder subjectivity is basically eliminated.

Our analysis of Monument 65 began with close-range three-dimensional laser scanning that was combined with software visualization, which transformed the data into line drawings and generated images of the surfaces of the sculpture. It should be noted that the images provided in this chapter are two-dimensional representations of three-dimensional images and do not illustrate the full capabilities and the exceptional clarity and detail in the actual data sets. These features can best be appreciated by viewing the three-dimensional data.²

Preclassic Kaminaljuyu and Its Sculpted Stone Corpus

The ancient settlement of Kaminaljuyu is located in the northwest part of modern Guatemala City (see Figure 10.1), but most of this exceptionally large site has been lost to modern urban sprawl (Coe 1999:70–71; Michels 1979). The site was first occupied in the Early Preclassic period or Arévalo phase (1100–900 BC) when, according to Arroyo (2003:1), “an intensive interaction of Early Formative societies” was occurring along the Pacific Coast of Guatemala. By the early Middle Preclassic period (Las Charcas phase, 900–700 BC), evidence suggests that Kaminaljuyu was densely populated and that complex socio-political, economic, and religious institutions had been established (Shook 1951:98). The florescence

of Kaminaljuyu took place in the Late Preclassic Miraflores period, spanning the Verbena (400–200 BC) and the Arenal phases (200 BC–AD 200), and varying levels of occupation extended into the Late Classic period (Cole 2006).

During the Late Preclassic, Kaminaljuyu was one of the largest settlements in the Guatemalan Highlands and the location of one of the region's most powerful chiefdoms or states (see Chapter 7; Demarest 2004; Michels 1979; Popenoe de Hatch 2001:387). Its advantageous position on a natural pass connecting the Pacific Coast and the interior of Guatemala allowed its occupants to act as conduits of communication and exchange in an interaction sphere that extended through the Motagua Valley and into El Salvador, throughout Chiapas and the Maya Lowlands, and as far northwest as Teotihuacan and the Gulf Coast region. In addition to this geographic advantage, Kaminaljuyu controlled two major obsidian sources, El Chayal and San Martín Jilotepeque, and an expansive acquisition and redistribution system that included jade, salt, cacao, fruits, and ceramics.

Kaminaljuyu has been described as cosmopolitan or international in character, with multiple ethnic affiliations that suggest it may have served as a port-of-trade or gateway community (Brown 1977; Popenoe de Hatch 1993). Some scholars have also suggested that it was a key point of interaction between Mixe-Zoquean and Mayan peoples (Mora-Marín 2001). A major factor contributing to these interpretations of the site is the eclectic nature of the monumental sculptures erected in plazas and in front of platforms and temples around the sprawling city (Parsons 1986; Popenoe de Hatch 1997).

Much of the increasingly complex iconography manifest in stone sculptures at Kaminaljuyu and elsewhere in Mesoamerica at this time dealt with depictions of rulership and ideology (see Chapter 1; Figures 1.9 and 10.14). A comparative study of the iconographic content on monumental stone sculpture at coeval sites, such as El Portón, Takalik Abaj, El Baúl, Chocholá, and Izapa, suggests that similar themes were being depicted, often with analogous imagery and symbols (see

Chapters 8–10; Arroyo 2007; Guernsey 2006b; Sharer and Sedat 1987). In particular, we believe that the imagery on Kaminaljuyu Monument 65, recovered in great part through the three-dimensional scanning process, sheds insight on the themes of hereditary inequality, the divine right to rule, and political domination (see Clark and Blake 1994; Earle 1997; Guernsey 2006b; Hayden 1995). Before we begin a more focused discussion of the monument's interpretive potential, however, we discuss the process involved in the scanning of this important monument.

Scanning Kaminaljuyu Monument 65

The laser scanning of Monument 65 was conducted as part of the Kaminaljuyu Sculpture Project,³ an endeavor that involved the high-definition three-dimensional recording of the available corpus of 119 stone carvings and selected decorated ceramics from the site of Kaminaljuyu (Doering and Collins 2008). We have also documented numerous Preclassic stone monuments from Takalik Abaj in Retalhuleu, Guatemala, and La Venta in Tabasco, Mexico (Doering et al. 2006; Pohl 2008). These opportunities have helped us better appreciate the context, media, artistry, and effort involved in the production of monumental sculptures and to recognize both the stylistic variation and the representational correspondences present among the widespread contemporaneous monuments.

The content and condition of Monument 65 and its carvings presented numerous challenges. This sculpture contains palimpsest-like carvings; some are readily observable, whereas others are practically imperceptible, and the laser scanning permitted us to distinguish previously indiscernible features as well as analyze multiple modification events in the stone's history.

In the first line-drawing attempt from scan data, Geomagic v. 9 software was used to view the three-dimensional model, from which we created a hand tracing and line drawing of Monument 65. This procedure was conducted in

an effort to see whether conventional line drawings could be made by working directly from the scan data. The benefit of drawing directly from three-dimensional images is that spatial control is maintained even though lighting and orientation can be varied. Two other hand drawings were made using the same three-dimensional model by separate artists who had never seen a representation of Monument 65 and were unfamiliar with Mesoamerican sculptural styles. This procedure was done to evaluate the visual content and clarity of the scan data from an unbiased perspective. The similarities of the three independent drawings were exceptional. This correspondence supports the strength and validity of the scan data for interpretive purposes. It is important to stress that each of these illustrations contained significantly more detail across Side B of Monument 65 than has previously been published. This method of drawing, however, still included a degree of artist subjectivity when moving from the digital environment to a line drawing. In an attempt to further reduce this subjectivity, a method of surface detail depiction that was fully maintained in the computerized digital platform was instituted using new advances in graphic input hardware and software. Using an Intous3 professional pen tablet, static screen images of three-dimensional data from various lighting perspectives were used as base layers to create digital line drawings of Monument 65 using Corel Painter software. The finalized drawing, with the base layer removed, exhibited a high degree of conformity with the hand-drawn line art, but this method of depiction was completed much more rapidly, possibly because of the maintenance of the digital environment. Interpretive error was also minimized by drawing directly over first-generation data. This method, conducted in the digital realm, is not unlike previous methods using Mylar and pen to trace over sculpted stone or photographs (see Norman 1973, 1976).

Using Adobe Photoshop Element 5.0 software, static screen images of the original three-dimensional data sets were brought in and computer enhanced to examine areas of the carving.

Although in some cases it can be difficult to differentiate between naturally occurring and human-produced elements, it is possible to obtain an image that depicts the carving in a more contrastive way by using the filter threshold tool. Similar photographic filtering and enhancements have proven useful for pigment analysis and carved-stone documentation in petroglyph studies (see Brady 2006).⁴

Another approach using the three-dimensional scan data to determine surface elevational differences is possible using the Geomagic software, which essentially allows a topographic contouring of the area. When applied to Monument 65, this method highlights elevational differences in the carved surface. Our images derived from laser scanning relate well to those drawn from photographs, the major difference being the greater number of verified details from the laser images. These additional details are significant and call for a reevaluation of previous interpretations of this monument, a task we begin here.

In his study of Monument 65, Kaplan (2000:185) described Monument 65 as a “single oversized pale volcanic stone” that was modified “from the original boulder slab.” He gives the height of the sculpture in its existing state as 290 cm but estimates the overall height may originally have been 330 cm; he adds that Side A shows evidence of deterioration (Kaplan 2000:190). He used raking-light photography, line drawings, and close visual inspection to examine and decipher the carvings on both sides of this relatively flat monolith.

We continue the use of his arbitrary assignment of Side A (recto) and Side B (verso) to identify and differentiate between the opposite carved faces (Figure 11.1; Kaplan 2000:186). We also use Kaplan’s report as a point of departure in our examination of the monument but stop short of a final interpretation of the carved images, for reasons detailed below. The evidence, even with the addition of the new data, remains ambiguous and supports divergent interpretations. However, we believe a reassessment of the previously recognized iconographic elements in light of the new details from the laser scans is warranted.

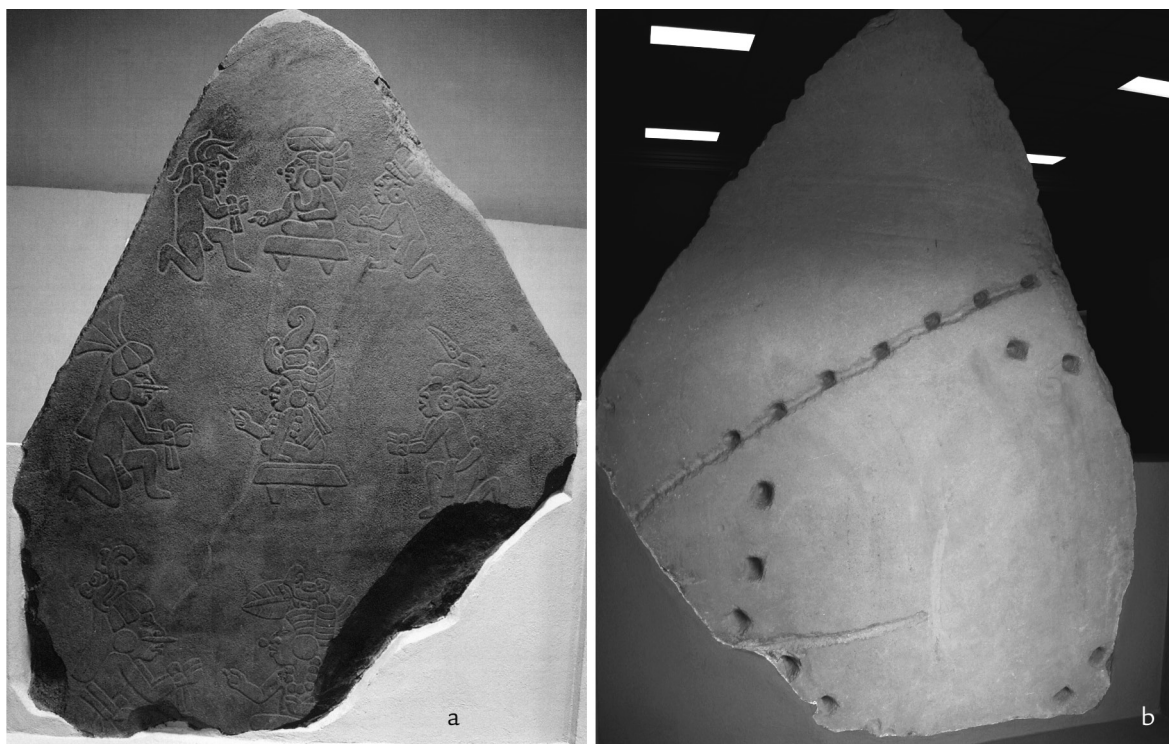


figure 11.1

Kaminaljuyu Monument 65. (a) Side A (recto); (b) Side B (verso). (Photographs by the authors.)

Side A

Monument 65, Side A, contains a series of relatively well-defined figures and objects whose positions and actions have been commented on previously (Brady 2003; Houston and Taube 2000; Kaplan 2000:185; Parsons 1986). The scene shows three vertical series of figures arranged in three horizontal registers (Figure 11.2). Each register or series of figures increases in size, from top to bottom. The upper two series include a central personage seated on a throne (personages 1b and 2b in Figure 11.2; see Grove 1973; Kaplan 1995). The monument is made from a stone that is broken at the bottom and sides, but based on the symmetry of the scene, it is likely that the original lower series would have included a throne and a third figure to the viewer's right. This hypothetical depiction is illustrated in Figure 11.2 by dashed lines. The details of our drawing of Side A are derived from the three-dimensional scan data as base referent combined with photographic data. The illustration

represents a collaborative effort between us and John Clark and Kisslan Chan.

