THE PLACE OF STONE MONUMENTS
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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CONTENTS

List of Figures     |     vii
List of Tables     |     xi
Foreword       |     xiii

Joanne Pillsbury

Preface       |     xvii

Julia Guernsey, John E. Clark, and Barbara Arroyo

1 Stone Monuments and Preclassic Civilization     |     1

John E. Clark, Julia Guernsey, and Barbara Arroyo

2 Iconography of the Nahual: Human-Animal
Transformations in Preclassic Guerrero and Morelos     |     27

Gerardo Gutiérrez and Mary E. Pye

3 Sculpture from Teopantecuanitlan, Guerrero     |     55

Guadalupe Martínez Donjuán

4 Zazacatla in the Framework of Olmec Mesoamerica     |     77

Giselle Canto Aguilar and Víctor M. Castro Mendoza

5 Stone Monuments and Earthen Mounds: Polity
and Placemaking at Tres Zapotes, Veracruz     |     97

Christopher A. Pool

6 The Architectural Setting of Olmec Sculpture Clusters at LaVenta, Tabasco     |     129

Rebecca B. González Lauck

7 Thinking Outside the Plaza: Varieties of Preclassic Sculpture in
Pacific Guatemala and Their Political Significance     |     149

Michael W. Love

8 Preclassic Olmec and Maya Monuments and Architecture at Takalik Abaj     |     177

Christa Schieber de Lavarreda and Miguel Orrego Corzo

9 Rulers, Gods, and Potbellies: A Consideration of Sculptural Forms and
Themes from the Preclassic Pacific Coast and Piedmont of Mesoamerica     |     207

Julia Guernsey
10 Preclassic Stone Sculpture in the Guatemalan Highlands: Broken Monuments and Forgotten Scripts | 231
   Federico Fahsen

11 Revisiting Kaminaljuyu Monument 65 in Three-Dimensional High Definition | 259
   Travis F. Doering and Lori D. Collins

12 Shining Stones: Observations on the Ritual Meaning of Early Maya Stelae | 283
   David Stuart

Contributors | 299

References Cited | 305

Index | 341
FIGURES

1.1 Comparative chronology of Preclassic Mesoamerica 2
1.2 Map of Preclassic Mesoamerica showing the locations of its principal sites 3
1.3 Early Preclassic sculptures from the Gulf Coast lowlands 6
1.4 Distribution of low-relief sculptures and carvings in the early Middle Preclassic period 8
1.5 Middle Preclassic low-relief carvings 9
1.6 Early stelae and low-relief carvings from Mesoamerica 11
1.7 Late Preclassic sculptures 12
1.8 Evolution of thrones and their representations in Preclassic Mesoamerica 13
1.9 Kaminaljuyu Stela 10, actually a throne 14
1.10 Distribution of Preclassic thrones and their representations 15
1.11 Distribution of Early Preclassic sculptures 16
1.12 Preclassic monuments from the Valley of Oaxaca 21
1.13 Section of Building I at Monte Albán showing the arrangement of the danzante sculptures 22
2.1 Transformation figurines from the collection of Dumbarton Oaks 28
2.2 Map showing locations of various Mesoamerican ethnic groups and archaeological sites mentioned in the text 30
2.3 Several views of the San Pedro Aytec figurine 31
2.4 Two views of the San Pedro Aytec figurine showing its two faces 31
2.5 Three views of the San Pedro Aytec figurine 32
2.6 Illustration by one of Sahagún’s informants defining dangerous precipitation (hail, snow, and ice) and the particular S-shaped design of the associated cloud formation 38
2.7 Map showing the locales where nahual activity has been reported in colonial accounts and ethnographies 39
2.8 Two views of the Tlatilco acrobat/contortionist figurine 44
2.9 San Lorenzo Monument 16 45
2.10 Scenes from the Azoyú codices showing Lord Rain and the moment of his death 48
2.11 San Lorenzo Monument 107 48
2.12 Chalcatzingo Monument 31 49
2.13 Chalcatzingo Monument 1, El Rey 49
2.14 One of the bundles carried by a figure in the Sunken Patio at Teopantepecuanitlan 50
2.15 Piedra Labrada Monument 3, Lord 10 Knot 50
<table>
<thead>
<tr>
<th>Image Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.16</td>
<td>Piedra Labrada Monument 13, Lord 10 Knot in nahual form</td>
<td>51</td>
</tr>
<tr>
<td>2.17</td>
<td>La Venta Monument 80</td>
<td>52</td>
</tr>
<tr>
<td>3.1</td>
<td>View of the looters’ trench at Teopantecuanitlan</td>
<td>56</td>
</tr>
<tr>
<td>3.2</td>
<td>First view of the monuments, wall stones, and a portion of the eastern wall at Teopantecuanitlan in 1983</td>
<td>56</td>
</tr>
<tr>
<td>3.3</td>
<td>Map of Teopantecuanitlan and the surrounding area</td>
<td>57</td>
</tr>
<tr>
<td>3.4</td>
<td>Map of Area A of Teopantecuanitlan showing the location of the various monuments, including Monuments 1–4 of the Sunken Patio</td>
<td>59</td>
</tr>
<tr>
<td>3.5</td>
<td>West-facing clay sculpture at the south staircase</td>
<td>60</td>
</tr>
<tr>
<td>3.6</td>
<td>Two views of the Ojo de Agua monument</td>
<td>61</td>
</tr>
<tr>
<td>3.7</td>
<td>Cruciform monuments from Middle Preclassic highland Mexico sites</td>
<td>62</td>
</tr>
<tr>
<td>3.8</td>
<td>Fragment of a stone sculpture of a schematic jaguar head from in front of the Northern Esplanade</td>
<td>63</td>
</tr>
<tr>
<td>3.9</td>
<td>Serpentine figurine from Tuzapan, Veracruz</td>
<td>63</td>
</tr>
<tr>
<td>3.10</td>
<td>Serpent head from the balustrade of Teotihuacan Structure 40A of the West Plaza, with its bifid tongue extending to the floor</td>
<td>64</td>
</tr>
<tr>
<td>3.11</td>
<td>Front and back views of Monuments 1 and 2 from the east wall of the Sunken Patio</td>
<td>65</td>
</tr>
<tr>
<td>3.12</td>
<td>Front and back views of Monuments 3 and 4 from the west wall of the Sunken Patio</td>
<td>65</td>
</tr>
<tr>
<td>3.13</td>
<td>The Sunken Patio and the four monuments on the walls</td>
<td>66</td>
</tr>
<tr>
<td>3.14</td>
<td>Graphic representation of the astronomical function of the four sculptures atop the walls of the Sunken Patio, with the diagonal lines indicating equinox diagonal shadows</td>
<td>68</td>
</tr>
<tr>
<td>3.15</td>
<td>The iconographic elements of the four sculptures of the Sunken Patio</td>
<td>68</td>
</tr>
<tr>
<td>3.16</td>
<td>Graphic interpretation of cosmic movement as the confrontation of opposing forces, represented as a ballcourt</td>
<td>69</td>
</tr>
<tr>
<td>3.17</td>
<td>Fragments of broken and mutilated limestone sculptures found in the fill that covered the Sunken Patio</td>
<td>71</td>
</tr>
<tr>
<td>3.18</td>
<td>Wall of the Northern Terrace and some of its carved stones</td>
<td>72</td>
</tr>
<tr>
<td>3.19</td>
<td>The Northern Esplanade showing Stela 3 and Sculpture 2</td>
<td>73</td>
</tr>
<tr>
<td>3.20</td>
<td>The Northern Esplanade showing Stela 2 and the Olmec head</td>
<td>73</td>
</tr>
<tr>
<td>3.21</td>
<td>Sculpture in the round of a toothy toad</td>
<td>73</td>
</tr>
<tr>
<td>3.22</td>
<td>Different views of a boulder sculpture of an obese seated person (a “potbelly” sculpture)</td>
<td>74</td>
</tr>
<tr>
<td>4.1</td>
<td>Map of the Mexican Highlands showing the location of Zazacatla and other Middle Preclassic sites</td>
<td>78</td>
</tr>
<tr>
<td>4.2</td>
<td>Map of Zazacatla showing the locations of the principal platforms</td>
<td>79</td>
</tr>
<tr>
<td>4.3</td>
<td>Lajas Structure: Structure 1, north facade</td>
<td>81</td>
</tr>
<tr>
<td>4.4</td>
<td>Lajas Structure: Structure 1, north and east facades</td>
<td>81</td>
</tr>
<tr>
<td>4.5</td>
<td>Drawing of the north facade of Structure 1</td>
<td>82</td>
</tr>
<tr>
<td>4.6</td>
<td>Three views of Zazacatla Monument 1</td>
<td>84</td>
</tr>
<tr>
<td>4.7</td>
<td>Three views of Zazacatla Monument 2</td>
<td>84</td>
</tr>
<tr>
<td>4.8</td>
<td>Lajas Structure: Structure 1-A, north facade</td>
<td>85</td>
</tr>
<tr>
<td>4.9</td>
<td>Drawing of the north facade of Structure 1-A</td>
<td>85</td>
</tr>
<tr>
<td>4.10</td>
<td>Zazacatla Monument 3</td>
<td>86</td>
</tr>
<tr>
<td>4.11</td>
<td>Zazacatla Monument 4</td>
<td>87</td>
</tr>
<tr>
<td>4.12</td>
<td>Hypothetical reconstruction of Structure 1</td>
<td>88</td>
</tr>
<tr>
<td>4.13</td>
<td>Teopantecuanitlan Structure 3</td>
<td>88</td>
</tr>
<tr>
<td>4.14</td>
<td>Jade axe from Arroyo Pesquero, Veracruz</td>
<td>90</td>
</tr>
<tr>
<td>4.15</td>
<td>Chalcatzingo Monument 1</td>
<td>91</td>
</tr>
<tr>
<td>4.16</td>
<td>Hypothetical reconstruction of Structures 1 and 1-A</td>
<td>92</td>
</tr>
</tbody>
</table>
4.17 Wall associated with the altar of Chalcatzingo Monument 22, showing detail of the slabs forming an inverted “V” 94

5.1 Planimetric map of Tres Zapotes, Veracruz 99

5.2 Tres Zapotes Monument I 102
5.3 Tres Zapotes Monument M 103
5.4 Tres Zapotes Stela A 103
5.5 Tres Zapotes Stela D 103
5.6 The colossal head of Cobata 104
5.7 Tres Zapotes Monument C 105
5.8 Tres Zapotes Stela C, obverse and reverse 105
5.9 Tres Zapotes Monument A, the colossal head of Hueyapan 107
5.10 Tres Zapotes Monument Q, the colossal head of Nestepe 107
5.11 Tres Zapotes Monument H 110
5.12 Tres Zapotes Monument 37 110
5.13 Hueyapan de Mimendez Monument 2 110
5.14 Olmec monument, Lerdo de Tejada, Veracruz 111
5.15 Olmec monument, Angel R. Cabada, Veracruz 111
5.16 Tres Zapotes Monument G 113
5.17 La Providencia Monument 1 113
5.18 Tres Zapotes Monument F 114
5.19 Tres Zapotes Monument 19 114
5.20 Hueyapan de Mimendez Monument 1 115
5.21 Tres Zapotes Monuments O and P 115
5.22 Tres Zapotes Stela F 117
5.23 Tres Zapotes Monument 33, a carved serpentine column 118
5.24 Tres Zapotes Stela C, obverse, upper section 119
5.25 Tres Zapotes Monument 39 120
5.26 Tres Zapotes Monument 40 121
5.27 Planimetric map of Tres Zapotes showing known locations of Middle Preclassic monuments 123
5.28 Planimetric map of Tres Zapotes showing known locations of Late Preclassic monuments 125

6.1 Architectural layout of La Venta, showing the locations of sculptures discussed in the text 131
6.2 La Venta Monuments 3, 2, and 4 133
6.3 La Venta Monuments 54, 52, and 53 134
6.4 La Venta Monuments 89, 88, 87, 25/26, Stela 5, Monument 86, and Monument 27 137
6.5 Two views of La Venta Altar 3 139
6.6 La Venta Altar 2 140
6.7 Three views of La Venta Altar 5 141
6.8 Two views of La Venta Altar 4 142
6.9 Map of coastal Guatemala showing the sites and regions mentioned in the text 151
6.10 General distribution of potbellied sculptures along the Pacific coastal plain of Guatemala, Chiapas, and El Salvador 160
6.11 Distribution of pedestal sculptures in Guatemala and Chiapas 162
6.12 Sites of southwestern Guatemala and Chiapas 163
6.13 San Sebastian Monuments 1 and 2 164
6.14 San Sebastian Monuments 3–6 164
6.15 Monuments from La Felicidad 165
6.16 Monuments from La Sultana and a map showing where they were found 165
6.17 Pedestal sculptures from La Argelia 167
6.18 Las Conchitas Altars 1–4 168
6.19 Las Conchitas Altars 5 and 6 169
6.20 Two views of El Ujuxte Miniature Sculpture 1, a small turtle sculpture 170
6.21 El Ujuxte Miniature Sculptures 2 and 3, small potbelly sculptures 171
6.22 Camahuiles from El Ujuxte 172
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Map of Takalik Abaj showing the terraces and major sectors of the site</td>
</tr>
<tr>
<td>8.2</td>
<td>Distribution of stone monuments on Terraces 2 and 3 at Takalik Abaj</td>
</tr>
<tr>
<td>8.3</td>
<td>Olmec monuments from Structure 7</td>
</tr>
<tr>
<td>8.4</td>
<td>Early Maya sculptures from Terrace 2</td>
</tr>
<tr>
<td>8.5</td>
<td>Early Maya sculptures from Terrace 2</td>
</tr>
<tr>
<td>8.6</td>
<td>Potbelly sculptures from Structure 74, Terrace 2</td>
</tr>
<tr>
<td>8.7</td>
<td>Animal sculptures in the round</td>
</tr>
<tr>
<td>8.8</td>
<td>Structure 12, Terrace 2, showing the distribution of monuments</td>
</tr>
<tr>
<td>8.9</td>
<td>Carved stone monuments from Structure 12</td>
</tr>
<tr>
<td>8.10</td>
<td>Groupings of monuments on Structure 7, Terrace 3</td>
</tr>
<tr>
<td>8.11</td>
<td>Early Maya monuments from the center row of monuments on Structure 7</td>
</tr>
<tr>
<td>8.12</td>
<td>Monuments from the east row of sculptures on Structure 7</td>
</tr>
<tr>
<td>8.13</td>
<td>Altar 46 and its associated offerings</td>
</tr>
<tr>
<td>8.14</td>
<td>Early Olmec monuments at Takalik Abaj</td>
</tr>
<tr>
<td>8.15</td>
<td>Stratigraphic position of Monument 64</td>
</tr>
<tr>
<td>8.16</td>
<td>Takalik Abaj Altar 48</td>
</tr>
<tr>
<td>8.17</td>
<td>Takalik Abaj Altar 36/38 from a Late Classic canal on the south edge of Structure 7</td>
</tr>
<tr>
<td>9.1</td>
<td>Map of Mesoamerica showing sites mentioned in the text</td>
</tr>
<tr>
<td>9.2</td>
<td>Izapa Stela 1</td>
</tr>
<tr>
<td>9.3</td>
<td>Detail of carved bone from Temple I at Tikal</td>
</tr>
<tr>
<td>9.4</td>
<td>Izapa Group A, Mound 60, and the associated hydraulic systems</td>
</tr>
<tr>
<td>9.5</td>
<td>Izapa Miscellaneous Monument 24</td>
</tr>
<tr>
<td>9.6</td>
<td>Izapa Stela 3</td>
</tr>
<tr>
<td>9.7</td>
<td>Toad altars at Izapa</td>
</tr>
<tr>
<td>9.8</td>
<td>Zoomorphic drain spouts at Izapa</td>
</tr>
<tr>
<td>9.9</td>
<td>Izapa Stela 23</td>
</tr>
<tr>
<td>9.10</td>
<td>Takalik Abaj Stela 1 and Monument 64</td>
</tr>
<tr>
<td>9.11</td>
<td>Representations of Chahk in the Maya Lowlands</td>
</tr>
<tr>
<td>9.12</td>
<td>Kaminaljuyu Stelae 19 and 4</td>
</tr>
<tr>
<td>9.13</td>
<td>Monte Alto Monument 3</td>
</tr>
<tr>
<td>9.14</td>
<td>Monte Alto Monument 4</td>
</tr>
<tr>
<td>9.15</td>
<td>Finca Sololá Monument 3</td>
</tr>
<tr>
<td>9.16</td>
<td>Monte Alto sculptures</td>
</tr>
<tr>
<td>9.17</td>
<td>La Blanca Middle Preclassic female figurine</td>
</tr>
<tr>
<td>9.18</td>
<td>La Blanca Middle Preclassic figurines with puffy facial features</td>
</tr>
<tr>
<td>9.19</td>
<td>Potbellies with pursed lips</td>
</tr>
<tr>
<td>9.20</td>
<td>Potbelly carvings</td>
</tr>
<tr>
<td>10.1</td>
<td>Map of Guatemala showing its principal regions and the locations of Preclassic sites with stone sculpture</td>
</tr>
<tr>
<td>10.2</td>
<td>Map of the northern highlands of Guatemala showing the Preclassic sites of the Salamá and San Andrés Sajcabá valleys</td>
</tr>
<tr>
<td>10.3</td>
<td>Map of El Portón, Baja Verapaz, Guatemala, showing the archaeological context of Monument 1</td>
</tr>
<tr>
<td>10.4</td>
<td>Schematic plan and profile drawings of excavations in Structure J7-4</td>
</tr>
<tr>
<td>10.5</td>
<td>Monuments from El Portón, Structure J7-4B-5</td>
</tr>
<tr>
<td>10.6</td>
<td>Panel of hieroglyphs from El Portón Monument 1 and related hieroglyphs from other monuments</td>
</tr>
<tr>
<td>10.7</td>
<td>Stone sculptures with bird representations from the Pacific slope of Guatemala</td>
</tr>
<tr>
<td>10.8</td>
<td>Low-relief stelae from Laguneta from the Salamá Valley of Baja Verapaz</td>
</tr>
<tr>
<td>10.9</td>
<td>Preclassic cupule monuments</td>
</tr>
<tr>
<td>10.10</td>
<td>Map of La Lagunita, El Quiché, Guatemala, showing the different architectural groups</td>
</tr>
<tr>
<td>10.11</td>
<td>Map of Group A from La Lagunita showing the locations of low-relief sculpture fragments</td>
</tr>
<tr>
<td>10.12</td>
<td>Fragments of low-relief sculptures from La Lagunita</td>
</tr>
<tr>
<td>10.13</td>
<td>Fragments of low-relief sculptures from La Lagunita</td>
</tr>
<tr>
<td>10.14</td>
<td>Kaminaljuyu Stelae 6 and 11</td>
</tr>
<tr>
<td>Number</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10.15</td>
<td>La Lagunita Sculpture 21 from Group B</td>
</tr>
<tr>
<td>10.16</td>
<td>La Lagunita Sarcophagus 4, west side</td>
</tr>
<tr>
<td>11.1</td>
<td>Kaminaljuyu Monument 65</td>
</tr>
<tr>
<td>11.2</td>
<td>Kaminaljuyu Monument 65, Side A</td>
</tr>
<tr>
<td>11.3</td>
<td>Kaminaljuyu Monument 65, Side B</td>
</tr>
<tr>
<td>11.4</td>
<td>Kaminaljuyu Monument 65, Side B</td>
</tr>
<tr>
<td>11.5</td>
<td>Kaminaljuyu Monument 65, Side B</td>
</tr>
<tr>
<td>11.6</td>
<td>Detail of Kaminaljuyu Monument 65, Side B</td>
</tr>
<tr>
<td>11.7</td>
<td>Detail of Kaminaljuyu Monument 65, Side B</td>
</tr>
<tr>
<td>11.8</td>
<td>Detail of Kaminaljuyu Monument 65, Side B</td>
</tr>
<tr>
<td>11.9</td>
<td>Kaminaljuyu Monument 65</td>
</tr>
<tr>
<td>11.10</td>
<td>Kaminaljuyu Monument 65, Side B, showing cut holes B1–B16</td>
</tr>
<tr>
<td>11.11</td>
<td>Kaminaljuyu Monument 65, Side B</td>
</tr>
<tr>
<td>11.12</td>
<td>Scanned portion of Kaminaljuyu Monument 65, Side A</td>
</tr>
<tr>
<td>11.13</td>
<td>Kaminaljuyu Monument 65, Side B</td>
</tr>
<tr>
<td>12.1</td>
<td>Plain monuments from the Classic and Preclassic Maya area</td>
</tr>
<tr>
<td>12.2</td>
<td>Early cliff sculptures from the Maya area</td>
</tr>
<tr>
<td>12.3</td>
<td>The animate spirit of tuun (&quot;stone&quot;) in Maya art and writing</td>
</tr>
<tr>
<td>12.4</td>
<td>El Palma Stela 5, Chiapas</td>
</tr>
<tr>
<td>12.5</td>
<td>The so-called “mirror” sign in Maya art and writing</td>
</tr>
<tr>
<td>12.6</td>
<td>Inscribed Early Classic celt (kaywak), named in the initial glyph as ?-Sky-Shiner(?)</td>
</tr>
<tr>
<td>12.7</td>
<td>Proper names of Copan Stelae 9 and 63</td>
</tr>
<tr>
<td>12.8</td>
<td>The “shine” and “stone” faces combined on Copan Stela J</td>
</tr>
</tbody>
</table>

**Tables**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Documented cases of nahual activity</td>
<td>40</td>
</tr>
<tr>
<td>5.1</td>
<td>Approximate sequence of monuments from Tres Zapotes and nearby sites</td>
<td>106</td>
</tr>
<tr>
<td>11.1</td>
<td>Dimensions of cut holes B1–B7, Kaminaljuyu Monument 65, Side B</td>
<td>277</td>
</tr>
<tr>
<td>11.2</td>
<td>Distance between cut holes B1–B7, Kaminaljuyu Monument 65, Side B</td>
<td>277</td>
</tr>
<tr>
<td>11.3</td>
<td>Dimensions of cut holes B8–B16, Kaminaljuyu Monument 65, Side B</td>
<td>277</td>
</tr>
</tbody>
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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 Paiz. 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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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 interregional 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.

Julia Guernsey, John E. Clark, and Barbara Arroyo
20 February 2009
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
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. 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.

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 sociopolitical, 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, Chocolá, 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, 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.
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](image-url)

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.)
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.
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. 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 bracelet 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
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 compari-
son (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, sig-
nificantly increase the level of observable detail
compared to other types of available documenta-
tion. 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 charac-
ter (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 mili-
tary alliance or may have been the immediate pre-
decessor 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 ambig-
uous but could represent subordinate allegiance,
and the associated text may hold documentation
of this loyalty.

We realize that others will have differing inter-
pretations 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 under-
standing 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 ques-
tions 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 conten-
tion 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 con-
clusions based on style suggest that the carving of
Side B was later than the creation of Side A (Stephen
Houston and Julia Guernsey, personal communi-
cations 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 conven-
tions. 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 noticebly differ-
ent. Both scenes relate to rulership, but specific
aspects of that office are depicted from distinct
perspectives. Side A is an uncluttered, rudimen-
tary 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
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...
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

<table>
<thead>
<tr>
<th>Cut Hole Number</th>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>Depth (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>70.6</td>
<td>64.4</td>
<td>71.3</td>
</tr>
<tr>
<td>B2</td>
<td>70.1</td>
<td>61.3</td>
<td>71.8</td>
</tr>
<tr>
<td>B3</td>
<td>70.9</td>
<td>61.1</td>
<td>73.3</td>
</tr>
<tr>
<td>B4</td>
<td>70.7</td>
<td>61.7</td>
<td>73.2</td>
</tr>
<tr>
<td>B5</td>
<td>69.8</td>
<td>61.5</td>
<td>73.6</td>
</tr>
<tr>
<td>B6</td>
<td>70.0</td>
<td>61.5</td>
<td>73.5</td>
</tr>
<tr>
<td>B7</td>
<td>69.4</td>
<td>60.9</td>
<td>73.6</td>
</tr>
</tbody>
</table>

Note: na, not available.

### Table 11.2
Distance between cut holes B1–B7, Kaminaljuyu Monument 65, Side B

<table>
<thead>
<tr>
<th>Hole Pair</th>
<th>Distance (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 and B2</td>
<td>117.7</td>
</tr>
<tr>
<td>B2 and B3</td>
<td>118.6</td>
</tr>
<tr>
<td>B3 and B4</td>
<td>149.2</td>
</tr>
<tr>
<td>B4 and B5</td>
<td>128.7</td>
</tr>
<tr>
<td>B5 and B6</td>
<td>130.4</td>
</tr>
<tr>
<td>B6 and B7</td>
<td>121.9</td>
</tr>
</tbody>
</table>

### Table 11.3
Dimensions of cut holes B8–B16, Kaminaljuyu Monument 65, Side B

<table>
<thead>
<tr>
<th>Cut Hole Number</th>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>Depth (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B8</td>
<td>107.1</td>
<td>90.1</td>
<td>91.9</td>
</tr>
<tr>
<td>B9</td>
<td>101.6</td>
<td>87.4</td>
<td>91.2</td>
</tr>
<tr>
<td>B10</td>
<td>102.3</td>
<td>86.5</td>
<td>na</td>
</tr>
<tr>
<td>B11</td>
<td>107.1</td>
<td>93.2</td>
<td>na</td>
</tr>
<tr>
<td>B12</td>
<td>106.5</td>
<td>93.9</td>
<td>na</td>
</tr>
<tr>
<td>B13</td>
<td>106.6</td>
<td>94.7</td>
<td>na</td>
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<tr>
<td>B14</td>
<td>104.5</td>
<td>94.7</td>
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<td>B15</td>
<td>106.1</td>
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<td>B16</td>
<td>107.8</td>
<td>90.3</td>
<td>91.7</td>
</tr>
</tbody>
</table>

Note: na, not available.
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

*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.
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.
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
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.

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and Edward Krause, students from the University of South Florida, for their assistance. Funding for portions of this documentation project was provided by the New World Archaeological Foundation of Brigham Young University and a major research grant from the Foundation for the Advancement of Mesoamerican Studies. We thank these institutions for their support.