A common presumption is that this scene depicts rulers seated on thrones with captives arrayed to either side (Fahsen 2002; Kaplan 2000:186–191; Parsons 1986:57–58). We do not rule out this interpretation, but an alternative explanation suggested to us by Julia Guernsey (personal communication 2008) is that the flanking individuals are not necessarily either prisoners or hostages. The primary basis for the “captive” interpretation came from the observation that the outer figures had been stripped naked (Houston and Taube 2000:265; Parsons 1986:58), had their wrists bound, and were in a kneeling position. Kaplan (2000:190–192) argued that the imagery referenced warfare, humiliation, and human sacrifice, and that “every detail of the carving was included for a conscious purpose.”

We agree with this statement about the sculpted details but not their interpretation. We

consider the posture, attitude, and physical disposition of the personages on Side A to be significant clues to understanding the scene's meaning. New image details derived from the three-dimensional scan data suggest that all five figures to the left and the right of the scene (1a, 1c, 2a, 2c, and 3a) are wearing loincloths and are not naked (Figure 11.2). This is a difference that makes a difference. These individuals are also wearing distinctive headdresses,

various types of ear ornaments, and are in a position of genuflection on one knee.

An important principle in Mesoamerican art is “verticality . . . the higher a seated figure in a scene, the higher the rank” (Houston 1998:343). The individual figures in each of the three horizontal scenes on Side A are of equal size and vertical position in their respective registers. They look each other directly in the eye, and none has an elevational

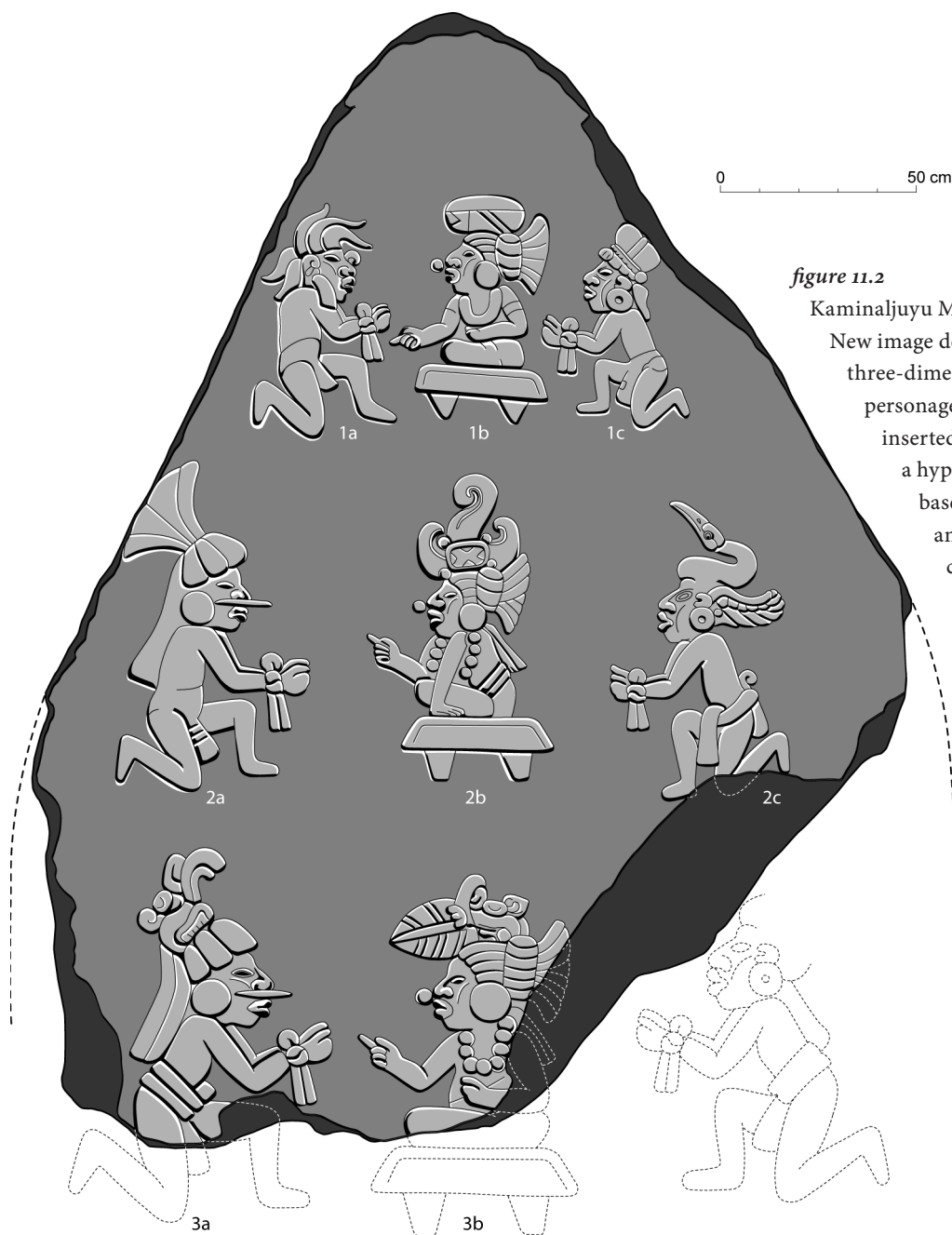


figure 11.2

Kaminaljuyu Monument 65, Side A.

New image details derived from the three-dimensional scan data, with personage identification numbers inserted. Dashed lines represent a hypothetical interpretation based on the symmetry and logic of the sculpture composition. (Drawing by John Clark and Kisslan Chan based on two-dimensional screen captures of the scan data by Lori Collins and on photographs.)

advantage. The three figures to the viewer's left (1a, 2a, and 3a) wear nose ornaments. All eight figures in the scene wear the same clothing as well as variations of headdresses and ear ornaments. Other than being seated on a throne, the central figures differ because they wear necklaces and different types of nose ornaments (see Houston and Taube 2000:265–273).

The positions of the face, arms, and hands on both the seated and kneeling figures may illustrate a sociopolitical relationship among the actors. Personages 1a, 1c, 2a, 2c, and 3a appear to be in submissive or reverential postures. When considering other contemporaneous sculpted images, the combination of a forward-facing or uplifted head, genuflection or kneeling, arms extended in front of the torso, and wrists placed together may not be evidence that the depicted individuals represent captives, warfare, or sacrificial victims. Rather, this particular placement of the head, arms, and wrists may signify subservience or deference to another actor in the scene. Julia Guernsey (personal communication 2008) pointed out to us that the same posture appears in imagery at such contemporaneous sites as San Bartolo and Takalik Abaj (see Chapter 8; Figure 8.4a), and these other occurrences suggest submission, respect, or secondary status. On the San Bartolo west-wall mural, the two kneeling figures located directly behind the Maize God are shown with their arms and wrists in the same pose as the five kneeling figures on Monument 65, and they have similar knotted strips on their wrists (see Kaufmann 2003; López Bruni 2006; Saturno, Taube, Stuart, Beltrán, and Román 2006). We would further note that the arms and wrists of the San Bartolo Maize God himself are depicted in the same manner. Accordingly, the rear figures are showing deference to the Maize God who may, in turn, be showing deference to an ancestor or deity. Guernsey (personal communication 2008) further noted that the figure on the right side of Takalik Abaj Stela 5 (see Figure 8.4a) makes the same gesture with arms lifted and wrists extended and has band-like elements on his wrists. In this case, the Stela 5 figure is seated on a throne, and his status as captive, ancestor, or individual of some secondary

status or political rank relative to the figures on the front of the monument is ambiguous.

In contrast, on Izapa Stela 89, another contemporaneous Preclassic monument, a kneeling individual has his arms bound behind his back and is propped up in an obviously unnatural and uncomfortable pose (Norman 1976:162–164). In numerous Classic Maya depictions, prisoners of war and sacrificial victims are shown in similar positions and usually portray a sense of despondency or hopelessness. Examples of these scenes are present on monumental sculpture, ceramic vases, and figurines from Jaina, Piedras Negras, Tikal, Toniná, Yaxchilan, and other sites (Coe 2005; Martin and Grube 2000; Miller 1999).

The depictions of the band-like objects on the wrists of the kneeling figures on Side A of Kaminaljuyu Monument 65 seen in the laser scan data illustrate a specific and consistent type of knotting. The items on the wrists of the outer five characters cannot be definitively interpreted as a binding tying the wrists together. They may be a type of bracelet-like ornament on each wrist that, because of the profile view of the arms, cannot be seen individually. The personage on Kaminaljuyu Stela 11 (see Figure 10.14b) also wears analogous bands and knotting on each wrist but, in this case, they are clearly not tied together. The same is true of the figures on Izapa Stelae 4 and 11 (Clark and Moreno 2007:285, 294; Guernsey 2006b:56, 126; Norman 1973:plates 7, 8, 21, and 22, 1976:98, 112) and Kaminaljuyu Stela 10 (see Figure 1.9).

Even if the bands on the Monument 65 individuals do represent a tying of the wrists, their presence may be indicative of something other than captivity. On La Venta Altar 4 (see Figure 6.8), for example, the primary niche figure, who is believed to be the ruler, grasps a central portion of a rope that extends around the left side of the altar and is wrapped around the wrist of a second personage. This individual on the side of the altar has been variously interpreted as a captive or ancestor (Drucker 1981:45; Grove 1970; Guernsey and Reilly 2001)—the scene may depict a demonstration of real or fictive kinship or a subordinate sociopolitical position (see Kaplan 2000:192).

The individuals seated on the thrones on Side A of Kaminaljuyu Monument 65 are thought to be rulers and are depicted with their right arms bent at the elbow and right hands closed, with the index fingers extended in what we would call a pointing gesture. This arm, hand, and finger configuration is seen on the prominent figure on the right-hand portion of Side B (see below), and it is a common pose on numerous geographically dispersed Preclassic monuments. Individuals on Tres Zapotes Stela D (see Figure 5.5); La Venta Altars 3, 4, 7, and Monument 13 (see Chapter 6); Izapa Stela 5 (Clark and Moreno 2007:286–288; Guernsey 2006b:3; Norman 1973:plates 9 and 10, 1976:165); and many other monumental sculptures display the same gesture. In these scenes, the context suggests that the actor with the bent arm, closed hand, and extended finger is acknowledging or accepting the action(s) of other persons or elements in the scene. We are not aware of sculpted depictions of rulers posed in this position who are lording over captives or sacrificial victims.

The meaning of the kneeling actors before the acknowledged sovereigns on Kaminaljuyu Monument 65, Side A, may be mirrored by events that occurred at Piedras Negras centuries later. Stuart (2007) analyzed the sculpture on Panel 12 from this Classic Maya site, the context and presentation of which appear to have a notable correspondence to Monument 65. In the Piedras Negras case, texts explain the actors and their actions. Three rulers from neighboring territories are shown with their arms extended in front of them and wrists together. They are kneeling in front of the standing king of Piedras Negras and are clothed with the regalia and accoutrements associated with their high office. To the rear of the standing ruler is what appears to be a captive in a distinctively different posture. His arms are tied behind his back, he is bare headed, with hair disheveled, and his physical demeanor suggests discomfort.

Stuart (2007) considers the scene “performative,” a symbolic message of political dominance. He argues that the three kneeling figures are rulers of subsidiary realms. That they are not sacrificial victims or prisoners of war is confirmed by the

knowledge that these individuals returned to their home territories and continued to rule for several more years after this event was memorialized on the stone panel at Piedras Negras (Stuart 2007). Stuart (2007) also maintains that “later Maya kings represented subject rulers as bound prisoners, even though the subservient lords continued to rule for many years.”

In summary, new data provided by high-resolution scanning of Side A of Monument 65 has allowed a clearer representation of what was actually carved on the surface of this stone and permits a more thorough analysis than was previously possible. All actors on Kaminaljuyu Monument 65 Side A, in each of the three scenes, are shown as equals in physical stature and are at a level to look each other in the eye. The presence of thrones does not place the kneeling figures in a diminished position, and minor differences in dress do not appear to suggest indignity. Nevertheless, the supreme ruler is clearly identifiable in each scene, but not to the social detriment of his allies. There is no indication of weapons or overt signs of warfare, belligerence, or threatening or aggressive postures. Therefore we believe that the new data support the possibility that the kneeling individuals are not captives but might instead be signaling their allegiance or deference to more powerful rulers (cf. Kaplan 2000:190–191). We would also suggest that, in return, the sovereign may be acknowledging the fealty of his vassals.