NOTES

1. To document Mesoamerican monumental sculptures, we used a Konica-Minolta VIVID 91 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 91 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 Chippendale 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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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.

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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.

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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
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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 Rio 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).

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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 Emeritissimum, 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, includingIximché, Río Azul, Yaxhá, Seibal, Dos Pilas, Tamarindito, Aguacateca, 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.

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INDEX

Numbers in names of architectural elements and stone monuments are italicized here to distinguish them from page numbers.

Abaj Takalik. See Takalik Abaj
accession scene, in San Bartolo murals, 255
agriculture: in Guatemalan Highlands, 235, 236; at Takalik Abaj, 180
Aguacatal (Campeche), 156, 219
agua-viento, 43, 48
Ajaw altars, 290
Ajaw day signs, 246, 290, 296
Ajaw title, 242
Alta Verapaz (Guatemala), 235
altars: Ajaw, 290; dating of, 6, 12–13; definition of, 138; distribution of, 18–19; Mayan words for, 285–286; Olmec style of, 138; as thrones, 6, 13. See also stela-altar pairs; specific sites
altepetl, 122
Alvarado Stela, 12, 19, 122, 270
Amacuzac River, 57, 80
ancestors: nahualism inherited from, 34; potbelly sculptures and, 239; representations of, 272–273; in Zazacatla Lajas Structure, 89, 91, 92, 93
andesite, 83, 170
Angel R. Cabada, 109, 111
animal(s): deities’ transformation into, 34, 35; humans’ transformation into (See nahuals); transformation into humans, 193. See also specific types
animal companion spirits, 33. See also nahuals; tonal animal representations: in pedestal sculptures, 12; in potbelly sculptures, 227; at Takalik Abaj, 185–186, 190, 192–193
animal sacrifice, 51
animate qualities of stone, 286–290
Antigua (Guatemala), nahuals in, 39
apprenticeships: nahual, 34, 37–38; sculptor, 173
aqueducts, 209, 217
archaeology, methodologies of, 23–24
Archaeology and Ethnohistory of La Montaña Guerrero Project, 29
Archaic period, 4, 235
architectural masks, 19
architecture, public: and distribution of monuments, 17, 18; Late Preclassic, 10; Middle Preclassic, 17, 18. See also specific sites
Arenal phase, 245, 255, 256, 262
Arévalo phase, 261
Arroyo, Barbara, xvii–xviii, 1–25, 261
Arroyo Pesquero (Veracruz), 267, 89, 90
art: vs. craft, 150; vs. science, 23
artists. See sculptors
astronomical orientations: at Naranjo, 10, 161; of plain stelae, 10, 161; at Takalik Abaj, 194–195, 203; at Teopantecuanitlan, 63–64, 67, 68, 75
attached specialization, 174
Aurora phase, 255
avian-serpent deities, in nahualism, 27, 50–51
axes: of Chahk, 291–293, 296; and danzantes, 26n7; jade, 89, 90; and transformation figurines, 45
axis mundi: mountains as, 80; in Teopantecuanitlan Sunken Patio, 70; in Tres Zapotes stelae, 116, 119, 120; in Zazacatla Lajas Structure, 89–91, 93, 94, 95
Ayauhcalli (shrine), 46
Azoyú codices, 47, 48, 53
Aztec rulers, nahuals used by, 34, 38
Aztec Triple Alliance, 100
Báez-Jorge, Félix, 53–54, 219
Baja Verapaz (Guatemala), 231, 235. See also specific sites
ball games: boxing and, 51; human sacrifice in, 51
ballcourts: at Chalchitán, 253; at La Lagunita, 252–253; at Takalik Abaj, 180–181, 197–198, 199; Teopantecuanitlan Sunken Patio as, 60, 67, 69, 70, 75
ballplayer monuments: distribution of, 21; at La Lagunita, 254; and nahuals, 51; at Takalik Abaj, 197–198; at Teopantecuanitlan, 69–70, 75, 90
Balsas River, 55
bands: sky, 270–272; wrist, 266
baptism, 34
barrigones. See potbelly sculptures
basalt monuments: dating of, 6–7, 12, 285; at La Venta, 17, 133–134, 140, 143; at Naranjo, 10, 284, 285; at Tres Zapotes, 101; types of, 10; at Zazacatla, 86
basalt pillars: as antecedent of stela form, 19; distribution of, 17, 18, 19; at La Venta, 17, 143; at Naranjo, 284, 285
basins, stone: at Izapa, 211–212; at La Lagunita, 253, 254; at Tres Zapotes, 121–122
baskets, in Chahk representations, 211–212
baths, 255
Baudez, Claude-François, 295
Belize, Maya in, 235
Beltrán, Boris, 258n2
belts, 109
bench figures, 14
Bendersky, Gordon, 135
Berdan, Frances F., 122
Beyer, Hermann, 227
biases, in documentation, 261
Bilbao (Guatemala), 72, 74
birds: in El Portón hieroglyphs, 242, 258n2; in hierarchy of nahuals, 36; in La Venta sculptures, 144; in Shook Altar, 242, 244; symbolic meaning of, 70; in Takalik Abaj stelae, 242, 244; in Teopantecuanitlan monuments, 70
Blanton, Richard E., 99–100
Bliss, Robert Woods, xiv
Blom, Frans, 135
body postures, meaning of, 266–267, 270, 272–273
Borbonicus, Codex, 37
boulder sculptures: dating of, 9–10; definition of, 182; Maya vs. Olmec style, 182; pedestal sculptures associated with, 12; at Takalik Abaj, 182, 190, 192–193, 201; at Tres Zapotes, 104; water deities in, 220
Bove, Frederick J., 160, 161, 166
boxes, stone: at Chalchitán, 255; at La Lagunita, 254–255; at Tres Zapotes, 121–122
boxing rituals, 51–52
breakage. See mutilation/breakage/defacement of monuments
Brinton, Daniel G., 39, 42
buccal masks, 74, 83, 89, 112, 136
Buena Vista (Guatemala), 166
Bufo marinus toad, 73, 214, 215
bundles, in depictions of nahuals, 47, 48
burials: cupules associated with, 245–246, 247; in Guatemalan Highlands, 236; at La Lagunita, 236, 249, 254–255; at Los Mangales, 236, 237, 245–246; at Takalik Abaj, 198–199
cacao, 180, 262
caches, at El Portón, 239–240, 241
Calakmul (Campeche): Substructure II-c at, 217, 218, 230n2; water deity representations at, 217, 218, 219
calendar associations: in nahualism, 33, 34–36; at Teopantecuanitlan, 67
calendarical notations: cupules as, 245–246; origins of, 23; at Takalik Abaj, 190, 203
camahuiles: definition of, 171; from El Ujuxte, 171–173, 174; location of production of, 174; origin of term, 171; vs. potbelly sculptures, 171–173
Campbell, Lyle, 42
Campeche. See specific sites
Canto Aguilar, Giselle, 18, 62, 77–95
captives, images of, 236, 257, 264, 266–267
Caracol (Belize), 290
Carmack, Robert M., 171
Carrasco Vargas, Ramón, 230n2
carved stones: distribution of, 20–21, 251n4; small, vs. stone monuments, 251n4. See also stone, carving techniques of carvers. See sculptors
Cascajal serpentine block, 148n6
Castillo, Donald, 166
Castro Mendoza, Víctor M., 18, 62, 77–95
Catholicism, 35
cauac monster, 288–289
Cauadzidziqui (cave), 47
cave(s): Mayan words for, 287–288; nahual offerings in, 47; paintings in, 47; relief carvings on, 286–287; symbolic significance of, 93, 95; Zazacatla monuments linked to, 86–87, 93, 95
celestial bodies, deities’ transformation into, 34
celt(s): carved, 136; Maya stelae as, 291; shininess and, 293–296
celtiform stelae, 136, 291
censers, at Takalik Abaj, 195
centers. See ceremonial centers; political centers; regional centers; secondary centers
Central Mexico: boundaries of, 46; nahuals in, 46–47. See also specific sites
ceramic figurines: as antecedent of potbelly sculptures, 161, 173, 207, 222–229; ceremonial significance of, 223; decline in use of, 226–229; in domestic rituals, 173, 174, 223–229; vs. stone sculptures, 152, 155, 157, 227. See also clay (ceramic) sculptures
ceramics: in Guatemalan Highlands, 235, 237; at Kaminaljuyu, 262; nahual motifs and, 53, 54n3; at Takalik Abaj, 177, 195; at Tres Zapotes, 117, 118
ceremonial centers: Chalcatzingo as, 77, 80; El Portón as, 236, 237; in Guatemalan Highlands, 231, 234, 236; Teopantecuanitlan as, 77, 80; Zazacatla as, 77, 80. See also regional centers
ceremonial significance: of La Blanca ceramic figurines, 223; of Teopantecuanitlan Sunken Patio, 58, 63–64, 75; of Tres Zapotes plaza groups, 124–126
Cerro del Rey, Stela 3 at, 49
Cerro el Vigía, 109
Cerro Filo, 67
Cerro Jantetelco, 46
Cerro Leon, 58
Cerro Quemado, 30
Cerro Rabón, 120
Cerro Tlaloc, 105
Cerro Xochitepec, 93
Chahk (deity): animate stone and, 289; axes of, 291–293, 296; in Calakmul frieze, 217, 218; in Copan monuments, 296; diagnostic features of, 209, 212–213, 216, 217, 220; embodied in monuments, 210–211; fishing associated with, 209–212; in Izapa stelae, 209–214; and jaguars, 166; in Kaminaljuyu stelae, 219; lightning associated with, 289, 291–293, 296; in Monte Alto sculpture, 220, 221; and nahuals, 50; rulers’ reasons for focusing on, 210, 215–216, 220–221; in San Bartolo murals, 217–219; in Takalik Abaj stelae, 216
Chahk Xib Chahk, 212
Chalcatzingo (Morelos): as ceremonial center, 77, 80; ethnic identity in, 94–95; vs. La Blanca, 156; La Venta’s relationship to, 18; topography of, 17–18, 80; water shrines near, 46; vs. Zazacatla, 77, 80, 90–91, 92–93, 94–95; Zazacatla’s proximity to, 78, 80
Chalcatzingo monuments: dating of, 18; distribution of, 17–18, 20; full-round, 18; Monument 1, 18, 48–49, 53, 90–91, 93, 94; Monument 4, 92; Monument 5, 92; Monument 9, 61, 62, 94; Monument 13, 92–93; Monument 22, 94, 95; Monument 31, 47–48, 49, 51, 53; Monument 32, 90; Monument 36, 90; number of, 18; Stela 21, 253
Chalchitán (Huehuetenango), 253, 255
Chalchiumomozco (shrine), 46
Chalchuapa (El Salvador), 9
Champerico region, 166–167, 174
Chan, Kisslan, 264, 270
Chantico (deity), 35
chert, 292
Chiapa de Corzo, 20
Chich'en Itzá, 63, 100
Chichinautzin Mountains, 80, 83
chiefdoms: in Guatemalan Highlands, 236; rise of, 149; in Salamá Valley, 236; transition to states from, 151
Chimalpáhin, Domingo, 46
Chiquirines Viejo, 156
Chixoy River, 234
Chocolá (Guatemala): distribution of monuments at, 22; Shook Altar and, 158; Stela 1 at, 155
Ch’ol, 292
Cholan Maya language, 236, 237, 255
Ch’olti’ Maya, 255, 291
Ch’orti’ Maya, 287, 292
Christie, Jessica J., 10
chronology of Mesoamerica, xiii, 2–3
ch’ulel (soul), of stone, 288
city living, 3–5
city-states, 122
Ciudad Ruíz, Andrés, 171
civilization, Mesoamerican: origin of, 17; role of sculpture in, xviii, 23
Clancy, Flora S., 19, 285
Classic Maya monuments: dating of, 6, 283; embodiment of deities in, 210; Kaminaljuyu sculpture as precursor to, 259; meaning of postures on, 266; plain, 284–285; stela-altar pairs, 12; writing on, 23, 285–297. See also specific sites
Classic period: boundaries of, xiv; as “golden age,” 1; nahualism in, 27; problems with division of, xiii, xiv, 1
clay (ceramic) sculptures: continuity between stone sculptures and, 60–64, 152, 155, 157; distinction between stone sculptures and, 152; at El Ujuxte, 155–156; at La Blanca, 152–154; in Teopantecuanitlán Sunken Patio, 55, 60–64
cleft(s): in La Venta altars, 144; in San Pedro Aytec figurine, 32, 43, 44, 45; symbolic meaning of, 89–90; in Zazacatla monuments, 83, 89–90. See also V-shaped designs
Clewlow, C. William, 102, 108
cliff carvings, 286–287
climate, and distribution of nahuals, 42–43
clouds: in Kaminaljuyu sculptures, 270; nahuals’ understanding of, 37, 38
Coamizagual, 39
Coatepeque (Guatemala): distribution of sculpture around, 164–170; location of, 164; plain stelae at, 166
coati, 168, 173
Coaticue (deity), 93
Coba, 288
Cobata, colossal head of, 104, 109
Cocíjo (deity), 50
Codex Borbonicus, 37
Codex Mendoza, 32
codices, on nahuals, 35, 37, 47, 53. See also specific codices
Coe, Michael D., 7, 8, 23–24, 25, 273, 291
Coe, William R., 116, 148n6
co-essence of the souls, 33. See also nahuals; tonal
Collins, Lori D., 259–281
colonial era, nahuals in, 34, 35, 37–38
color, as clue to meaning of monuments, 146. See also painting of monuments
colossal heads: dating of, 6, 7; at La Venta, 124, 133–135; as portraits, 123–124, 127n4; at San Lorenzo, 108; at Tres Zapotes, 98, 104, 108–109, 123–124, 127n4
commoners. See nonelites
composite figures, 136–138
Conchas phase, 152, 154, 223, 224
conflict: in Guatemalan Highlands, 236–237, 257–258; in Teopantecuanitlán, 70
Contalco, 30
context, issues of, xiii–xiv, 4, 23, 24
contortionism, 43–45, 52
Copan (Honduras): Rosalila Temple at, 295; Stela 9 at, 294, 296; Stela 63 at, 294, 295; Stela C at, 294; Stela J at, 295; Temple 22 at, 288, 289