Side B

The verso side of Kaminaljuyu Monument 65, Side B, has received a more cursory examination and significantly less description than Side A (Pool 2007:274). The primary reason for this relative inattention is due to the faintness and indistinctive nature of the carving that makes comprehension of the scene exceedingly difficult. Kaplan (2000:193) claims that the “thematic depiction” present on Side B was effaced and is, therefore, more difficult to see and interpret. We agree that portions of Side B containing low-relief carving appear to have been intentionally smoothed or abraded. Our review of Side B first focuses on the elements of the

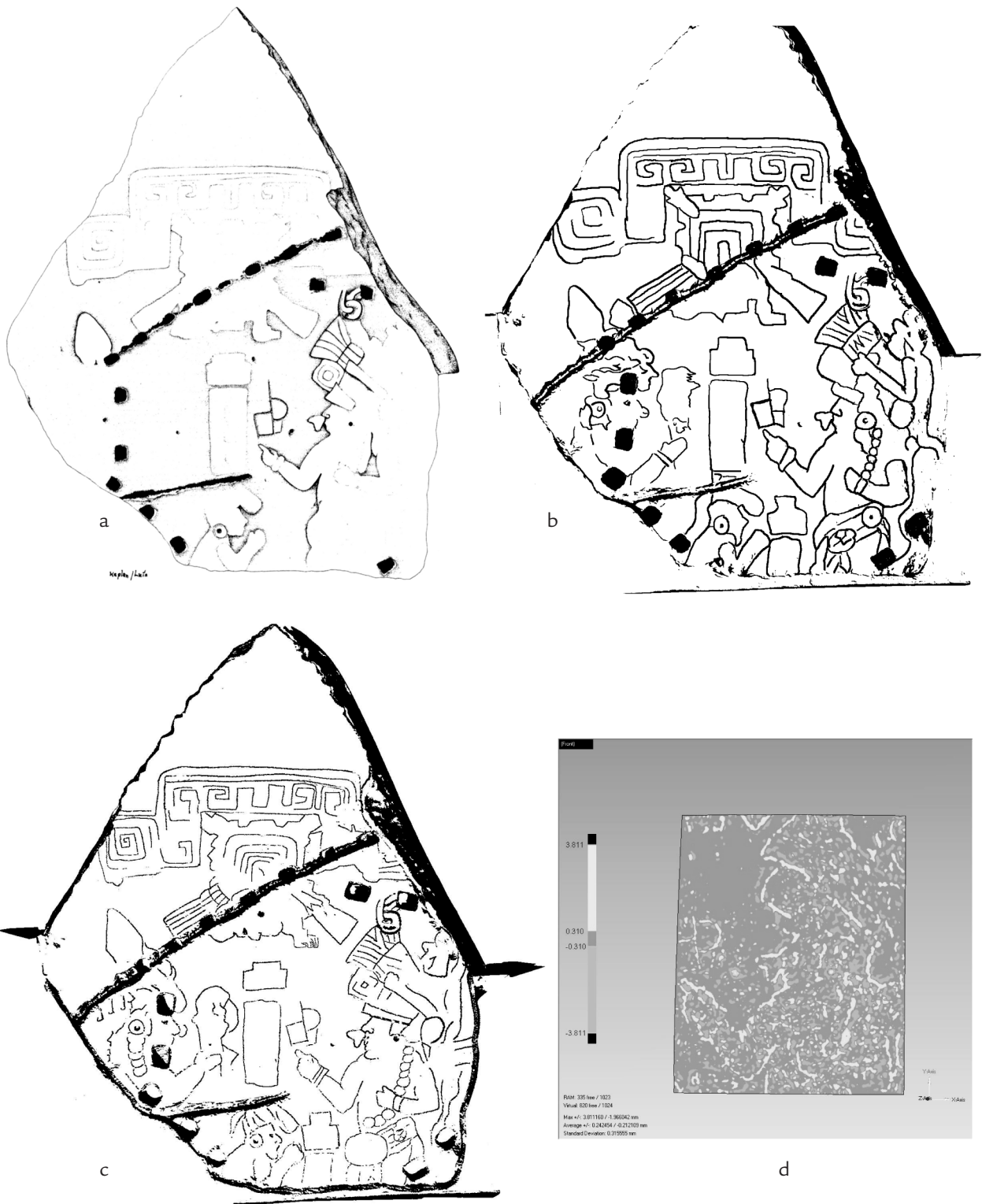


figure 11.3

Kaminaljuyu Monument 65, Side B. (a) after Kaplan 2000:190; (b) from tracing of scan data; (c) digital drawing in scan software environment; (d) detail of area of line contour confirmation using scan software analysis tools.



figure 11.4

Kaminaljuyu Monument 65, Side B. The four actors are identified by letter in the line drawing that was made by tracing over the scan data. (Drawing by Lori Collins and Rebecca O’Sullivan.)

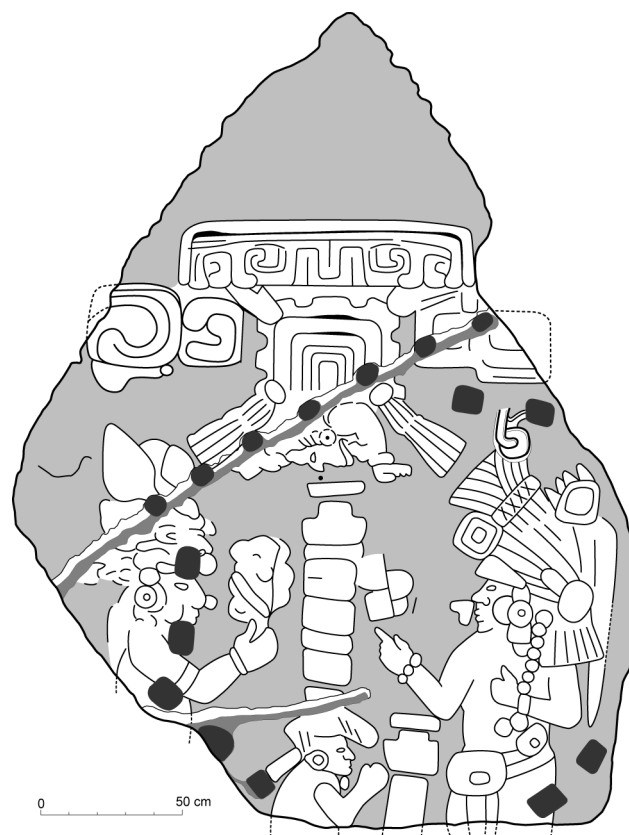


figure 11.5

Kaminaljuyu Monument 65, Side B. (Interpretation by John Clark and Kisslan Chan using two-dimensional screen captures of scanned data and Kaplan 2000:fig. 2).

carved scene, then in the following section we discuss other intrusive elements present on this side of Monument 65.

Raking-light photography has previously been used to extract details not otherwise visible on Side B (Figure 11.3a; Kaplan 2000). The resulting published photograph and line drawing displayed a spatially restricted view that focused on the right portion of the monument. The left portion, which contains the faintest carving on Side B, was not fully recorded. Close-range three-dimensional laser scanning captured the extant carved scene in its entirety and without the spatial limitations and parallax distortion of raking-light photography (Collins and Doering 2006). This technique also

revealed additional information, which enables us to make fresh interpretations of carved details in the scene on Side B (Fig. 11.3b–d).

Side B depicts four actors who are in a zone of contact (the area between the personages). They are shown in profile and identified in Figure 11.4. The overall format or spatial organization of the scene is similar to that in sculptures from other Late Preclassic sites along the Pacific piedmont of Guatemala, including an altar fragment from Polol (Patton 1987). In the upper center portion of the scene, a downward-facing individual (A) emerges from the bottom of a lozenge-shaped medallion (David Freidel, personal communication 2008). A second figure (B) is on the left in the carved scene, a

third (C) is on the right, and the fourth (D) is near the lower center of the stone and faces character C. Personage C is often considered the peak or highest status figure based on his placement in the scene (Houston 1998:341). This individual has been considered the largest and most discernible on Side B and is facing figure B on the carved scene. Figure C is more complete but is really no larger than the facing figure B. The faces of both are the same size, and both have tall elaborate headdresses. Another rendition of what the monument may have originally looked like is shown in Figure 11.5. This illustration is an interpretation by John Clark and Kisslan Chan using two-dimensional screen captures of our scan data and photographs published by Kaplan (2000). It is a work in progress.⁵ Individuals B and C flank the central glyph block, and both are likely royal personages of similar rank (Stephen Houston, personal communication 2008).

The text of the glyph block may begin with an introductory glyph, given its size, position, and separation from the rest of the text (Federico Fahsen, personal communication 2008). Figure D is kneeling in front of a second, smaller vertical glyph block. The emergent figure A is revealed by the scan data to consist of a profile face and hand. The facial features of this individual remain relatively indistinct.

The organization of the scene, including body placement, directionality, and items of personal adornment, are important indicators in the depiction of social power, identity, interaction, and meaning. Spatial orientation and handedness, left or right, appear to be linked to demonstrations of power and authority (Palka 2002:419) and can be examined in the scan data. For example, the data show that figure C uses his right hand to gesture toward the central glyph block, and contrary to previous suggestions, he is not seated (see Kaplan 2000:193). Given the position of his thighs, figure C must be standing. He is presenting with the right side of his body and right hand (see Figure 11.4), and he wears an elaborate headdress. Other personal adornments include earspools, bracelets, chains or ringlet-like objects, a nose ornament, and an elaborate belt.

The lower personage D appears to be kneeling and lifting his bound or braceleted wrists up toward personage C. This supplicant gesture, as discussed above for Side A, appears to be aimed at both the primary figure (C) and a second vertical glyph panel, which could contain the name of this individual (Figure 11.6; Federico Fahsen, personal communication 2008). The monument has been broken across the bottom of the scene, a circumstance that precludes much further observation other than to note that figure D is wearing an earspool and headdress. Figure B faces toward the center of the scene and holds a scepter or staff-like object in his right hand. This personage also wears a nose ornament, earspool, bracelet, and elaborate headdress that possibly contains a zoomorphic figure (Figure 11.7). The breakage and modification of Monument 65 prevents examination of the actor below the waist, but the figure appears to have been standing as the mirror image of figure C.

The symmetry of the left and right figures (B and C) is balanced by the central glyph panel and the celestial or sky band above. These sky bands are frequently marked with diagonal and vertical elements, and they first appear on stone sculptures of the Gulf Olmecs (e.g., Portrero Nuevo Monument 2, La Venta Altar 4 and Stela 1) (Norman 1976:23; Quirarte 1973:17; Stirling 1943b:62). Their use continued into the Late Preclassic and Protoclassic (e.g., Alvarado Stela and Izapa Stela 12), and Guernsey (2006b:78–79) illustrates several types of these bands. Preclassic depictions of sky bands are thought to represent the celestial sphere, as in the Classic period, when this type of element was prevalent in Maya art (Clancy 1990; Miller and Taube 1993:154–155).

A prototypical Preclassic sky or celestial framing band is scrolled along the top of the scene on Side B. It also may be that the rectangular spiral-like elements to the left and right of the Side B band are serpents. Reilly (1995:37) refers to the serpent as a bicephalic ecliptic monster. An alternative interpretation of these elements is that they could represent clouds (Federico Fahsen, personal communication 2008). A comparable framing band is present on Izapa Stela 3, which contains dual serpent

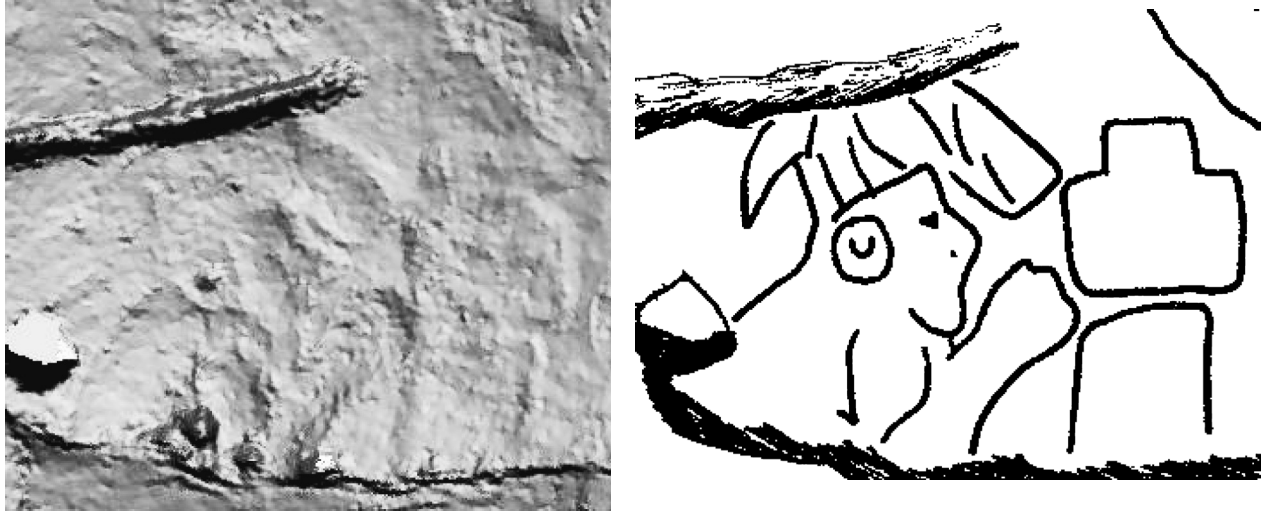


figure 11.6

Detail of Kaminaljuyu Monument 65, Side B. Three-dimensional scan (left) and sketch (right) show the profile and upper torso of Personage D and a proposed introductory glyph and glyphic text box.

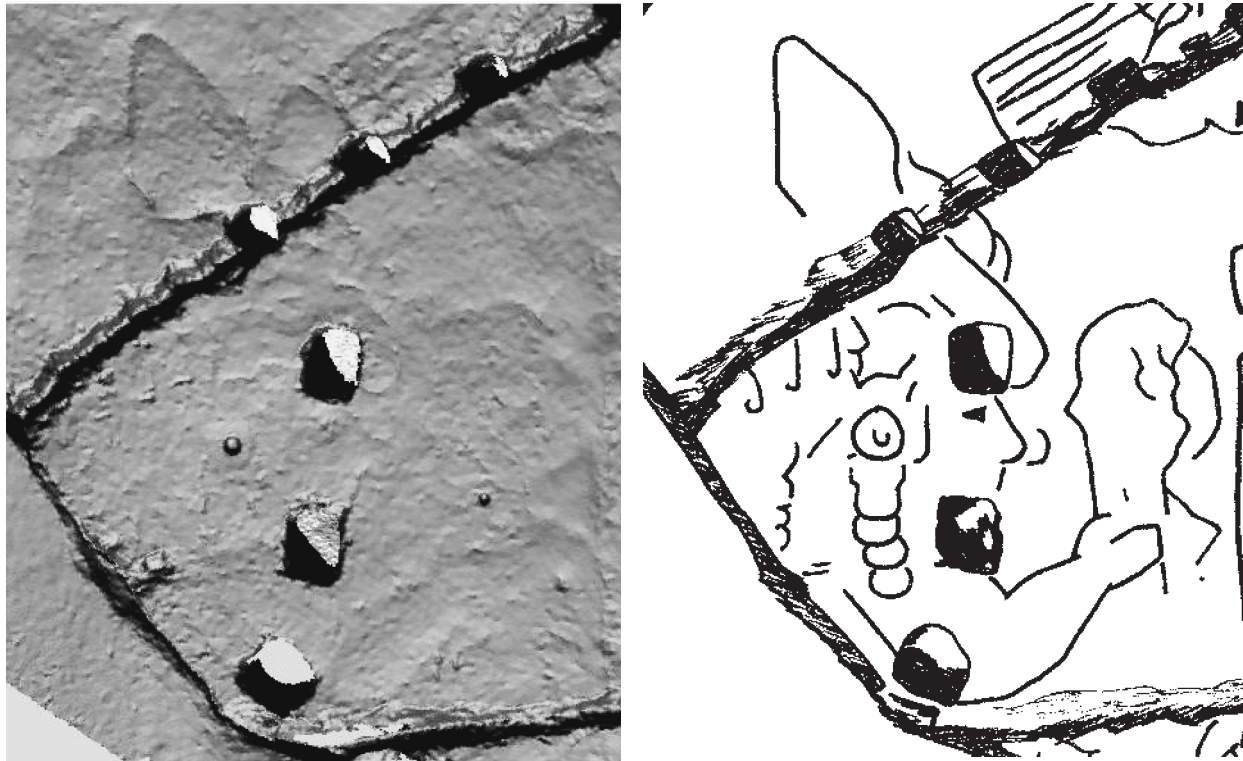


figure 11.7

Detail of Kaminaljuyu Monument 65, Side B. Three-dimensional scan (left) and sketch (right) shows Personage B.

heads at either end (Clark and Moreno 2007:284; Guernsey 2006b:3, 125; Norman 1973:plates 5 and 6). Clark and Chan (Figure 11.5) interpret this element as scrolls rather than as serpent elements.

Other similar sky bands appear on Izapa Stelae 1, 4, and 11 and Takalik Abaj Stela 1, among others. The left and right extremities of the Side B band fold downward, forming a niche containing what appears to be a lozenge-shaped medallion from the bottom of which emerges a personage with an outstretched hand (Figure 11.8; David Freidel,

personal communication 2008). A profile of a downward-gazing personage is a feature present on Izapa monuments (see Guernsey 2006b:56, fig. 3.11), and a tradition of portraying persons in profile emerging from serpents continued among the Classic Maya.

In both the Preclassic and Classic periods, the personages emerging from serpents are thought to be ancestors. Comparisons can be made with Yaxchilan Lintels 14 and 15 (I. Graham 1979, 1982; Graham and Euw 1977), which illustrate not only the emergent profile of ancestors but also their

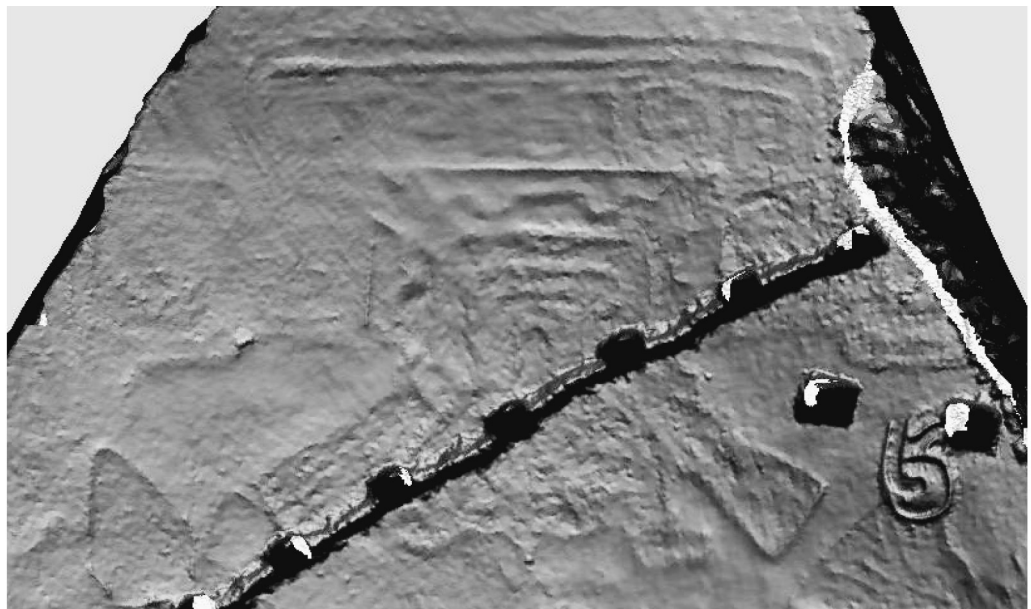
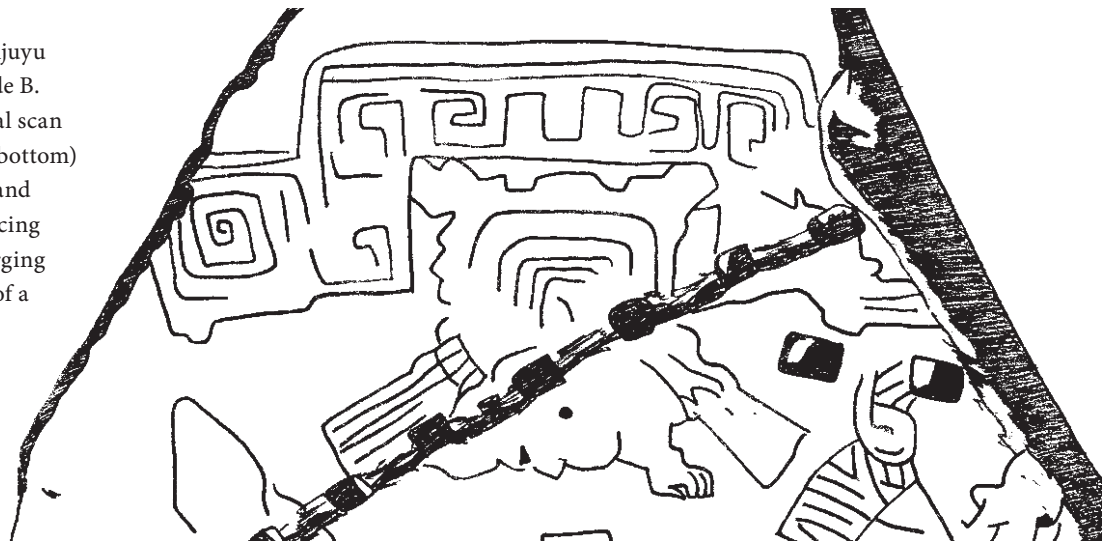


figure 11.8
Detail of Kaminaljuyu Monument 65, Side B. Three-dimensional scan (top) and sketch (bottom) show a celestial band and downward-facing Personage A emerging from the bottom of a medallion.



outstretched hands. El Baúl Stela 1, also known as the Herrera Stela (see Schele and Miller 1986:27, fig. 8), has a niche-like element in what Coe (1999:64–65) describes as a “cloud-scroll.” Tucked into the niche is a lozenge-shaped medallion from which emerges a downward-facing profile. Similar to the Side B scene, the actor in the El Baúl sculpture is standing to the viewer’s right and faces a vertical glyph block that contains a series of illegible glyphs. The individual holds a scepter-like object in his right hand, and his arm is bent. Takalik Abaj Stela 1 offers another close comparison (Guernsey 2006b:fig. 3.3b). The standing actor faces a carved block containing four glyph-like but illegible components, and the index finger on his right hand is extended in what can be described as a pointing gesture.

As this discussion illustrates, scan data sets, such as those for Kaminaljuyu Monument 65, significantly increase the level of observable detail compared to other types of available documentation. Given the new details visible on Monument 65 and their similarities with other carved pieces from southern Mesoamerica, we believe there is a more plausible interpretation of the scene on Side B than has been offered before. We contend that the scene may depict individual C’s hereditary right to rule. Figure A may be an ancestor of the peak character (C). As such, figure A provides the connection, real or fictive, that was required for actor C, the assumed ruler, to exert or claim the right to rule. The bent arm and extended finger may be actor C’s acknowledgment of that relationship. This power and authority may be further documented in the dominant central glyphic text. The meaning of the presence of figure B is not clear at this time. The personage could represent a political or military alliance or may have been the immediate predecessor of the new ruler, as in the relationship depicted on the Palenque Oval Palace Tablet, the House A-D Palace Tablet, the Tablet of the Cross, and numerous other depictions from this Classic site (Robertson 1985, 1991). Figure D is also ambiguous but could represent subordinate allegiance, and the associated text may hold documentation of this loyalty.