corn. See maize motif
cosmic trees. See world trees
cosmology/cosmovision: mountains in, 80; nahualism in, 27, 54; in Teopantecuanitlan Sunken Patio, 63, 67, 69–70
coyotes, 36
craft, vs. art, 150
creation stories, 219
Cruz de Milagro, 95
Cuadzidziqui Cave, 30
Cualac, 32
Cuauhtemoc (Chiapas), 224
Cuicuilco, 12, 19
cult: ruler, 151; stela, 283
cultural beliefs, in distribution of monuments, 16
cultural diversity, 3–4, 151
cultural ecological approach, 24
cupules, 245–247, 251, 256
cylinders, at Tres Zapotes, 121–122
Cyphers, Ann, 28–29, 47, 52
Dainzú, 21
dams, 209
“Dance of the Jaguar” ritual, 219–220
danzantes: dating of, 20; development of style of, 22, 261; distribution of, 20–21, 22
dating of monuments, 5–15; difficulties of, 5–7, 152; and distribution of monuments, 16–23; Early Preclassic, 6–9; Late Preclassic, 10–15; Middle Preclassic, 7–12; reuse and, 5, 152. See also specific periods and sites
death, transformation at moment of, 34, 47
dedications, 286
deer, 193
defacement. See mutilation/breakage/defacement of monuments
deities: manifestation or representation of, in monuments, 19, 210–211; and nahuals, 34, 35; transformations by, 34, 35. See also specific deities and types of deities
Demarest, Arthur A., 237
destruction of monuments. See mutilation/breakage/defacement of monuments
diagonal designs. See V-shaped designs
Diehl, Richard A., 7
disjunction, problem of, 147
distribution of monuments, 16–23; and dating of monuments, 6–15; Early Preclassic, 16–17; Late Preclassic, 20–23, 159–161; Middle Preclassic, 17–20, 157–159; in political placemaking, 122–126; in regional centers, 158–159, 161; outside regional centers, 160, 162–170. See also specific sites
divinity, of rulers, 149
Doering, Travis F., 259–281
Dolores, Quirino, 29, 52
domestic animals, in nahualism, 36
Domínguez Lázaro, Pablo, 29
Draco (constellation), 194, 203
dragon, Olmec, 29, 89, 92, 93, 95
drawings: based on laser scan data, 262–263, 270, 282n5; conventional documentation with, 261
Drucker, Philip, 98
duality: in transformation figurines, 46; in Zazacatla Lajas Structure, 91
duckbill masks, 74
Durán, Diego, 37, 46
eagles, in hierarchy of nahuals, 36
ear ornaments, in La Venta sculptures, 136
Early Preclassic period: city living in, 4; dating of monuments from, 6–9; distribution of monuments in, 16–17; sculptural forms in, 6–9; social transitions in, 4; temporal boundaries of, 2
earth: stone associated with, 87, 286, 287; V-shaped designs and, 89; in Zazacatla Lajas Structure, 89, 93
earth monster, 61, 119
earthen mounds. See mounds
economics: of nahualism, 36, 54; and production of sculpture, 157, 174, 208, 229. See also politicoeconomic strategies
economy: Middle Preclassic disruptions in, 98; political, exclusionary vs. collective strategies of, 99–100, 126
El Baúl: head from, 158; Stela 1 at, 273
El Chayal, 262
El Chorro rivulet, 217
El Jardín, pedestal sculptures at, 166, 167
El Jobo, Stela 1 at, 155
El Manatí, wooden sculptures at, 7
El Mesón, Stelae 1 and 2 at, 122
El Palma (Chiapas), Stela 5 at, 290
El Portón (Guatemala), 237–245; caches at, 239–240, 241; as ceremonial center, 236, 237; construction stages of, 237; cupules at, 245; earliest occupants of, 237; growth of, 236; hieroglyphic inscriptions at, 237; under Kaminaljuyu, 236; vs. Kaminaljuyu, 256–257; Laguneta stelae from, 244; layout of, 237; location of, 237; maps of, 238, 239; Structure J–4 at, 236–244, 258n1; writing at, 237, 242–244, 257, 258n2
El Portón monuments, 237–245; broken, 241–242; dating of, 242, 256, 258n2; destruction of, 241–242, 257; distribution of, 22, 234; earliest, 236, 244; Monument 1, 237–244, 256, 257; Monument 2, 237–244;
INDEX 345

Monument 3, 242; Monument 4, 242; Monument 5, 241; Monument 10, 240–241; Monument 11, 240–241; Monument 22, 256; Monument 22, 256; pedestal sculptures associated with stelae, 240–242; reuse and re-placement of, 242, 257; trends in, 255–257

El Quiché (Guatemala). See Quiché Department

El Rey, 48, 49

El Salvador, sculptures in, 166. See also specific sites

El Sito, 166, 167

El Ujuxte (Guatemala): altars at, 155; camahuiles from, 171–173, 174; ceramic domestic figurines at, 155–156; distribution of monuments outside, 166–167; diversity of materials used at, 155–156; domestic settings of, 170–171, 173; potbelly sculptures at, 155, 170–171, 227, 228, 229; pottery sherd from, 155–156, 157; public rituals at, 226, 227, 228–229; secondary sites of, 166–167

El Viejón, 2617

El Zapote, Stela 1 at, 210–211

elites: as nahuals, 34, 36; overestimation of power of, 150; as patrons of sculpture, 157, 173, 174; production of sculpture by, 157, 173, 174; and representational stelae, 161; residences of, 170, 173; and rise of inequality, 149. See also ruler(s)
equinoxes, 63–64, 67, 68, 194

ethnic diversity, 4; in Kaminaljuyu, 262; in Pacific coast and piedmont, 207–208; in presentation of themes, 94–95

ethnic groups: definition of, 78; map of, 30

ethnic identity, in Zazacatla Lajas Structure, 93–95
eye(s): of potbelly sculptures, 221, 223–225, 230n4; in Teopantecuanitlan sculptures, 60–61; in Zazacatla sculptures, 83, 89

eyebrows: in La Venta sculptures, 136; in Teopantecuanitlan sculptures, 60–61; in Zazacatla sculptures, 83, 89

faces: of ceramic domestic figurines, 223–229; in La Venta sculptures, 136; mountain, 136; of potbelly sculptures, 221–229; in Teopantecuanitlan sculptures, 64; of transformation figurines, 31, 44, 46; in Zazacatla sculptures, 83, 89, 95

Fahsen, Federico, 18, 203, 231–258, 273

fangs, in La Venta sculptures, 136, 144

Fat God, 227

fat-boy sculptures. See potbelly sculptures

feasting, domestic, 226

fetus representations, 135

figurines: human form represented in, 16; transformation, 27–28, 29–33, 43–46, 54n2. See also ceramic figurines

Finca Las Conchitas. See Las Conchitas

Finca Sololá: Monument 3 at, 221, 222; potbelly sculptures at, 221, 222, 224

fishing, Chahk associated with, 209–212

Flannery, Kent V., 25n4

fountain stones, 211

four world quarters: in Teopantecuanitlan Sunken Patio, 70; in Zazacatla Lajas Structure, 89–91, 93, 95

French Archaeological Mission, 235, 255

frogs. See toad(s)

Fuente, Beatríz de la, 109, 111, 127n2, 136, 146

toad(s). See specific gods

God K, 212, 216, 291

goggles, 253

González Lauck, Rebecca B., 17, 129–147

Gossen, Gary H., 36, 49

Graham, Ian, 161, 162–165, 167, 195–196


Great Tradition, vs. Little Tradition, 150

greenstone: burial of, 52; in camahuiles, 171; location of sources, 32; shininess of, 292; trade in, 98. See also serpentine
group identity, placemaking in, 122

Grove, David C., 18, 46, 48, 108, 136, 138

Guatemala: distribution of monuments in, 18; map of, 232; nahuals in, 39, 42. See also Guatemalan Highlands; Pacific Guatemala; specific sites

Guatemalan Valley of: distribution of monuments in, 18; earliest occupants of, 235

Guatemalan Highlands, 231–258; ceramics in, 235, 237; ceremonial centers in, 231, 234, 236; conflict in, 236–237, 257–258; cultural styles in, 151; dating of monuments in, 151–152; destruction of monuments in, 236–237, 244–245, 255–258; distribution of monuments in, 18, 22, 231, 234; diversity of forms in, 150, 157–161; diversity of media in, 152–157; duration of Maya residency in, 235; earliest monuments in, 236; earliest occupants of, 235; excavations in, 234–235; expansion of settlements in, 235–236; history of studies of, 231, 234–235; location of, 234; maps of, 232, 233; Mayan languages in, 235, 236, 237; nahuals in, 42; natural resources of, 235, 257–258; number of monuments in, 231; plain monuments in, 18, 158; political organization in, 236; population shifts in, 237, 257; potbelly sculptures in, lack of, 256; sculptural...
trends in, 255–258; topography of, 234; writing in, 231, 234, 256–257. See also specific sites
Guernsey, Julia, xvi–xviii, 1–25, 161, 166, 173, 190, 207–230, 264, 266, 270
Guerrero: languages in, 4; nahuals in, 46–52 (See also San Pedro Aytec figurine); rain shrines in, 46–47. See also specific sites
Guillen phase, 208
Gulf Coast: distribution of monuments in, 18; nahuals in, 42. See also specific sites
Gutiérrez, Gerardo, 27–54, 193
hail, 37, 38
Hammond, Norman, 109
hand glyphs, 242–243
handedness, meaning of, 270
Hansen, Richard, 19
head(s). See also colossal heads
headaddresses: in La Venta sculptures, 136, 143, 144; in Teopantecuanitlan sculptures, 62; in Zazacatla sculptures, 83
healing, by nahuals, 42
Heizer, Robert, 130, 177, 187
helmets, on La Venta monuments, 134, 135
Herrera Stela, 273
Herrera y Tordesillas, Antonio de, 39
hieroglyphs: cupules as alternative to, 245; at El Portón, 237, 242–243, 258n2; at El Zapote, 210–211; progress in decipherment of, 147; at Takalik Abaj, 190, 198. See also writing
highland Guatemala. See Guatemalan Highlands
Houston, Stephen D., 49, 210–211
Huautla Mountains, 80
Huaxtla Mountains (Huehuetan), 42
Huaxtla Mountains. See specific sites
Huayapan, colossal head of, 107
Huayapan de Mímeméndez: full-round sculpture in, 109; Monument 1 at, 112, 115; Monument 2 at, 109, 110
human form: in danzantes, 20–21, 26n7; in figurines and
Hueyapan: colossal head of, 107
Hueyapan de Meméndez: full-round sculpture in, 109; Monument 1 at, 112, 115; Monument 2 at, 109, 110
human form: in danzantes, 20–21, 26n7; in figurines and
paintings, 16; in La Venta sculptures, 133–135, 137, 138, 140–145; in Maya style, 185; meaning of postures of, 266–267, 270, 272–273; proscriptions against, 16; in Teopantecuanitlan sculptures, 70–71; in Zazacatla sculptures, 83, 89. See also colossal heads
human sacrifice, in nahualism, 35, 46, 51
human-animal transformations. See nahuals
Ichon, Alain, 171, 249, 251, 253, 254
identity: ethnic, 93–95; group, 122
ideologies, political, on display in stone monuments, 208
idolatry, nahualism as, 35
inequality, social, rise of, 149
infants, in La Venta sculptures, 140, 143–144
Inquisition trials, 37, 39
inscriptions. See writing
isthmian script, on Tres Zapotes stelae, 120, 126
Izapa (Chiapas): apogee of, 208–209; Group A at, 209–212, 214–215; Group F at, 211, 213; map of, 211; Mound 56 at, 214; Mound 58 at, 209–210, 212, 213, 214; Mound 60 at, 209–211; secondary sites of, 167; Tres Zapotes monuments linked to, 116, 118, 121; water management systems of, 209–216
Izapa monuments: Altar 1, 214–215; Altar 2, 213, 214–215; Altar 16, 168; distribution of, 22, 210; Miscellaneous Monument 2, 118; Miscellaneous Monument 3, 213, 215; Miscellaneous Monument 24, 211–214; Miscellaneous Monument 70, 229; narrative relationships among, 211–216; pedestal sculptures, 166; potbelly sculptures, 229; rulers’ role in design of, 210, 215–216; rulership theme in, 151; Stela 1, 209–214, 219, 272; Stela 3, 212–214, 270–272; Stela 4, 266, 272; Stela 5, 214, 267; Stela 6, 214–215; Stela 11, 215, 266, 272; Stela 12, 270; Stela 23, 215, 216, 217, 218; Stela 26, 214; Stela 89, 266; Stela 90, 219; stela-altar pairs, 13, 209; style of, 186; themes of, 186; water deity representations in, 208–219
Izapa River, 209, 211, 214
Izapa style: vs. Olmec and Maya style, 181–185; at Takalik Abaj, lack of, 186, 204
jade: at El Portón, 241; in Guatemalan Highlands, 235, 257–258; at Kaminaljuyu, 262; shininess of, 289
jadeite, 195
jaguar(s): and Chahk, 166, 219, 230n3; in hieroglyphic texts, 289; in Kaminaljuyu monuments, 29; in La Argelia monuments, 166; in La Lagunita monuments, 252; in pedestal sculptures, 166–167; rituals invoking, 219; symbolic meaning of, 61, 70; in Takalik Abaj monuments, 193; in Teopantecuanitlan clay sculptures, 55, 60–61; in Teopantecuanitlan stone sculptures, 61–62, 63, 70; and water deities, 219
jaguar nahuals: in Central Mexico, 46; distribution of, 42; figurines depicting, 27–29; in Guerrero, 47, 49; in hierarchy of nahuals, 35–36; monuments depicting, 28–29, 47, 49, 51; in Morelos, 47; powers of, 27, 54n1; process of transformation, 27–29, 37, 38, 45; and rain shrines, 46. See also San Pedro Aytec figurine
jaguar-dragon, Olmec, 29
Johnson, Scott, 166
Joralemon, Peter David, 29
Justeson, John S., 122
Juxtlahuaca (cave), 47
Kaminaljuyu (Guatemala): apogee of, 261–262; approaches to analysis of, 23–24; conflict in, 236; earliest occupants of, 235, 261; El Portón under rule of, 236; ethnic groups of, 262; influence of site, 259; La Venta’s relationship to, 22, 2666; location of, 261, 262; Maya style at, 180; Mayan languages at, 237; obsidian controlled by, 262; Olmec vs. regional style in, 22, 2666, 177; political organization of, 261, 262; population shifts at, 237, 257; as regional center, 159; rulership theme at, 151, 259, 262, 264–267; vs. Takalik Abaj, 177, 186; writing at, 243, 256, 257, 270, 274
La Lagunita (Guatemala), 247–255; burials at, 236, 249, 254–255; camahule from, 171; Group A at, 248–252; Group B at, 252–253; vs. Kaminaljuyu, 252, 255–256; vs. Laguneta, 236, 245; map of, 247; population shifts at, 257; Pyramid 5 at, 249; as regional center, 236, 247–248, 252; Structure 7 at, 249–251; writing at, 257

La Laguna monuments, 247–253; cupsules on, 246, 247, 251; dating of, 255, 256; destruction of, 245, 249, 255, 257; distribution of, 22, 234, 248, 249; sarcophagi at, location of, 249, 251; Sarcophagus 1, 253, 254; Sarcophagus 2, 253, 254; Sarcophagus 3, 251, 252, 253, 255, 256–257; Sarcophagus 4, 171, 253–254; Sculpture 1, 249, 250, 251, 255; Sculpture 2, 249, 250, 252, 255; Sculpture 3, 249, 250, 252, 255; Sculpture 6, 250, 251, 255, 256; Sculpture 7, 250, 252, 255; Sculpture 8, 250; Sculpture 9, 250, 252; Sculpture 11, 249, 250, 251; Sculpture 12, 249, 250, 251; Sculpture 14, 249, 251, 252, 253; Sculpture 15, 251; Sculpture 16, 246, 247, 251; Sculpture 17, 251–252; Sculpture 18, 251–252, 256–257; Sculpture 19, 251; Sculpture 20, 251; Sculpture 21, 252–253; Sculpture 22, 251; Sculpture 23, 249, 251; Sculpture 24, 249, 251; Sculpture 25, 251; Sculpture 27, 249; Sculpture 28, 249, 251; Sculpture 29, 249; Sculpture 30, 249, 251; trends in, 255–257

La Merced, 2607

La Mojarra, Stela 1 at, 122

La Providencia, Monument 1 at, 112, 113

La Sultana, 165, 166

La Venta (Tabasco), 129–147; abandonment of, 17, 202; architecture of, 17, 130–132; boundaries of, 133; Chalcatzingo’s relationship to, 18; vs. Chiapa de Corzo, 20; Complex A at, 130, 132, 133; Complex B at, 132; Complex C at, 132, 138, 140; Complex D at, 132; Complex G at, 132; Complex H at, 132; damage to site, 130, 132; decline of, 20; ethnic identity in, 94; history of studies of, 129, 130; Kaminaljuyu’s relationship to, 22, 2616; layout of, 130–132; maps of, 130, 131, 132; mounds at, 130–132; northern entrance to, 133–134; San Lorenzo’s relationship to, 8–9, 196; significance of, 129; source of stone for, 129; southern entrance to, 134–135; Stirling “Acropolis” at, 132, 138; Structure C-1 at, 135–138; Structure D-7 at, 132, 135; Structure D-8 at, 87–89, 140; vs. Tres Zapotes, 98, 116; writing at, lack of, 146–147, 148n6