We realize that others will have differing interpretations of the scene described and portrayed here. As more information and details are extracted from the scan data, interpretations will be refined and modified. It should be clear, however, that the insights provided by the three-dimensional scan data significantly expand our view and understanding of this important monument and will be integral in moving us to a fuller explanation of the monument’s meaning.

Comparison of Sides A and B of Kaminaljuyu Monument 65

The additional iconographic information that has become available from the three-dimensional scan of Monument 65 has also raised additional questions regarding the meaning and chronology of the sculpture. The sequence of the carving of the scenes on Sides A and B has been a point of contention that cannot be definitively resolved. Parsons (1986:58) raised questions about the chronology of the carvings and speculated that they were made at different times. Kaplan (2000:193) declared unequivocally that they are contemporaneous, based on his interpretation of styles and artistic elements, and that “Side A reflects an exoteric, Side B an esoteric, view of the same themes.” Other conclusions based on style suggest that the carving of Side B was later than the creation of Side A (Stephen Houston and Julia Guernsey, personal communications 2008). Pool (2007:274) believes there are two different styles present, and he comments that Side A was carved in a local style, whereas Side B presents a form and arrangement that suggests an Izapan style or one following early Maya conventions. Federico Fahsen (personal communication 2008) believes that there are similarities between the individuals portrayed on Sides A and B.

We think the artistic styles, composition, and content of the scenes are noticeably different. Both scenes relate to rulership, but specific aspects of that office are depicted from distinct perspectives. Side A is an uncluttered, rudimentary display of power and authority, whether it was

communicated through representing captives or subservient nobles. It demonstrates the dominance and control of the Kaminaljuyu ruler or rulers. Side B appears to be a much more complex demonstration of the right to rule, possibly authorized by divine or ancestral relationships. Compared to the austere presentation on Side A, Side B contains a panoply of ceremonial regalia and paraphernalia, glyphic texts, and celestial bands. These dramatic differences argue for separate carving events and substantially different presentations. In addition to the formal differences, the presence of a glyphic text on Side B has also been seen as a factor that indicates a later date than the more symbolic Side A (Stephen Houston, personal communication 2008).

Evidence of Ancient Reuse and Recycling

The three-dimensional laser scanning data have allowed us to look at Monument 65 in ways that were not previously feasible. This stone monolith has undergone repeated and distinct modification events since its initial production. Observation of the surfaces, marks, and condition of the extant stone demonstrates an active history. With the scan data profiles and cross sections, measurements accurate to 0.01 mm can be made directly on the computer screen. These perspectives open new avenues of inquiry regarding the monument's use and reuse.

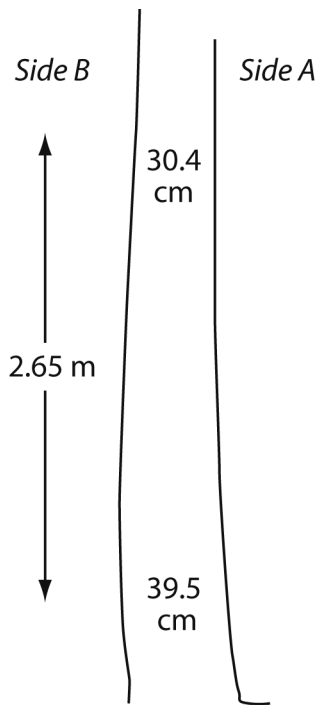
At some point or points in the stone's history, all outer edges were broken, possibly more than once (Figure 11.1). Figure 11.9 illustrates the vertical and horizontal medial cross sections of the stone; Figure 11.10 provides a key for the various regions of the carving discussed. The cross-section views show a significant difference between the planes of Side A, which is relatively flat, and Side B, which has a notable convex curvature horizontally. Defacement or a wearing away of the surface has occurred on both sides of the monument. On Side A, the deterioration appears limited to isolated portions of the carving and seems to be a result of natural wear on the surface. This condition is possibly

due to extended time on or under the ground or was caused by dragging the monolith along the ground with Side A down. Side B presents a very different appearance that may have been produced by the smoothing of the original carved surface in preparation for another, future carving or recycling event.

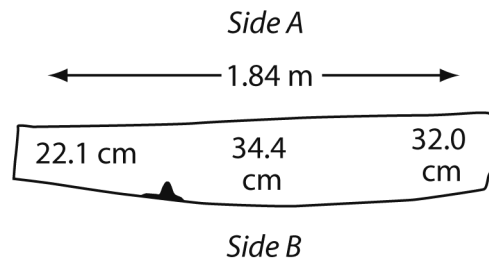
We argue that the surface of Side B was intentionally modified by a process of abrading and pecking to remove or diminish the earlier sculpted scene. The remnants of the erased, original carved surfaces across the entire face are relatively consistent, a condition that suggests the carving was intentionally smoothed. The substantial curvature of Side B (Figure 11.9b) makes it unlikely that natural weathering of the carving occurred at such a uniform rate and level across the bowed surface. Supporting the hypothesis of intentional abrasion is the fact that at the lower left corner of cut hole B9 is a carving of what may be a portion of an earflare or ornament that is clearly intrusive over the original scene (Stephen Houston, personal communication 2008). The sculpted lines of this invasive element are substantially deeper and wider and are cut in a different style and manner than those of the underlying sculpture. The more recent lines are literally carved down into the underlying sculpted scene and have no artistic or iconographic relationship to any portion of the scene on Side B. Why this earflare-like sculpture was initiated, and why it was not continued, is not known. The edges of this element, however, as well as other intrusive perforations and incisions to the surface of Side B, do not show a corresponding type or degree of wear present on the earlier underlying scene.

Directly above the right hand of figure C is an unusual design element that has been incised into Side B. The shape and depth of this element appears to be different from other portions of the sculpture. At this time, we cannot determine whether this feature was part of the original scene—or when it may have been carved.

The other invasive elements on Side B include two channels on the surface and two separate series of rectangular tapering holes in the stone. The grooving of the surface and the alignment



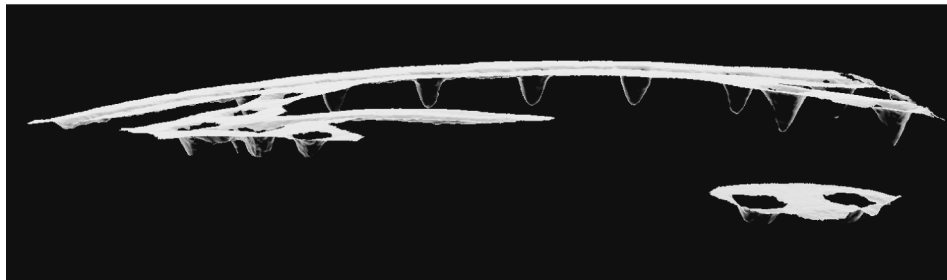
Vertical center cross-cut



Horizontal center cross-cut

figure 11.9

Kaminaljuyu Monument 65. (a) Horizontal and vertical medial cross sections; (b) scan data illustrating the curvature and cut holes from a profile perspective of Side B.



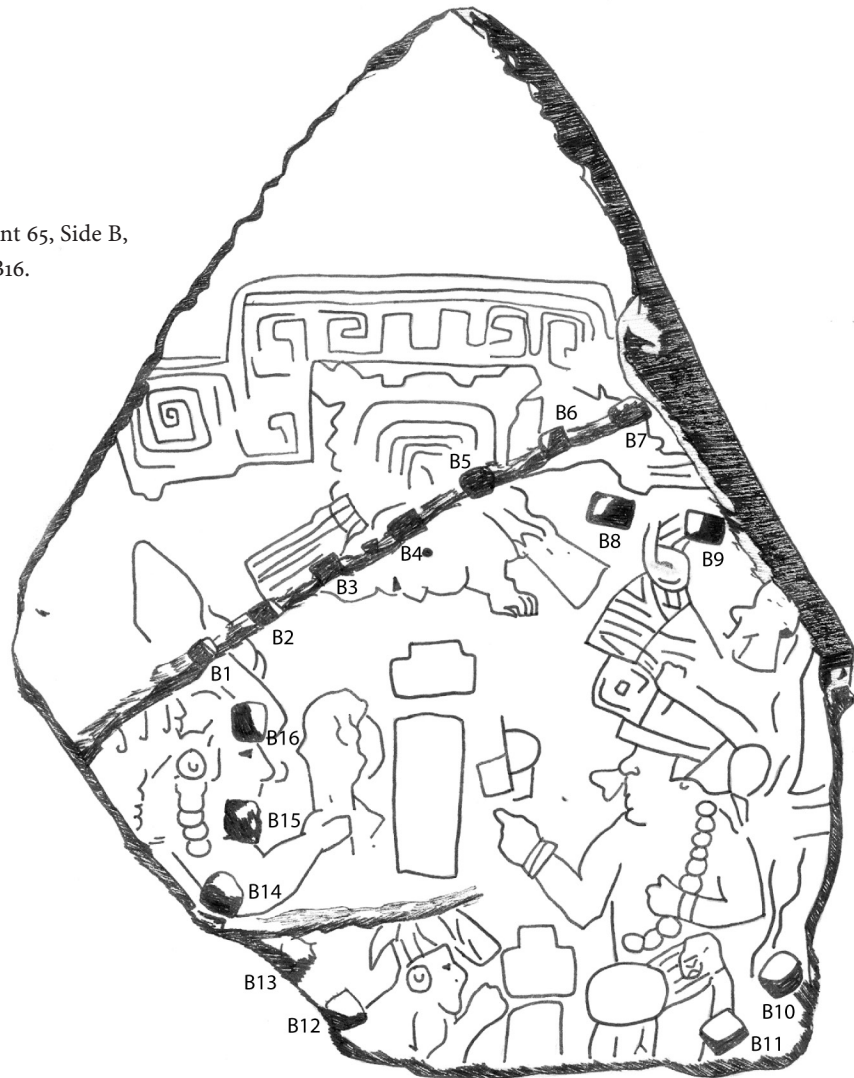
b

of the cut holes suggest that the stone was being readied for further modification but was abandoned before the process was completed. A series of cut sockets (B1–B7 in Figure 11.10) was placed along a diagonal groove incised across the surface of Side B. This layout suggests that a controlled break of the stone was going to be attempted along the perforated line. Evidence of this type of method for sectioning large stones is present on Takalik Abaj Monument 23, which was actually broken along a series of similar cut holes (Miguel Orrego Corzo and Christa Schieber de Lavarreda,

personal communication 2008). From the outline produced by the holes and incised grooves on Monument 65, it appears the ancient stonemasons were attempting to produce three slabs of stone of specific sizes and shapes. Cut hole B9 is intrusive over a portion of the earflare-like carving, indicating it and probably the other cut holes and scribed lines were made during a subsequent modification event.

The data listed in Tables 11.1–11.3 suggest that there were two distinct series of holes cut into the stone on Side B and that these penetrations

figure 11.10
Kaminaljuyu Monument 65, Side B,
showing cut holes B1–B16.



were calculated and executed with exceptional care and precision. The widths of cut holes B1–B7, which comprise the upper line of perforations, vary by only 1.5 mm, the height varies by 3.5 mm, and the depth varies by 2.3 mm. These minimal dimensional differences demonstrate exceptional planning, consistency, and skill. Because of the precision and uniformity of these features, as well as a number of other observations, we do not believe the holes were made with a modern jackhammer, as conjectured by Kaplan (2000:193). The two upper wedges outlined by the pecked and drilled holes appear to represent axe-shaped blanks that could have been used as stelae

(Figure 11.11; John E. Clark, personal communication 2008). All the cutting work on Monument 65 is very regular and carefully done.