La Venta monuments, 129–147; Altar 1, 138; Altar 2, 140, 143; Altar 3, 139, 140–143, 147n4, 267; Altar 4, 89, 90, 94, 140–145, 148n5, 266, 267, 270; Altar 5, 46, 89, 92, 93, 94, 140–141, 143–144; Altar 6, 109; Altar 7, 74, 267; altar pairs, 138–145; basalt, 17, 133–134, 140, 143; celtiform stelae, 136, 291; clusters of, 129, 132–145; colossal head triad, 124, 133–135; as communication devices, 129, 145–147; dating of, 8–9, 11, 17; distribution of, 17, 20, 131; find vs. original locations of, 129, 133, 147n1; Monument 1, 146; Monuments 2–4, 133–134; Monument 6, 121; Monument 7, 112; Monument 8, 148n6, 267; Monument 14, 121; Monument 15, 14–15; Monument 19, 132; Monument 20, 132; Monument 21, 109, 132; Monument 25/26, 136–138; Monument 27, 136–138; Monument 40, 109; Monument 44, 109; Monuments 52–54, 134–135; Monument 56, 111, 112; Monument 63, 12; Monument 74, 109; Monument 75, 109; Monument 77, 109; Monument 80, 51, 52;
Monument 86, 137, 138; Monument 87, 137, 138; Monument 88, 136–137; Monument 89, 136, 137; number of, 130; relative importance of, 146; sandstone figure triad, 134–135; Stela 1, 138, 270; Stela 2, 11, 116; Stela 3, 1, 116; Stela 5, 137–138; stone basins, 121; stone boxes, 121; vs. Takalik Abaj monuments, 196, 203; vs. Tres Zapotes monuments, 116; types of, 8–9, 130; types of stone used for, 138, 146; weight of, 134, 135, 140–141, 147n2, 147n3
La Victoria (Guatemala), 224
Lacantun, 285
Laguna de los Cerros: Monument B at, 121; Monument F at, 121
Laguneta (Guatemala): distribution of monuments at, 237; vs. Kaminaljuyu monuments, 245; vs. La Lagunita, 236, 245; location of, 236; Monument 16 at, 245, 256; Monument 17 at, 245; Monument 19 at, 245; reuse of monuments at, 244; stelae at, 244–245; style of monuments at, 236; Verapaz Sculptural Style at, 245
lakam tuun (large stones), 283, 285, 287
"Lamat" symbol, 187
Landa, Diego de, 289, 290
languages and language families, diversity of, 3–4, 10. See also specific languages
Larmer, Lynn, 171
Las Charcas phase, 158, 159
Las Conchitas (Guatemala), 167–170; Altars 1–6 at, 168–170, 174; discovery of monuments at, 167, 169; location of, 167; skill levels of artists at, 173; Stela 1 at, 169–170; themes of monuments at, 173–174
Las Limas, 46, 92
Las Tunas (Guatemala), 237
Las Tunas (Guatemala): distribution of monuments at, 237; vs. Kaminaljuyu monuments, 245; vs. La Lagunita, 236, 245; location of, 236; Monument 16 at, 245, 256; Monument 17 at, 245; Monument 19 at, 245; reuse of monuments at, 244; stelae at, 244–245; style of monuments at, 236; Verapaz Sculptural Style at, 245
Leiden Plaque, 291
Lerdo de Tejada, 109, 111
Lévi-Strauss, Claude, 29
lightning, Chahk associated with, 289, 291–293, 296
lightning stones, 289, 291–296
limestone, 16
Little Tradition, vs. Great Tradition, 150
Loltun Cave (Yucatan), carving from, 11, 286–287
Long Count dates: stone as embodiment of time and, 289; at Takalik Abaj, 199, 203, 204; at Tres Zapotes, 98, 118, 119–120
looting: at La Blanca, 152; at Teopantecuanitlan, 55, 56
López, Fernando, 166
López, Juan, 166
López Austin, Alfredo, 33, 80
López de Cogolludo, Diego, 289
Lord Rain (Quiyahuilt Tecuhtli), 47, 48
Lord 10 Knot, 49, 50
Lords of Creation catalogue, 152
Los Capulines de Atlacholoaya, 77. See also Zazacatla
Los Cerritos Sur, 159
Los Mangales (Guatemala): burials at, 236, 237, 245–246; cupules at, 245–246; destruction of monuments at, 235; distribution of monuments at, 234, 237; location of, 236; Monument 13 at, 245–246; Monument 14 at, 246; Monument 15 at, 246; Pecked and Grooved Sculptural Tradition at, 245; reuse of monuments at, 246; style of monuments at, 236
Los Naranjos (Honduras), 9
Love, Michael W., 149–174, 190
Lowe, Gareth W., 108, 229
lowlands. See Maya Lowlands
low-relief sculpture: dating of, 8–11; distribution of, 8–11, 17–19; narrative scenes in, 10. See also specific sites
Machaquillá, Stela 12 at, 290
magic, 46
Maize God: in La Venta monuments, 136; in San Bartolo murals, 218, 266; in Teopantecuanitlan monuments, 69, 90; and transformation figurines, 45; in Tres Zapotes stelae, 127n3
maize motif: in Tres Zapotes stelae, 127n3; in V-shaped designs, 89; in Zazacatla Lajas Structure, 89–90
Maler, Teobert, 285
Malmström, Vincent Herschel, 122
Marcus, Joyce, 15, 25n4
Martín, Dana B., 62
Martínez Donjuán, Guadalupe, 18, 55–75, 90, 181, 203
mask(s): buccal, 74, 83, 89, 112, 136; duckbill, 74; monster, 36, 116, 118, 119; stucco, 19; on transformation figurines, 30, 43
materiality, of stone, 285–290
materials: diversity of, 150, 152–157; location of, 16; types of, 16
Maya(s): Ch’olti’, 255, 291; Ch’orti’, 287, 292; K’iche’, 36, 171, 236, 237, 257; languages and distribution, 4, 235; nahualism of, 36; in origins of Mesoamerican civilization, 17
Maya Lowlands: calendrical notation in, 23; distribution of monuments in, 18, 19, 22; vs. Guatemalan Highlands, 231; water deity representations in, 217–219; writing in, 23
Maya monuments: dating of, 283; distribution of, 18, 19, 22. See also Classic Maya monuments; Classic Maya stelae; specific sites
Maya sites. See specific sites
Maya style, vs. Olmec style, 181–182
Mayan languages: distribution of, 155; diversity of, 4; earliest writing on monuments, 23, 237, 242; in Guatemalan Highlands, 235, 236, 237; in Maya Lowlands, 23; nahual in, 42; in Pacific coast and piedmont, 207; progress in decipherment of, 147; shininess in, 291–293; stone in, 283, 285–289, 298n1; stone monuments in, 283, 285–286; Takalik Abaj in, 177, 205n1
Mazatan, 17
megaliths, 286
Mendieta, Gerónimo de, 35, 46
Mendoza, Codex, 32
Mesoamerica: boundaries of, 3; chronology of, xiii, 2–3; definition of, 3; expansion of, 3; maps of, 3, 30; origin of civilization, 17; principal sites of, 3
metal, stone associated with, 288
meteorological phenomenon. See weather methodologies, for analysis of stone monuments, xvii–xviii, 4–5, 23–24
Mexican Highlands, map of, 78
Mezcala River, 55, 58
Mezcala-style figurines, 171
MFCC. See Middle Formative Ceremonial Complex
mica, 295
Mictlatecutli (deity), 34
Middle America: history of studies of, 1, 23, 24; linguistic diversity in, 4; Mesoamerica as region in, 3. See also Mesoamerica
Middle Formative Ceremonial Complex (MFCC), 77–78, 92–93
Middle Preclassic period: architecture of, 17, 18; dating of monuments from, 7–12; distribution of monuments in, 16, 17–20, 157–159; economic disruptions in, 98; regional centers of, 158–159; social transitions in, 4; temporal boundaries of, 2; transition to Late Preclassic from, 149, 151
Milbrath, Susan, 101, 102, 108, 109
Miles, Suzanne W., 12, 109, 151, 166, 187, 205n1
Miller, Jeffrey, 291
Millet Cámara, Luis Alfonso, 98, 116, 117
miniature potbelly sculptures, 170–171, 173, 227, 228
Mirador Basin, 19
Mirafloros ceramic sphere, 237
Mirafloros period, 259, 262
Mirafloros style, 186
mirror sign, 356, 291, 292
Mixe language, 4, 42
Mixe-Zoque people, 262
Mixe-Zoque proto-language, 4, 42, 207
Mixteca-Puebla–style figurines, 171
mobility: of nahuals, 38; of stone monuments, 23
Moctezuma Ilhuicamina, 37
Moctezuma Xocoyotzin, 36
Molina, Alonso de, 33
monkeys, 167, 174
monster masks, 116, 118, 119
Monte Albán (Oaxaca): Building J at, 21–22; Building L-sub at, 20, 21, 22; conquest monuments at, 21–22; danzantes at, 21, 22; distribution of monuments at, 20–22
Monte Alto (Guatemala): distribution of monuments at, 22, 221–222; heads at, 221–222, 223; Monument 2 at, 221; Monument 3 at, 220, 221, 229; Monument 4 at, 221, 222; Monument 5 at, 221; Monument 6 at, 221, 230n4; Monument 7 at, 221; Monument 8 at, 221, 223; Monument 9 at, 221; Monument 10 at, 221, 223; Monument 11 at, 221; potbelly sculptures at, 74, 161, 163, 221–222, 228; supernatural sculptures at, 166; water deity representations at, 220, 221
monuments. See stone monument(s)
Morelos: languages in, 4; nahuals in, 46–52; water shrines in, 46, 47. See also specific sites
Morley, Sylvanus G., 285
“mother culture” theory, 17
mounds: at Izapa, 209–214; at La Blanca, 154–155, 170, 223, 230n5; at La Venta, 130–132; at San Sebastian, 162; at Tres Zapotes, 97, 98
mountain faces, 136
mountains: animate qualities of, 289; low-relief sculpture associated with, 10; rain shrines on, 46–47; symbolic significance of, 80; Zazacatla associated with, 87–93
murals, at Zazacatla, 83. See also San Bartolo murals
musculature, in La Venta sculptures, 143, 144
museums: La Venta monuments in, 130; pedestal sculptures in, 166–167; San Sebastian monuments in, 162; Takalik Abaj as, 181
mushroom stone sculptures, 170
Nahuatl language: in Central Mexico, 46; nahual in, 33, 34–36; in Central Mexico, 46–47; in colonial era, 34, 35, 37–38; definition of, 27, 33; difficulties in classifying, 29, 33; distribution of, 38–43; economic implications of, 36; ethnographic documentation of, 39–43; figurines depicting, 27–28, 29–33, 43–46, 54n2; in Guerrero, 46–52; hierarchy of, 35–36; as inherited vs. learned ability, 34, 37–38; map of, 39; mobility of, 38; monuments depicting, 28–29, 47–51; in Morelos, 46–52; origin of term, 33–34, 42, 53; process of transformation of, 27–29, 37–38, 45; rulers as, 27, 33, 34, 36, 47–51, 53; sanctuaries of, 42, 43; vs. tonal, 33; weather control by, 27, 33, 35, 37, 42, 46–51, 53–54. See also jaguar nahuals
Nahuatl language: in Central Mexico, 46; nahual in, 33, 42; Teopantecuautlan in, 55
Nahui Ehecatl (deity), 34–35, 37
Nakbe Stela 1, 11, 242
Nanahuatzin (deity), 34
Naranjo (Guatemala): astronomical orientations at, 10, 161; basalt monuments at, 10, 284, 285; as ceremonial center, 236; cupules at, 246; dating of monuments at, 10, 12, 18, 285; decline of, 236; distribution of monuments at, 18; Olmec style in, 22, 2616; plain
monuments at, 10, 18, 161, 285; as regional center, 159; stela-altar pairs at, 12, 18 
Naranjo River, 168 
narrative relationships, among Izapa monuments, 211–216 
narrative scenes: in Izapa art, 185; in low-relief sculpture, 10; in San Bartolo murals, 219; at Takalik Abaj, 204 
natural resources: of Guatemalan Highlands, 235, 257–258; of Kaminaljuyu, 262; of Zazacatla, 80 
naualli, 33 
Nebaj, 255 
nestepe, 107 
niche figures, 138 
Niederberger, Christine, 44–45 
Nil phase, 180 
nomads, 4 
nonelites: as nahuals, 34, 36; production and use of sculpture by, 157, 161, 173, 174; rise of inequality and, 149 
Norman, V. Garth, 209, 211 
numerology, at Takalik Abaj, 190, 195 
Nuñez de la Vega, Francisco, 37–38 
Oaxaca, Nahuals in, 42. See also specific sites 
Oaxaca, Valley of: calendrical notation in, 23; carved stones in, 20–21, 2504; conquest monuments in, 20–22; danzantes in, 20–21; distribution of monuments in, 20–22; thrones in, 15; writing in, 23 
obsidian: at El Portón, 241; in Guatemalan Highlands, 235, 257–258; at Kaminaljuyu, 262; shininess of, 289, 292; sources of, 98; at Takalik Abaj, 195 
offerings: at El Portón, 241; at Takalik Abaj, 194, 195; at Tres Zapotes, 117, 118 
ointments, 37 
Ojo de Agua (Chiapas), 10, 25n2, 61 
Olmec, problems with term, xiv 
Olmec art: approaches to analysis of, 146–147; transformation in, 27 
Olmec culture: economic disruptions in, 98; four world quarters in, 70; human sacrifice in, 51; languages of, 4; nahuals in, 27–29, 42, 50, 51; origins of Mesoamerican civilization in, 17; origins of stone monuments in, 7, 17, 18, 195 
Olmec dragon, 29, 89, 92, 93, 95 
Olmec sites: dating of monuments at, 7–8; distribution of monuments at, 20. See also specific sites 
Olmec-style monuments: altars, 138; chronological sequence of, 101, 102; cliff carvings and, 286, 287; dating of, 7–8; distribution of, 17–20; end of tradition of, 20, 22; as first monuments, 7, 17; lack of antecedents for, 7, 8; Maya style, 181–182; motivations for, 298n2; mutilation of, 203; writing and, 146–147. See also colossal heads; specific sites 
Olmos, Andrés de, 35 
Orellana, Sandra L., 171 
Orr, Heather, 51 
Orrego Corzo, Miguel, 158, 177–204 
Otomanguean language, 4, 45, 53 
owls, 190 
Oxtotitlán (cave), 47 
Pacific coast and piedmont: ethnic groups in, 207–208; map of, 208; potbelly sculptures in, 221–229; trade routes in, 207–208; water deity representations in, 207–211 
Pacific Guatemala, 149–174; dating of monuments in, 151–152; distribution of sculpture in, 162–164; diversity of forms in, 150–151, 157–161; diversity of media in, 152–157; diversity of themes in, 173–174; domestic settings of, 170–174; maps of, 151, 158, 159, 160, 162, 163; sculpture outside political centers of, 162–170. See also specific sites 
Padre Piedra, 26n7 
paintings of monuments: at Copan, 294–295; at La Blanca, 152, 154; at La Laguna, 249, 253, 254; at La Venta, 154; on plain stelae, 285; at Takalik Abaj, 187; at Zazacatla, 83, 85, 86 
paintings: cave, and nahuals, 47; distribution of, 25–26n5; human form represented in, 16. See also murals 
Palenque (Chiapas): La Picota monument at, 283–284; Oval Palace Tablet at, 273; Tablet of the Cross at, 273 
Panofsky, Dora, 147 
Panofsky, Erwin, 147 
parallax, 261 
patronage, elite, 157, 173, 174 
paw-wing motif, 29 
pebble caches, at El Portón, 241 
Pecked and Grooved Sculptural Tradition, 245 
pedestal sculptures: dating of, 11–12, 158; destruction of, 257; distribution of, 12, 161, 162; at El Portón, 240–242; identity of makers of, 167, 174; from La Argelia, 156, 166–167; thrones depicted in, 13–14 
Pellicer Cámara, Carlos, 147n4, 148n5 
period-ending ceremonies, 289–290 
perspective, in three-dimensional works, 29 
Peten (Guatemala), 285, 286–287 
photogrammetry, 261 
photographic documentation, 260–261, 269 
Piedra de Sacrificios, 245 
Piedra Labrada: Monument 3 at, 49–51; Monument 13 at, 49–51; stela at, 49 
Piedras Negras: Altar 4 at, 288–289; Panel 12 from, 267 
placemaking: distribution of monuments in, 122–126; in group identity, 122; state formation as, 97, 122; at Tres Zapotes, 122–126 
plain monuments: dating of, 10; definition of, 10; distribution of, 10, 18–19, 22, 166; in Guatemalan Highlands, 18, 158; meaning of, 5, 284–285; at Naranjo, 10, 18, 161, 285; painting on, 285; shininess of, 285; stucco on, 187, 285; at Takalik Abaj, 187, 190
plain stelae: astronomical orientations of, 10, 161; definition of, 161; distribution of, 18, 160, 161, 166, 284–285; meaning of, 284–285, 297; painting on, 285; at Palenque, 284; at Teopantecuanitlan, 75; at Tikal, 284–285; at Zacatula, 83 plaster, on plain monuments, 285

Pohl, Mary E. D., 148n6 pointing gesture, 267, 273


See also regional centers

political ideologies, on display in stone monuments, 208 political organization: in Guatemalan Highlands, 236; of Kaminaljuyu, 261, 262; monuments as source of information about, 149; role of monuments in, 25. See also chiefdoms; state formation

political placemaking, at Tres Zapotes, 122–126

political power: in distribution of monuments, 16–17; in early stages of state formation, 149–150; handedness as sign of, 270; monuments as source of information about, 149; mutilation of monuments for, 203; of nahuals, 27, 33, 34, 36; overestimation of, 149–150; rulers’ claims about, 149–150

political process, role of monuments in, 25

politicoeconomic strategies: exclusionary vs. collective, 99–100, 126; and relationship to dominance, 149; at Tres Zapotes, 99–100, 126

polity, definition of, 122. See also state formation; states

Polol, 269

Pool, Christopher A., 97–126, 273

Popenoe de Hatch, Marion, 230n4, 236–237, 245, 255, 257

Popol Vuh, 75


portraits of rulers. See rulers, portraits of

Portrero Nuevo, 270

Postclassic period: camahuiles in, 171; nahualism in, 27, 47; problems with division of, xiii

postures, meaning of, 266–267, 270, 272–273

potbelly sculptures, 221–230; of animals, 227; antecedents in domestic figurines, 161, 173, 207, 222–229; vs. camahuiles, 171–173; dating of, 11, 12, 109, 221, 224, 226–227; diagnostic attributes of, 221, 227, 230n4; distribution of, 160, 161, 221; in domestic ritual, 173, 221–229; in domestic settings, 161, 170–173; at El Ujuxte, 155, 170–171, 227, 228, 229; in Guatemalan Highlands, lack of, 256; at Izapa, 229; miniature, 170–171, 173, 227, 228; at Monte Alto, 74, 161, 163, 221–222, 228; in regional centers, 161; vs. representational stelae, 161; at San Sebastian, 163–164; at Takalik Abaj, 109, 171, 184, 185–186, 190, 202; at Teopantecuanitlan, 73–74; at Tres Zapotes, 109; and water deities, 229

pottery. See ceramics

power. See political power

precious stones, 288, 297

precipitation, nahuals’ understanding of, 37, 38.

See also rain

Preclassic period, 1–25; city living in, 4; dating of monuments from, 5–15; distribution of monuments in, 16–23; history of scholarship on, xiii–xiv, 23; origin of term, 1; principal sites of, 3; problems with concept, xiii–xiv, 1–2; as relational and developmental term, 1; social transitions in, 4; subdivisions of, 2–3; temporal boundaries of, xiv, 2–3; use of term, 1–2

Preclassic Transition: definition of, xiii; as focus of scholarship, xiii, xvii; languages in, 4; origins of stone monuments in, 7

Pre-Columbian studies, history of, xiv, 23–24

pregnancy, 227

preservation, vs. documentation, 260

Price, Clifford A., 260

Principal Bird Deity, 212, 217, 219, 255, 256

prisoners, images of, 236, 257, 264, 266–267

private space. See domestic sphere and rituals

Proskouriakoff, Tatiana, 146, 298n2

Providencia phase, 158, 159

Proyecto Arqueológico La Venta, 135

Proyecto Nacional Takalik Abaj, 187

public architecture. See architecture, public

public rituals: domestic rituals replaced by, 225–226, 228–229; at El Ujuxte, 226, 227, 228–229

public works, water deities and, 216, 217

puffy faces: of ceramic domestic figurines, 223–229; of potbelly sculptures, 221–229

pumice, sculpted, at La Blanca, 154–155

Pye, Mary E., 27–54, 108, 193

pyramids: at La Blanca, 156; at La Lagunita, 249; stucco masks on, 19

pyrite, 195

quatrefoil: at La Blanca, 152, 170; at San Bartolo, 218; symbolic significance of, 152, 198; at Takalik Abaj, 198

Quetzalcoatl (deity), 34, 35

quetzals, 36, 48–49

Quiché Department (Guatemala): discovery of monuments in, 231; regional centers in, 236. See also La Lagunita

Quilaztli, 37

quincuncx pattern, 249

Quiyahuitl Tecuhtli (Lord Rain), 47, 48

Quiyahuizteca (People of the Rain), 46

“rabbit woman,” 192

radiocarbon dating, at Tres Zapotes, 98, 100, 108, 118, 119

rain: in distribution of nahuals, 42–43; nahuals’ control of, 46–51

rain deities: in nahualism, 27, 35, 46, 48, 50–51; shrines to, 46–47; and water management, 213. See also Chahk; water deities

Rain God, and nahuals, 43, 46, 50–51. See also Chahk; water deities

rain nahuals, 46

rain sanctuaries and shrines, 46–47

raindrop motif, 47–48, 49

raking-light photography, 261, 269

INDEX 351
rammed-earth technique, 156
regional centers: distribution of monuments in, 158–159, 161; distribution of monuments outside, 160, 162–170; in Guatemalan Highlands, 236; La Blanca as, 159, 223; La Laguna as, 236, 247–248, 252; Middle Preclassic, 158–159; portrayals of rulers in, 160, 174; potbelly sculptures in, 161; Takalik Abaj as, 159, 177; Tres Zapotes as, 97, 98, 123–124, 126.
See also ceremonial centers
regional sculptural styles, development of, 20, 22
Reilly, F. Kent, III, 28, 29, 52, 77, 89, 95, 127n3, 270
Religious sphere and rituals; public rituals
reverential postures, 266
Rodríguez, María del Carmen, 148n6
Rodas, Sergio, 160, 161, 230n4, 230n6
Rodriguez, Maria del Carmen, 148n6
round, sculpture in the.
"restorations," to La Venta monuments, 147n4, 148n5
Retahuleu (Guatemala), 166
reuse/recycling/recarving: vs. destruction, 279; in "restorations," to La Venta monuments, 147n4, 148n5
“restorations,” to La Venta monuments, 147n4, 148n5
reusability, 279
relief carvings, on cliffs, 286–287

Sacred landscape, xvii, 122–123
sacred mountain, 89, 91
sacrifice: animal, 51; human, 35, 46, 51
Sacred space, xvii
sacredness, 32
sandstone, 16, 134–135
Saturno, William A., 258n2
sarcophagi, at La Laguna, 171, 249, 253–255
Saturno, William A., 258n2
scepters, 138
scepters, 138
San Bartolo murals: accession scene in, 255; dating of, 258n2; vs. Kaminaljuyu monuments, 266; and La Laguna sculptures, 249; meaning of postures in, 266; water deity in, 217–219
San Diego, cliff carving at, 186–187
San Francisco River, 168, 170
San Isidro, 17
San José Mogote, 25n4
San Juan Sacatepequez, Monument 1 at, 224, 226
San Lorenzo (Veracruz): apogee of, 7; establishment of, 6–7; at El Portón, 242, 253; at Kaminaljuyu, 152, 257, 260, 267, 274–279; at Laguna, 244; at Los Mangales, 246; meanings obscured by, 25; prevalence of, 25; at Takalik Abaj, 152, 181, 190–191, 200–201; at Tres Zapotes, 101, 119–120, 122, 124, 126
reverential postures, 266
rituals: period-ending, 289–290; at Takalik Abaj Altar 46, 195; water deities in, 219–220. See also domestic sphere and rituals
Rocio phase, 198
Rodas, Sergio, 160, 161, 230n4, 230n6
Rodriguez, Maria del Carmen, 148n6
round, sculpture in the. See full-round sculpture
Ruiz de Alarcón, Hernando, 33, 34
ruled(?) ruler: Ajaw title for, 242; burials of, 198–199; cult of, 151; divinity claimed by, 149; domestic rituals appropriated by, 225–226, 227–229; individual vs. coalition as, 101, 122, 126; motivations for sculptural appropriation of, 207, 208, 215–216, 229–230; as nahuals, 27, 33, 34, 36, 47–51, 53; nahuals used by, 34, 38; placement of monuments by, 210; and rules for display of sculptures, 20, 174; throne distribution and, 15; water deities as focus of, 210, 215–216, 220–221. See also elites; political power
rule(?) portraits of: distribution of, 159, 160, 174; interpretations of, 151; mutilation of, 203; on stelae, 151, 160; at Takalik Abaj, 200, 202, 203, 204; at Tres Zapotes, 123–124, 127n4
rulership theme: claims about power in, 150; distribution of, meaning of, 159, 160, 174; at Kaminaljuyu, 151, 259, 262, 264–267, 270, 273–274; in masks, 19; postures depicted in, 266–267, 270; in representational stelae, 151, 160; at San Lorenzo, 6–7; at Takalik Abaj, 151, 200, 202, 203, 204; at Tres Zapotes, 116, 119, 122, 123–124, 126; in Zazacatla Lajas Structure, 90–91, 92, 93–94, 95
Sacramento Valley, 25n4
salt, 262
Salamá Valley (Guatemala), 237–247; conflict in, 236, 237; distribution of monuments at, 234, 237; earliest monuments in, 236; earliest occupants of, 235; expansion of settlements in, 236; map of, 233; in Miraflores ceramic sphere, 237. See also specific sites
San Bartolo (Guatemala), writing at, 23, 242, 244
San Bartolo murals: accession scene in, 255; dating of, 258n2; vs. Kaminaljuyu monuments, 266; and La Laguna sculptures, 249; meaning of postures in, 266; water deity in, 217–219
San Diego, cliff carving at, 186–187
San Francisco River, 168, 170
San Isidro, 17
San José Mogote, 25n4
San Juan Sacatepequez, Monument 1 at, 224, 226
San Lorenzo (Veracruz): apogee of, 7; establishment of, 6–7; at El Portón, 242, 253; at Kaminaljuyu, 152, 257, 260, 267, 274–279; at Laguna, 244; at Los Mangales, 246; meanings obscured by, 25; prevalence of, 25; at Takalik Abaj, 152, 181, 190–191, 200–201; at Tres Zapotes, 101, 119–120, 122, 124, 126
reverential postures, 266
rituals: period-ending, 289–290; at Takalik Abaj Altar 46, 195; water deities in, 219–220. See also domestic sphere and rituals
Rocio phase, 198
Rodas, Sergio, 160, 161, 230n4, 230n6
Rodriguez, Maria del Carmen, 148n6
round, sculpture in the. See full-round sculpture
Ruiz de Alarcón, Hernando, 33, 34
ruled(?) ruler: Ajaw title for, 242; burials of, 198–199; cult of, 151; divinity claimed by, 149; domestic rituals appropriated by, 225–226, 227–229; individual vs. coalition as, 101, 122, 126; motivations for sculptural appropriation of, 207, 208, 215–216, 229–230; as nahuals, 27, 33, 34, 36, 47–51, 53; nahuals used by, 34, 38; placement of monuments by, 210; and rules for display of sculptures, 20, 174; throne distribution and, 15; water deities as focus of, 210, 215–216, 220–221. See also elites; political power
rule(?) portraits of: distribution of, 159, 160, 174; interpretations of, 151; mutilation of, 203; on stelae, 151, 160; at Takalik Abaj, 200, 202, 203, 204; at Tres Zapotes, 123–124, 127n4
rulership theme: claims about power in, 150; distribution of, meaning of, 159, 160, 174; at Kaminaljuyu, 151, 259, 262, 264–267, 270, 273–274; in masks, 19; postures depicted in, 266–267, 270; in representational stelae, 151, 160; at San Lorenzo, 6–7; at Takalik Abaj, 151, 200, 202, 203, 204; at Tres Zapotes, 116, 119, 122, 123–124, 126; in Zazacatla Lajas Structure, 90–91, 92, 93–94, 95
Schele, Linda, 291, 298n4
Schieber de Lavarreda, Christa, 158, 177–204
Schultze Jena, Leonhard, 171
science, vs. art, 23
sculptors: elite vs. nonelite, 157, 173, 174; evidence of individual or group of, 167, 174; skill levels of, 163–164, 173; specialized knowledge of, 173; training of, 173; travel by, 196
sculptural forms: diversity of, 150–151, 157–161; in Early Preclassic period, 6–9; in Late Preclassic period, 10–15, 159–161; in Middle Preclassic period, 7–12, 157–159; rulers’ reasons for choosing, 207, 208. See also specific forms
sculpture: as active vs. reactive, 208; copying of, 174; definitions of, 150; elites’ role in production of, 157, 173, 174; role in civilization, xviii, 23; rules regarding display of, 20, 174; vs. stone monuments, xvii, 150; as trade item, 174. See also specific types
secondary centers: artists in, 174; distribution of monuments in, 160, 162–170; of Pacific Guatemala, 162–170; rules for display of monuments in, 174. See also specific sites
Sedat, David W., 235, 236, 241, 244, 245, 246, 258n2
serpent(s): ancestors associated with, 272; Chahk associated with, 213; at Chichén Itzá, 63; at Izapa, 213, 270–272; at Kaminaljuyu, 270; in nahualism, 37; at Takalik Abaj, 200–201; at Teotihuacan, 63, 64
serpent nahuals, 42
shamans, 27, 43
Sharer, Robert J., 235, 236, 237, 241, 244, 245, 246, 258n2
shiner glyph, 291–294, 298n4
shininess: lightning as cause of, 289; and Maya stelae, 285, 291–296; and mirror sign, 291; of plain monuments, 285; representations of, 291, 292, 298n4; of stone, 289, 291–296
Shook, Edwin M., 18, 152, 161, 162, 166, 187, 245, 255, 256, 258n2
Shook Altar, 158, 242, 244
Shook Panel, 43–44, 45, 52
sibik tuun (soot stone), 286
Simeón, Rémi, 33
Sin Cabezas pedestal sculptures, 158
Sitáná, 166
sites, Preclassic: in dating of monuments, 6–15; maps of, 3, 30, 78; principal, 3. See also specific sites
sky, in Zazacatla Lajas Structure, 89, 93
sky bands, 270–272
sky-monster masks, 116
Smith, A. Ledyard, 234, 253
Smith, Adam T., 122
social organization: monuments as source of information about, 149, 236; stratification in Guatemalan Highlands, 236
Solano ceramic tradition, 257
solar orientation: of plain stelae, 161; at Teopantecuanitlan, 63–64, 67, 68, 75
Solórzano, Luis, 169
solstices, 67
Sombrerete (Zacatecas), 39
soul, of stone, 288
Spanish conquest. See colonial era
spirits, in stone, 288
S-shaped designs, 47, 48, 50, 53, 69, 70
stalagmites, 86
state formation: carved stones in, 20; from chiefdoms, 151; as placemaking, 97, 122; political power in early stages of, 149–150; spread of, 10, 149; at Tres Zapotes, 122–126
states, regional differences in, 10
stela(e): celtiform, 136, 291; dating of, 8–13; distribution of, 18–19; manifestation of deities in, 210–211; Mayan words for, 285–286; nahuals depicted on, 49; origin of form, 19; rulers depicted on, 151, 159, 160; small, 10. See also specific cultures and sites
stela cult, 283
stela-altar pairs: dating of, 12–13; distribution of, 18; at El Portón, 237–244; at Izapa, 13, 209; at Teopantecuanitlan, 12–13, 72–73
stereophotography, 260–261
Stirling, Matthew W., 98, 111, 112, 116, 118, 119, 120, 127n4, 133, 134, 135
stone monument(s), 1–25; as active vs. reactive, 208; approaches to analysis of, xvii–xviii, 4–5, 23–24; vs. clay sculptures, 60–64, 152, 155, 157; as communication devices, 19, 25, 129, 145–147; contexts of, xiii–xiv, 4, 23, 24; dating of, 5–15; deities embodied in, 210–211; distribution of, 16–23; documentation methods for, 259–261; as dynamic objects, xviii–xviii; elites’ role in production of, 157, 173, 174; as interpretive tool, xvii–xviii, 23; materials used for, 16; Mayan words for, 283, 285–286; mobility of, 23; mutilation of (See mutilation/breakage/defacement of monuments); origins of, 7, 16, 17, 18, 195; other monuments referenced by, 211; reuse of (See reuse/ recycling/recarving); role in civilization, xvii, 23; rules regarding display of, 20, 174; vs. sculpture, xvii, 150; vs. small carved stones, 254; social organization revealed by, 149, 236; spread of, 16; techniques for carving, 16; uses and meanings of, 4–5, 23, 24
stone workers. See sculptors
storm gods, 37
storms, 37
Stuart, David, 49, 156, 210–211, 258n2, 267, 279, 283–297
stucco: on buildings, 19; on plain monuments, 187, 285; stucco masks, 19
subjectivity, in documentation, 261, 263, 282n4
submissive postures, 266, 267, 270
Suchiate River, 214
Sun God, 295
supernatural beings: in La Argelia sculptures, 166; in La Venta sculptures, 136, 137, 138; in San Bartolo murals, 218–219; in Takalik Abaj sculptures, 204; in Zazacatla sculptures, 86, 92. See also deities
supernatural world, in Zazacatla, 80, 89, 93
supra-regional centers, representational stelae at, 160
symmetry: in La Venta, 132; in Takalik Abaj, 190, 191