The existing outline or morphology created by the edges of Monument 65 suggests that the stone was recut after the two opposing scenes had been carved. The inwardly tapering upper edges of the monument intrude into the scenes carved on both Sides A and B. An assessment of the overall spatial position of the scenes indicates that neither one is complete, nor are they symmetrically placed on the stone as it exists today. These skewed spatial arrangements run counter to most other monumental sculptures from Kaminaljuyu, which are

Table 11.1

Dimensions of cut holes B1–B7, Kaminaljuyu Monument 65, Side B

CUT HOLE NUMBER	WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)
B1	70.6	64.4	71.3
B2	70.1	61.3	71.8
B3	70.9	63.1	73.3
B4	70.7	61.7	73.2
B5	69.8	61.5	73.6
B6	70.0	61.5	73.5
B7	69.4	60.9	73.6

Table 11.2

Distance between cut holes B1–B7, Kaminaljuyu Monument 65, Side B

HOLE PAIR	DISTANCE (MM)
B1 and B2	117.7
B2 and B3	118.6
B3 and B4	149.2
B4 and B5	128.7
B5 and B6	130.4
B6 and B7	121.9

Table 11.3

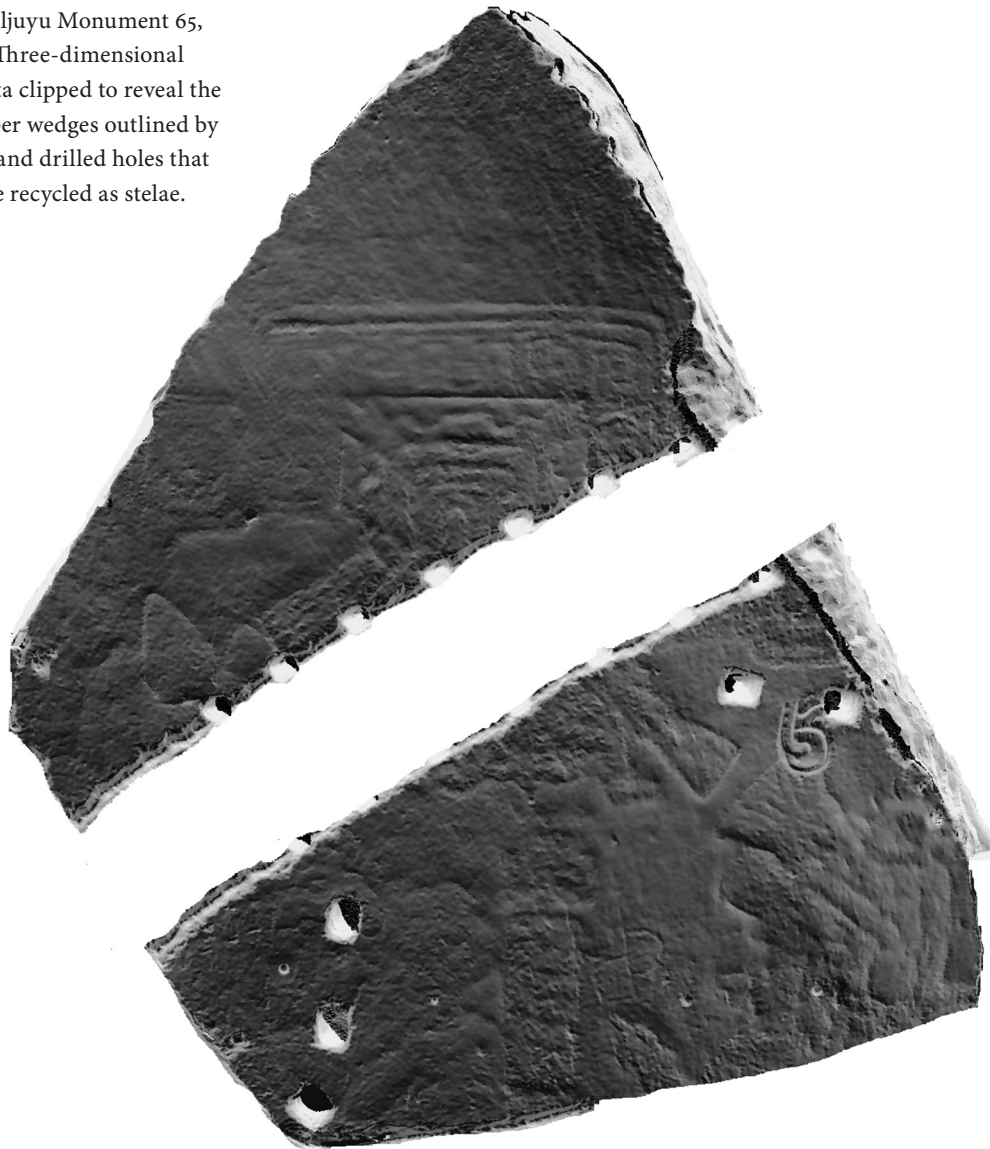
Dimensions of cut holes B8–B16, Kaminaljuyu Monument 65, Side B

CUT HOLE NUMBER	WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)
B8	107.1	90.1	91.9
B9	101.6	87.4	91.2
B10	102.3	86.5	na
B11	107.1	93.2	na
B12	106.5	93.9	na
B13	106.6	94.7	na
B14	104.5	94.7	na
B15	106.1	91.0	91.4
B16	107.8	90.3	91.7

Note: na, not available.

figure 11.11

Kaminaljuyu Monument 65,
Side B. Three-dimensional
scan data clipped to reveal the
two upper wedges outlined by
pecked and drilled holes that
could be recycled as stelae.



centered on the stone and symmetrical in layout and design (e.g., Altar 2 and Stelae 3, 4, 5, and 23; see Parsons 1986).

A glance at Side A shows that the three rows of figures are not in a vertically central position relative to the edges of the stone. The horizontal spacing between each of the figures in the upper and middle tiers is exceptionally consistent, yet personages 1a, 2a, and 3a are at or near the left edge of the stone, whereas personages 1c and 2c

have at least twice the space between them and the right edge (Figures 11.1 and 11.2). Furthermore, the top of the headdress on personage 2a has been cut into by a later modification of the stone's edge; the same thing has happened to personage 1c. Although the top lines of their headdresses are still discernable, they have been affected by edge modifications, and these changes appear to have been made without regard for the carved scene. The lower left and right portions of the stone were

both broken and, along with the bottom, are now covered by the concrete mounting that supports this massive monument.

Similar observations of Side B also suggest the shape of the stone was modified after the scene was carved. The upper inward-tapering edges of Side B have cuts into both the left and right extremes of the celestial band, but if the scene were originally symmetrical, the right side has been invaded to a greater degree (Figure 11.5). This modification of the stone shifted the scene to the viewer's right; the shift on Side A was in the opposite direction. These conditions suggest the opposing carvings were originally centered with each other and probably on the stone itself. Thus it appears that the tapered upper edges were the result of intentional breakage of the stone, a conclusion based on the faint remnants of cut holes visible from Side B that are present along the two edges.

Based on observations that are supported by the scan data, we can deduce or identify the following events in the life of Monument 65:

1. The stone was quarried and hauled to Kaminaljuyu.
2. Both faces of the monument were carved.
3. The outer edges of the monument were intentionally modified to create a new form after the scenes on Sides A and B were carved.
4. Side B was partially abraded.
5. An earspool-like element was carved into the surface of Side B.
6. Two diagonal grooves were pecked into the surface of Side B.⁶
7. A series of seven consistently sized holes were cut along the upper of the two inscribed grooves on Side B.
8. A second series of consistently sized holes, which differ significantly from the dimensions of the previous series, were also cut into Side B.
9. The monument was abandoned and experienced deterioration and erosion from exposure to the natural elements.
10. The bottom of the stone was broken in 1983 during its rediscovery and excavation.

11. The monument was moved from its location near the intersection of Avenida 30 and Calle 6, Zone 7, in present-day Guatemala City to the National Museum of Archaeology and Ethnology, and its base was imbedded in cement so it could be exhibited in an upright position.

Currently the temporal order of these events cannot be established unequivocally, but the general history of the stone's use and reuse is reasonably clear. It is also evident that the precision and care taken to produce the actions described in steps 6–8 do not constitute monument destruction but instead demonstrate intentional recycling of the monument. It was very likely going to be the source of two or three new monuments. Had the ancients wanted to break this stone as an act of iconoclasm, they could have done so easily with a few well-directed blows with another heavy stone (John Clark, personal communication 2008).

The reasons for the abrading of the surface of Side B, as opposed to Side A, are also uncertain. It is possible that Side B was effaced to change the political message on the stone. Alternatively, Side B may have served a more technical function, or it could simply have been a matter of convenience (i.e., Side B was easier to access). In any case, it does not appear that the completed or anticipated modifications to Kaminaljuyu Monument 65 were made with a concern for preserving the scenes carved on Sides A or B. Figure 11.12 illustrates that the breakage of the stone along the perforated cut holes would have destroyed the scene on Side A just as effectively as they would have eliminated the scene on Side B. Therefore it is possible that the modifications were not intended to maintain or preserve either of the earlier low-relief scenes. We do not know the timing or circumstances surrounding the attempted partition of Monument 65 into derivative monuments, but the meaning of the original carvings does not appear to have been something that the later artisans tried to save. It may be that the principal attribute of concern was the essence of this ancient, sacred stone as a connection to ancestors and other cosmic forces, as described by David Stuart in Chapter 12.

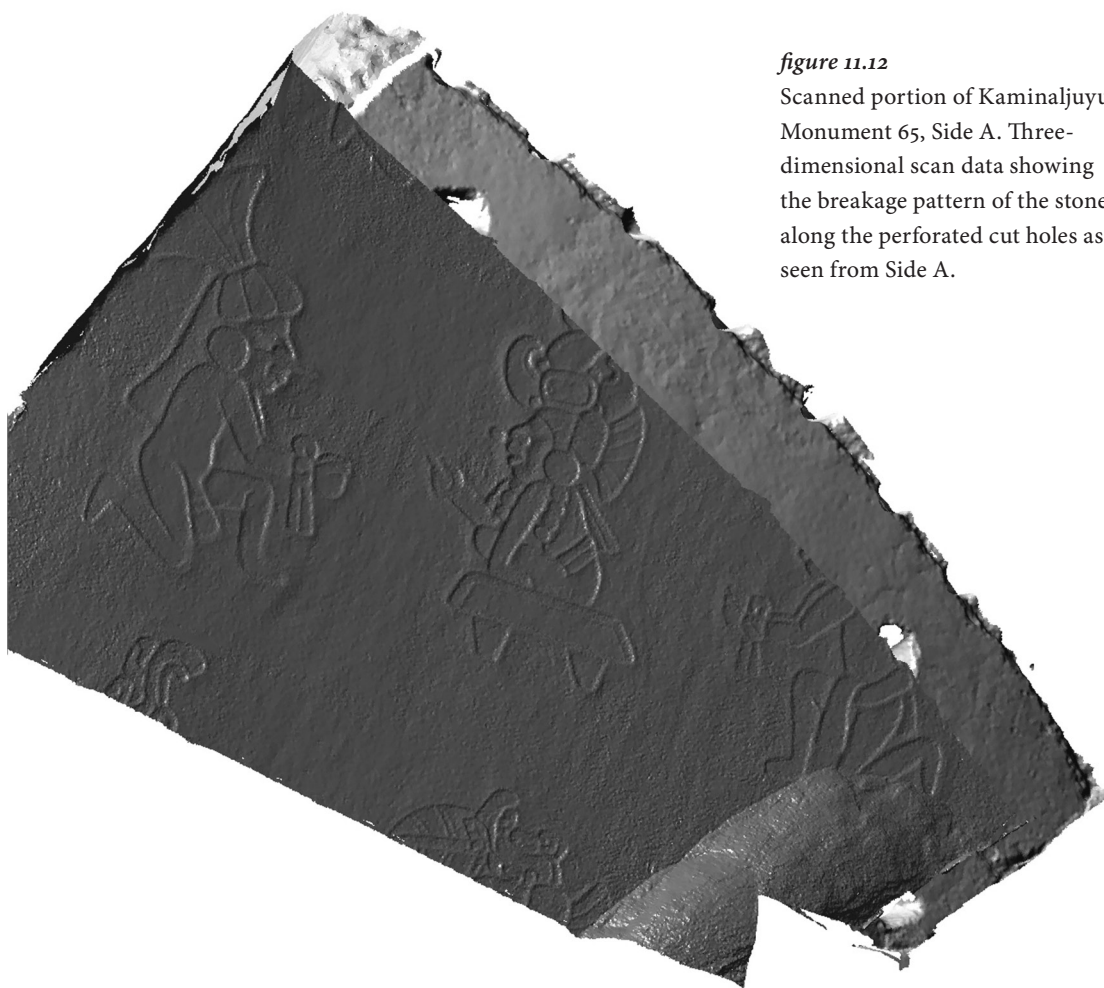


figure 11.12

Scanned portion of Kaminaljuyu Monument 65, Side A. Three-dimensional scan data showing the breakage pattern of the stone along the perforated cut holes as seen from Side A.

Concluding Remarks

Parsons's (1986:58) statement that Kaminaljuyu Monument 65 has "not yet been fully interpreted" remains true, but three-dimensional laser scanning has advanced us toward this goal. The successful retrieval of new information and iconographic details from the close-range scanning of Monument 65 demonstrates that laser scanning technology can significantly enhance the analysis of Mesoamerican sculptures (Figure 11.13). The multiple challenges to perception and interpretation presented by Monument 65 are representative of those encountered for monuments across Mesoamerica.

We have demonstrated that substantial new information can be extracted from defaced and eroded monuments through the capture and processing of scan data. Previously indistinguishable

features can be recovered. As demonstrated with Monument 65, sculptures can be viewed in three dimensions, as their original creators intended them to be seen. Furthermore, the life history of a monument can be traced through identification of tool marks and other traces of production, modification, use, and recycling. With laser scanning, the formal and metric documentation of a sculpture is complete and serves as the best-available recording technique for multiple types of analyses, as well as for use in preservation and conservation.

Three-dimensional laser scanning and the associated software needed for its presentation are advancing at a rapid rate. Our own efforts demonstrate that the capabilities of the data will continue to expand, and refinements will offer even greater detail and insight. This technology is a powerful evolving tool for the documentation

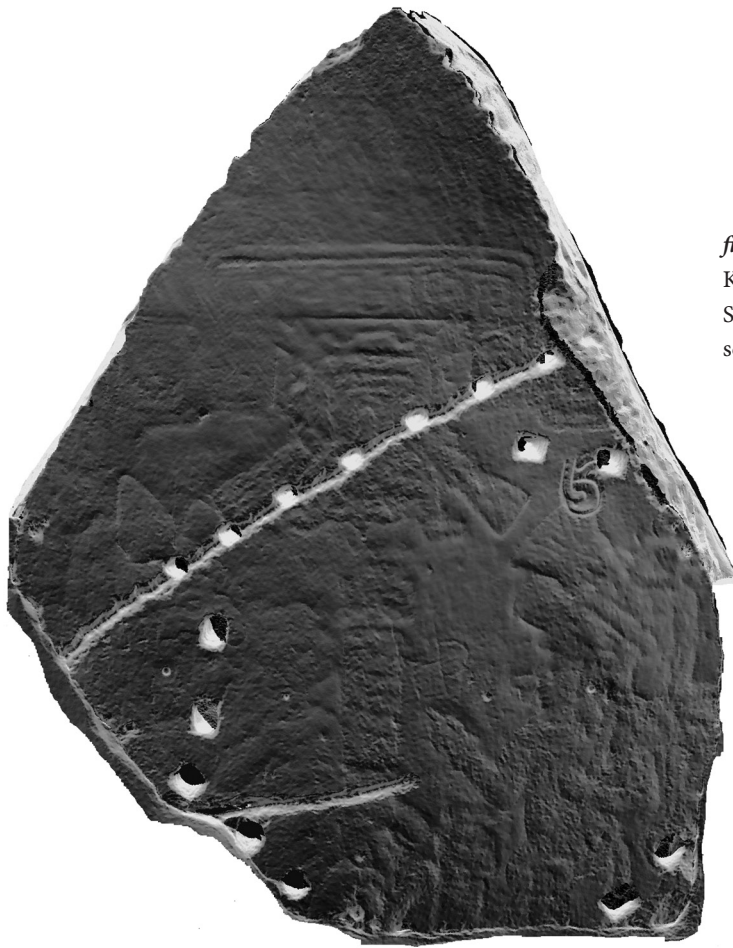


figure 11.13
Kaminaljuyu Monument 65,
Side B. Three-dimensional
scan data visualized.

and interpretation of Preclassic Mesoamerican sculpture. High-resolution three-dimensional laser scanning can be routinely incorporated into research designs. These data and images, if used by archaeologists, epigraphers, and iconographers, would allow the analysis and interpretation of Preclassic sculptures to move to a new, more inclusive, and definitive level. Our initial efforts with Monument 65 show the promise of this technique—and the need for it.

Acknowledgments

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NOTES

1. To document Mesoamerican monumental sculptures, we used a Konica-Minolta VIVID 9i Laser Digitizer, a close-range scanner that excels at high-precision three-dimensional measurement and is capable of a fast processing speed for rapid and straightforward merging and editing of large amounts of measurement data. The choice of the VIVID 9i was also due to its proven ability to produce exceptional results in a variety of locales (e.g., labs, bodegas, museums, and archaeological sites) and under a range of physical and climatic conditions (Doering et al. 2006). The remarkable accuracy, detail, and clarity of the images are due to the ability to record surfaces at an accuracy approaching 0.05 mm (Konica-Minolta 2007), less than the diameter of a human hair.
2. To view the fully three-dimensional data sets available, the Geomagic Review free inspection software is one example of an available product that allows viewing of files created by Geomagic software. This software is available for free downloading and use at <http://www.geomagic.com/en/products/qualify/review/index.php>.
3. The Kaminaljuyu Sculpture Project, funded by the Foundation for the Advancement of Mesoamerican Studies, provides the basis for an expandable three-dimensional database of sculpted stone monuments for all periods, and the results (Doering and Collins 2008) are available at http://www.research.famsi.org/3D_imaging/index.php. Further technical information can be found at <http://www.AIST.cas.usf.edu>.
4. Enhancements in software image editing are not without subjective decisions, but the level of subjectivity is reduced over artistic renderings (Read and Chippindale 2000:75).
5. This collaborative effort is designed to devise the best ways to translate the data into clean line drawings that are faithful to the quality of the original lines on the stone or to its calligraphic quality. A critical issue is to sort out verified details versus possible details. Figure 11.5 is more generous than Figure 11.4 in its assessment of confirmed and tenuous details of the carved image.
6. The scenes on Sides A and B may have been sculpted simultaneously or during discrete events. The final carving of Mesoamerican stone monuments was usually completed close to the location where the monument was placed. This procedure eliminated damage to the piece or its carved details during transport (Stephen Houston, personal communication 2008).

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Barbara Arroyo obtained her Licenciatura from the Universidad de San Carlos de Guatemala and her Ph.D. in anthropology from Vanderbilt University, Nashville, Tennessee. She has carried out research on the Pacific Coast of Mexico, Guatemala, and El Salvador, focusing on early sedentary villages. She has been directing the Naranjo Archaeological Project in Guatemala City for the past four years, uncovering a significant Middle Preclassic occupation in the region. She is one of the organizers of the annual Simposio de Investigaciones Arqueológicas in Guatemala and is also a coeditor for the published proceedings of these meetings. Her book, *Enterramientos en Balberta, un sitio de la Costa Sur de Guatemala*, was published in 1990 (BAR International Series). Arroyo has taught classes on Mesoamerican archaeology at Universidad del Valle and Universidad de San Carlos de Guatemala. She is currently a board member of the Society for American Archaeology.

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Giselle Canto Aguilar graduated from the Escuela Nacional de Antropología e Historia, Mexico City, and is currently an archaeologist at the Instituto Nacional de Antropología e Historia. There she directs the Ceramoteca, or Ceramics Research Center, which concentrates on the archaeological

materials from diverse regions and sites in the state of Morelos. Since 2003 she has been responsible for the project “Registro, conservación y rescate del patrimonio arqueológico del estado de Morelos,” whose objective is the preservation, cataloging, and conservation of the archaeological patrimony of Morelos. Canto Aguilar has participated in numerous archaeological investigations, including those at the sites of Xochicalco, Hacienda Calderón, Olintepic, and Tepoztlán. She has also collaborated on didactic guides and educational materials for site museums at Xochicalco and Coatetelco, and for the Museo Regional Cuauhnáhuac, Morelos, among others. Recently she has focused her attention on the site of Zazacatla, Morelos, and its archaeology, development, and settlement during the Middle Preclassic period.

Víctor M. Castro Mendoza, Instituto Nacional de Antropología e Historia, Mexico, Morelos Regional Center, Cuernavaca

Víctor M. Castro Mendoza, an archaeologist with the Escuela Nacional de Antropología e Historia, Mexico, has participated in the surveying and mapping of the site of El Vergel, Oaxaca, with Berenice Y. Heredia Espinoza, and in excavations at the site of Nicayuhu, Oaxaca, with archaeologist Verónica Pérez Rodríguez. He has also collaborated with Ronald Spores at the site of Pueblo Viejo de Teposcolula, Oaxaca. His research appears in the journal *Arqueología mexicana* and in the cultural supplement “El Tlacuache” of *La jornada Morelos*. At present his work continues to focus on

the flotation of soil and sediment samples taken during excavations at the site of Zazacatla, in Xochitepec, Morelos.

John E. Clark, New World Archaeological Foundation, Brigham Young University, Provo, Utah

John E. Clark has been doing research in southern Mexico for the past thirty-two years, with particular attention to Preclassic societies in Chiapas and their development. He received B.S. and M.A. degrees from Brigham Young University, Provo, Utah, and a Ph.D. in anthropology from the University of Michigan, Ann Arbor. For the past two decades he has directed the New World Archaeological Foundation, with headquarters in Chiapas, Mexico. His dissertation research concerned the origins of hereditary social inequality among the earliest villagers of proto-Mesoamerica. Since that time he has focused on later developments of Preclassic peoples, in particular, the creation of Olmec cities, complex government, and related rituals and beliefs—as most clearly evident in Olmec art and ritual practices. He has edited two books on Olmec archaeology.

Lori D. Collins, Alliance for Integrated Spatial Technologies, College of Arts and Sciences, University of South Florida, Tampa

Lori Collins is a cofounder of the Alliance for Integrated Spatial Technologies in the College of Arts and Sciences' Office of Research and Scholarship at the University of South Florida (<http://aist.cas.usf.edu>). She received her Ph.D. in applied anthropology from the University of South Florida (USF). Collins is an instructor in the Department of Anthropology at USF, teaching undergraduate and graduate courses in archaeology, heritage preservation, cultural resource management, and spatial documentation methods. Her research focus is on three-dimensional laser scanning and documentation survey strategies for cultural heritage preservation and conservation. Her interests center on integrating spatial technologies of three-dimensional laser scanning, Global Positioning System, conventional survey

tools, and Geographic Information System and software applications to assist with cultural heritage preservation and rapid inventory and analysis of archaeological sites, features, and objects. She has worked internationally with a number of projects focusing on Mesoamerican sculpture documentation.

Travis F. Doering, Alliance for Integrated Spatial Technologies, College of Arts and Sciences, University of South Florida, Tampa

Travis Doering is cofounder and director of the Alliance for Integrated Spatial Technologies (AIST) in the College of Arts and Sciences' Office of Research and Scholarship at the University of South Florida (<http://aist.cas.usf.edu>). He has studied ancient Mesoamerican cultures for 30 years, with a primary focus on the events and people of the Preclassic period. Doering has conducted numerous international archaeological and cultural heritage preservation projects using a suite of state-of-the-art three-dimensional spatial data collection and processing techniques along with conventional survey methods. His research objectives include the continuing development of improved methods to extract imperceptible and previously unrecognized detail from sculpted artifacts, and to make these data readily available to students and researchers worldwide through the use of web-based databases.

Federico Fahsen, School of Architecture, Francisco Marroquín University, Guatemala City

Federico Fahsen was born in Guatemala City and educated in both the United States and Guatemala. He received his B.A. in architecture from the University of Southern California, Los Angeles and his M.A. in urban and regional planning from the University of California at Berkeley. He has worked at many institutions in Guatemala, as well as for the Organization of American States in Washington, D.C., as director of the Guatemalan Institute of Tourism, and as Guatemalan Ambassador to the United States. He has served as project epigrapher for numerous archaeological projects and has

published extensively on this subject. He has also collaborated with colleagues on various books concerning Maya codices and the monuments of the important Maya archaeological sites of Uaxactun and Tikal.

Rebecca B. González Lauck, Instituto Nacional de Antropología e Historia, Mexico, Tabasco Regional Center, Villahermosa

Rebecca B. González Lauck received her B.A. in anthropology from Newcomb College of Tulane University, New Orleans, Louisiana, and her M.A. and Ph.D. in anthropology from the University of California at Berkeley. Currently an archaeologist and professor of scientific investigation at the Instituto Nacional de Antropología e Historia, Tabasco, she has directed excavations at the Olmec site of La Venta, Tabasco, since 1984, in addition to coordinating the protection and restoration programs at the site. She has also worked on archaeological projects in Guatemala, Costa Rica, Yucatan, and Chiapas and has served on the editorial board for the journal *Arqueología mexicana* since 1996. Her many publications include *Olmeca, balance y perspectivas: Memoria de la Primera Mesa Redonda* (Universidad Nacional Autónoma de México, 2008), coedited with María Teresa Uriarte; essays in *Olmec Art of Ancient Mexico* (National Gallery of Art, 1996), edited by Elizabeth P. Benson and Beatriz de la Fuente; *Acercarse y mirar: Homenaje a Beatriz de la Fuente* (Universidad Nacional Autónoma de México, 2004), edited by María Teresa Uriarte; and Leticia Staines Cicero; and *Los olmecas en Mesoamérica* (El Equilibrista and Turner Books, 1994), edited by John E. Clark. She has also published articles in a variety of journals, including *Arqueología*, *Arqueología mexicana*, and the *Journal of Field Archaeology*.

Julia Guernsey, Department of Art and Art History, University of Texas at Austin

Julia Guernsey is an associate professor in the Department of Art and Art History at the University of Texas at Austin. Her research and publications focus on the Middle and Late Preclassic periods in ancient Mesoamerica, in particular on

sculptural expressions of rulership during this time. She is also project iconographer for the La Blanca Archaeological Project, where she continues to participate in ongoing excavations and analysis of materials from this Middle Preclassic site on the Pacific Coast of Guatemala. Her most recent research appears in her book *Ritual and Power in Stone: The Performance of Rulership in Mesoamerican Izapan Style Art* (University of Texas Press, 2006). She also has essays in *Antiquity*; *Ancient America*; *Res: Anthropology and Aesthetics*; *Mexicon*; *Journal of Latin American Lore*; *Memorias de la Segunda Mesa Redonda Olmeca*; proceedings of the annual *Simposio de Investigaciones Arqueológicas en Guatemala*; and the exhibition catalogue *Lords of Creation: The Origins of Sacred Maya Kingship* (Los Angeles County Museum of Art, 2005), edited by Virginia M. Fields and Dorie Reents-Budet.

Gerardo Gutiérrez, Department of Anthropology, University of Colorado, Boulder

Gerardo Gutiérrez is assistant professor of anthropology at the University of Colorado at Boulder. He has a Ph.D. in anthropological archaeology from Pennsylvania State University, University Park, a M.A. in urban studies from El Colegio de México, Mexico City, and a Licenciatura in archaeology from the Escuela Nacional de Antropología e Historia, Mexico City. He has done archaeological and ethnohistorical investigations in many areas of Mexico, including the southern Huastec region, the Zapotec, Mixe, and Chinantec regions of northern Oaxaca, the Mixtec-Tlapanec-Nahua-Amuzgo region of eastern Guerrero, and the Soconusco region. Gutiérrez has written articles on a variety of topics, including Huastec religion and settlement patterns, the evolution of Mesoamerican graphic communication systems in eastern Guerrero, and the creation of Geographic Information System models to address questions about ancient communication routes of Mesoamerica. Most recently he has developed an ethnoarchaeological project to understand the process of adaptation after major disasters.

Michael W. Love, Department of Anthropology, California State University, Northridge

Michael W. Love is professor of anthropology at California State University, Northridge. His research interests focus on Mesoamerica, early social complexity, ceramic analysis, and household archaeology. Most recently, he has conducted research on political cycling and state formation on the Pacific Coast of Guatemala, working at the sites of La Blanca and El Ujuxte and concentrating on the examination of changes in household economy and ritual. He has received grants from the National Science Foundation, the National Endowment for the Humanities, the Wenner-Gren Foundation for Anthropological Research, the National Geographic Society, and the Foundation for the Advancement of Mesoamerican Studies, among others. His major publications include *Early Complex Society in Pacific Guatemala: Settlements and Chronology of the Río Naranjo, Guatemala* (New World Archaeological Foundation, 2002) and *Incidents of Archaeology in Central America and Yucatán*, coedited with Marion Popenoe de Hatch and Héctor Escobedo (University Press of America, 2002).

Guadalupe Martínez Donjuán, Instituto Nacional de Antropología e Historia, Mexico, Morelos Regional Center, Cuernavaca

Born in Zumpango, Guerrero, Guadalupe Martínez Donjuán studied education in Morelos and Mexico City, received a Licenciatura in sociology from the Universidad Autónoma de Guerrero, Chilpancingo, and a Licenciatura and M.A. in archaeology from the Escuela Nacional de Antropología e Historia, Mexico City. She has worked as an archaeologist in the states of Morelos and Guerrero, most recently as director of the Teopantecuanitlan archaeological project. She has spoken at numerous international congresses and symposia, and the discoveries at Teopantecuanitlan have been featured in several exhibitions in Mexico (Museo Regional Cuauhnáhuac, Morelos; Museo Regional de Guerrero; Museo de Antropología de Xalapa;

and Casa de la Cultura en Veracruz). Her work appears in numerous publications and journals, including *Revista mexicana de estudios antropológicos*, *Anales de antropología*, *Arqueología y etnohistoria del estado de Guerrero*, *Arqueología*, *Boletín del Consejo de Arqueología*, *Arqueología mexicana*, *Los olmecas en Mesoamérica*, *Historia general de Guerrero*, and *National Geographic*.

Miguel Orrego Corzo, Ministerio de Cultura y Deportes, Dirección General del Patrimonio Cultural y Natural, Proyecto Nacional Tak'alik Ab'aj, Guatemala City, Guatemala

Archaeologist Miguel Orrego Corzo was born in Guatemala City in 1945. While finishing his secondary education, he worked at the site of Kaminaljuyu (1960–1964). From 1964 to 1969 he participated in the Tikal Project of the University of Pennsylvania, and from 1969 to 1987 he collaborated on the Tikal National Archaeological Park–Instituto de Arqueología e Historia (IDAEH) project. From 1979 to 1980 he studied archaeology at the University of Pennsylvania, Philadelphia, and in 1991 he was awarded an honorary degree, Profesional honoris causa y Arqueólogo Emeritísimo, by the Humanities Faculty of the University of San Carlos, Guatemala. In 1987 he founded the Tak'alik Ab'aj National Archaeological Project in the Guatemala Ministry of Culture and Sports, and he continues to direct this archaeological project today. He has worked at many archaeological sites, including Iximché, Río Azul, Yaxhá, Seibal, Dos Pilas, Tamarindito, Aguateca, and Naj Tunich. He specializes in the architecture of the Maya Lowlands and Pacific Coast and its restoration, as well as the design and development of archaeological parks.

Christopher A. Pool, Department of Anthropology, University of Kentucky

Christopher A. Pool received his Ph.D. from Tulane University, New Orleans, Louisiana, and is an associate professor of anthropology at the University of Kentucky, Lexington. He has done archaeological fieldwork in and around the Tuxtla Mountains of southern Veracruz, Mexico, since

1983 and has directed archaeological investigations of long-term change in political economy at Tres Zapotes, Veracruz, since 1995. Pool is editor of *Settlement Archaeology and Political Economy at Tres Zapotes, Veracruz, Mexico* (Cotsen Institute of Archaeology, University of California at Los Angeles, 2003), author of *Olmec Archaeology and Early Mesoamerica* (Cambridge University Press, 2007), and coeditor (with Philip J. Arnold III) of *Classic Period Cultural Currents in Southern and Central Veracruz* (Dumbarton Oaks, 2008).

Mary E. Pye, New World Archaeological Foundation, Brigham Young University, Provo, Utah

Mary E. Pye received her Ph.D. from Vanderbilt University, Nashville, Tennessee, and is a research associate of Brigham Young University and series editor for *Papers of the New World Archaeological Foundation* (NWAf). She has done fieldwork in Belize, Guatemala, and Guerrero and Chiapas, Mexico. Her research and writing have focused on Preclassic societies, in particular on specialized production, iconography, and communication routes; she is coeditor with John E. Clark of *Olmec Art and Archaeology in Mesoamerica* (National Gallery of Art, 2000). She is a member of the editorial group for the published proceedings of the *Simposio Anual de Investigaciones Arqueológicas en Guatemala* and was a member of the editorial board for the *Guide to Documentary Sources for Andean Studies* (University of Oklahoma Press, 2008), edited by Joanne Pillsbury. As NWAf series editor, she has overseen publication of a number of volumes, most recently *Excavations at Ojo de Agua, an Early Classic Maya Site in the Upper Grijalva Basin, Chiapas, Mexico* (NWAf, 2008) by Douglas D. Bryant.

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Christa Ilse Schieber Goehring de Lavarreda was born in Parramos, Chimaltenango, Guatemala, but

she spent much of her youth in southern Germany. In 1991 she obtained her degree in archaeology from the University of San Carlos, Guatemala. Since the founding of the Tak'alik Ab'aj National Archaeological Project in the Guatemala Ministry of Culture and Sports in 1987, she has concentrated her attentions at this site, where she is responsible for archaeological investigations, the training of students, and the publication of project results. Her area of expertise is Preclassic archaeology, particularly the earthen architecture and associated sculpture of Tak'alik Ab'aj, as well as the conservation of this material. In 1998, she organized the Taller de Arqueología de la Costa Sur de Guatemala. She is a member of the Society for American Archaeology. She has also participated in numerous international archaeological meetings and symposia.

David Stuart, Department of Art and Art History, University of Texas at Austin

David Stuart is the Linda and David Schele Professor of Mesoamerican Art and Writing at the University of Texas (UT) at Austin. His research concentrates on the civilizations of Mesoamerica, with a focus on Maya hieroglyphic writing. His early work on Maya hieroglyphs led to a MacArthur Fellowship in 1984. He received his Ph.D. in anthropology from Vanderbilt University, Nashville, Tennessee, in 1995, and he taught at Harvard University for eleven years before arriving at UT Austin. Stuart has conducted research at archaeological sites in Mexico, Guatemala, and Honduras and is currently project epigrapher for the Proyecto San Bartolo. His publications include *Ten Phonetic Syllables* (Center for Maya Research, 1987), which laid much of the groundwork for the now-accepted methodology of decipherment. His most recent publication is a collaboration with George Stuart titled *Palenque: Eternal City of the Maya* (Thames and Hudson, 2008). Stuart also directs The Mesoamerica Center at UT Austin, which fosters multidisciplinary studies and produces publications on ancient American art and culture.

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