Tabasco. See specific sites
taj tuun (torch stone), 286
Takalik Abaj (Guatemala), 177–204; ballcourt at, 180–181, 197–198, 199; burial at, 198–199; Central Group of, 180, 186, 187, 195; ceramics at, 177, 195; city center of, 186–195; construction stages of, 180–181, 198–200; decline of, 180; distribution of sculpture outside, 162–166; El Escondite at, 217; growth of, 180, 181; history of studies of, 177, 187; layout of, 178, 180, 186, 187; location of, 177, 178; Long Count dates at, 199, 203, 204; maps of, 178, 179; name of, 177, 205n1; origins of stone carving at, 195; political transition at, 202–203; as regional center, 159, 177; Rosada Structures I and II at, 198; secondary sites of, 162–166; Structure 7 at, 186, 191–195, 198–199, 203; Structure 74 at, 192, 198–199; Structure 9 at, 187–188, 190; Structure 10 at, 187–188, 190; Structure 11 at, 187–188, 190; Structure 12 at, 187–190, 199–200, 202; Structure 13 at, 186, 187–188, 190; Terrace 1 at, 187; Terrace 2 at, 179, 180, 181, 186, 187–190; Terrace 3 at, 179, 186, 190–195, 198; topography of, 178–180
Takalik Abaj monuments, 177–204; Altar 8, 199; Altar 109, 161, 171, 184, 185–186, 190, 202; Monument 68, 185, 190; Monument 69, 188, 189; Monument 70, 185, 190, 199; Monument 93, 193; Monument 100, 184; Monument 107, 184; Monument 108, 184, 190; Monument 109, 184; Monument 188, 183, 187; number of, 177, 186; Olmec style of, 177, 181–186, 195–198, 201–203, 205n2; pedestal sculptures, 166; plain, 187, 190; potbelly sculptures, 109, 161, 171, 184, 185–186, 190, 202; primary vs. secondary, 204; reuse and re-placement of, 152, 181, 190–191, 200–201; rulership theme of, 151, 200, 202, 203, 204; shift in styles of, 177, 181, 194, 198, 201–203; Stela 1, 216, 217, 218, 272, 273; Stela 3, 242, 244; Stela 5, 183, 187, 188, 190, 199–200, 266; Stela 12, 183, 187, 190, 200; Stela 13, 192, 193–194, 198–199, 203; Stela 18, 177, 187; Stela 50, 192; Stela 71, 201; Stela 74, 182, 192, 198; stylistic divisions of, 181; themes of, 195–198; types of, 181, 185–187; water deity representations in, 216–219
Tate, Carolyn E., 43, 135
Taube, Karl A., 45, 48, 50, 51, 69, 90, 127n3, 136, 166, 209, 212, 216, 219, 220
taxcal, 180, 198, 205n3
Tecun Uman, 37
Tenochtitlan: axe at, 45; Monument I at, 51; Templo Mayor at, 93
tenoned busts, at Tres Zapotes, 101, 109–112
Teocuicani, 46
Teopantecuhtlian (Guerrero), 55–75; apogee of, 57–58; Area A of, 58, 59; as ceremonial center, 77, 80; conflict in, 70; construction stages of, 58; discovery of monuments at, 56; distribution of monuments at, 18; ethnic identity in, 94–95; excavations at, 55; foreign influence in, 72–74; full-round sculpture at, 18; geology of, 57; vs. La Venta, 136; location of, 55–57; looting at, 55, 56; maps of, 57, 59; meaning of name, 55; mutilation of monuments at, 70–71, 203; Northern Terrace at, 71, 72; Olmec style in, 55, 58, 70, 72; plain stelae at, 73; as regional center, 57–58; Structure 2 at, 71, 89, 94–95; Structure 3 at, 67, 71, 88, 89, 94–95; topography of, 80; vs. Zazacatla, 77, 80, 88, 89–90, 94–95
Teopantecuhtlian Northern Esplanade, 71–74; limestone head in, 72, 73; potbelly sculpture in, 73–74; Sculpture 2 in, 13, 72–73; sculpture fragments from, 61–62, 63, 70–71; Stela 2 in, 73; Stela 3 in, 12–13, 72–73; toad sculpture in, 73
Teopantecuhtlian Sunken Patio, 58–71; astronomical orientation of, 63–64, 67, 68, 75; as ballcourt, 60, 67, 69, 70, 75; ballplayer gods in, 69–70, 75, 90; calendrical associations of, 67; ceremonial significance of, 58, 63–64, 75; clay sculptures in, 55, 60–64; construction stages of, 58, 62, 64, 67; cosmological functions of, 63, 67, 69–70, 75; decommissioning of, 58, 70–71; discovery of, 55; glyphs in, 67; layout of, 58, 59, 61, 62; map of, 59; materials used in, 58–60; Monuments 1–4 in, 56, 64–71, 89–90; S-shape in, 48, 50, 69, 70; stone sculpture fragments from, 61–62, 63, 70–71; time-keeping in, 67, 71
Teothuacan: Fat God complex at, 227; Structure 40A of West Plaza at, 63, 64
Tezcatlipoca (deity), 34, 291
themes, sculptural: diversity of, 173–174; ethnic diversity and, 94–95; rulers’ reasons for choosing, 207, 208, 220–221. See also specific sites and themes

three-dimensional laser scanning, 259–261; applications for, 259–261, 280–281; vs. conventional documentation, 260–261, 269; of damaged monuments, 259; drawings based on, 262–263, 270, 282n5; equipment used in, 262, 263, 282n5; of Kaminaljuyu Monument 65, 262–273; subjectivity in, 263, 282n4

three-dimensional works, perspective in, 29. See also full-round sculpture

thrones: altars as, 6, 13; dating of, 6, 7, 13–15; distribution of, 15; four-legged, 13–14; in Kaminaljuyu monuments, 264, 267; representations of, 13–15; at Takalik Abaj, 190–191

Tikal (Guatemala): plain stelae at, 284–285; representation of Chahk at, 209, 210; Stela 31 at, 285

Tiltepec (Chiapas): Monuments

Tlapa Valley (Guerrero), 30

Tlapa (city), 54n4

Tlatilco, contortionist figurine at, 43, 44–45, 52

Tlatilco, contortionist figurine at, 43, 44–45, 52

Tlatilco, contortionist figurine at, 43, 44–45, 52

Tonal: definition of, 33; vs. nahual, 33

Tonalá (Chiapas), 166

Toniná (Chiapas), 166

Tonacatecutli (deity), 35

toad altars: distribution of, 161, 162–163, 168; at Izapa, 213, 214–215; at Las Conchitas, 168–169; at San Sebastian, 162–163, 164; in stela-altar pairs, 13

Tonacatecutli (deity), 35

tonal: definition of, 33; vs. nahual, 33

Tonalá (Chiapas), 166

Toniná (Chiapas), Monument 30 at, 286

trade: greenstone, 98; sculptures as items of, 174; in spread of sculptural styles, 196

trade routes: Guatemalan Highlands in, 234, 235, 236, 257; Kaminaljuyu in, 262; monuments marking, 197; nahual sanctuaries along, 43; Pacific coast and piedmont in, 207–208; Takalik Abaj in, 180, 181, 196, 197, 203; Teopantecuanitlan in, 58

transformation(s): animal to human, 193; by deities, 34, 35; difficulties in classifying, 29; human to animal (See nahuals); in Olmec art, 27; religious beliefs about, 34

transformation figurines, 27–28, 29–33, 43–46, 54n2

Tránsito (Guatemala), 72

travel: by artists, 196; by nahuals, 38

Traxler, Loa, 256

Tres Zapotes (Veracruz), 97–126; decline of, 97; excavations at, 98; factions at, 98–99; growth of, 97, 98; individual vs. coalition as rulers of, 101, 122, 126; layout of, 124–126; location of, 98; Long Count dates at, 98, 118, 119–120; maps of, 99, 123, 125; mounds at, 97, 98; Olmec style at, 98, 116; Plaza B at, 118–119, 126; plaza groups at, 100, 124–126; political placemaking at, 122–126; politicoeconomic strategies at, 99–100, 126; radiocarbon dating at, 98, 100, 108, 118, 119; as regional center, 97, 98, 123–124, 126; territorial boundaries of, 109

Tres Zapotes monuments, 116–121; basins, 121–122; boulder sculptures, 104; boxes, 121–122; chronology of, 101–108; colossal heads, 98, 104, 107, 108–109, 123–124, 127n4; dating of, 97–98, 100, 101, 116; distribution of, 123–126; full-round, 101, 108–116; maps of, 123, 125; Monument 19, 112, 114, 125; Monument 25, 112; Monument 27, 112; Monument 29, 112; Monument 33, 116–118; Monument 35, 109; Monument 37, 109, 110; Monument 38, 120, 121; Monument 39, 120, 121; Monument 40, 121; Monument 42, 120; Monument 43, 112; Monument 44, 108, 118, 126; Monument A, 107, 108, 123–124; Monument B, 104, 121; Monument C, 104, 105, 121, 125; Monument D, 121; Monument E, 105; Monument F, 111, 112, 114; Monument G, 111–112, 113; Monument H, 109, 110; Monument I, 102, 109; Monument J, 102, 109; Monument L, 109; Monument M, 102, 103, 121; Monument M at, 109; Monument N, 121; Monument O, 112, 115; Monument P, 112, 115; Monument Q, 107, 108, 124; Monument Q at, 108; Monument R, 112, 127n2; as portraits, 123–124, 127n4; potbelly sculptures, 109; sculptural techniques of, 101; seated figures, 102, 109; Stela A, 102, 103, 108, 116; Stela B, 119; Stela C, 98, 104, 105, 108, 116, 118–120, 122, 126, 127n3; Stela D, 102, 103, 104, 108, 116, 118, 122, 267; Stela E, 105, 120–121; Stela F, 116, 117; tenoned busts, 101, 109–112, 124–125; types of, 101

tuff, 83

Tulcingo, 32

turtles, 170

tuun (stone): Maya use of term, 283, 285–289; vs. tun, 298n1

Tuxtla Chico, 29

Tuxtla Mountains, 98

Tuxtla Statuette, 74

Tuzapan figurine, 62, 63

Tzotzil, 287

Tzutzuculi, 26n7

underworld, Zazacatla Lajas Structure linked to, 86–87, 89, 91–93

underworld-monster masks, 116

University of California at Berkeley, 130, 177, 187, 205n1

University of Pennsylvania, 234–235, 237

urban living, 3–5

Urcid, Javier, 49

U-shaped designs, 198
Velásquez, Juan Luis, 167, 169
Venus symbol, 187
Veracruz. See specific sites
Verapaz Archaeological Project, of University of Pennsylvania, 234–235
Verapaz Sculptural Style, 245
Verbena phase, 262
verticality, 265
visual imagery, as substitute for writing, 146–147, 148n6
volcanic stone: history of use, 16; at Takalik Abaj, 177; at Zazacatla, 83
V-shaped designs: symbolic significance of, 89, 93; in Teopantecuanitlan clay sculptures, 60; in Zazacatla Lajas Structure, 82–83, 89–90, 93, 94–95
water: animals associated with, at Takalik Abaj, 186; on Izapa monuments, 209–214; in nahualism, 37, 39, 46–47
water deities, 207–221; at Calakmul, 217, 218; at Izapa, 208–219; at Káminaljuyú, 219–220; at Monte Alto, 220; multiple aspects of, 214, 215, 219; and potbelly sculptures, 220; and public works, 216, 217; rulers’ reasons for focusing on, 210, 215–216, 220–221; at San Bartolo, 217–219; at Takalik Abaj, 216–219
Water Lily Serpent, 218
water management: at Izapa, 209–216; rain deities associated with, 213; at Takalik Abaj, 217
water shrines, 46–47
weather: nahuals’ control of, 27, 33, 35, 37, 42, 46–51, 53–54; nahuals’ understanding of, 37, 38
Weiant, Clarence W., 98, 119
Weitlaner, Roberto J., 33
were-jaguar gods, 55
were-jaguars: babies of, 46, 92; in Teopantecuanitlan monuments, 62, 64–66; and transformation figurines, 43, 44, 46
Wichmann, Søren, 42
wind deities, 46
winds, nahual control of, 35, 37, 42, 53
Wisdom, Charles, 292
wood sculptures: as antecedents of stone monuments, 7; evidence of, 155–156
world (cosmic) trees: definition of, 80; mountains as, 80; in Tres Zapotes stelae, 116, 127n3; V-shaped designs as, 89; in Zazacatla Lajas Structure, 89–91, 95. See also axis mundi
worldview. See cosmology/cosmovision
wrist bands, 266
writing: cupules as alternative to, 245–247; destruction of monuments with, 255; at El Portón, 235, 242–244, 257, 258n2; at El Zapote, 210–211; in Guatemalan Highlands, 231, 234, 256–257; at Káminaljuyú, 243, 256, 257, 270, 274; at La Lagunita, 257; at La Venta, lack of, 146–147, 148n6; on Maya stelae, 285–287; origins of, 23; at San Bartolo, 23, 242, 243, 258n2; at Takalik Abaj, 203, 204; at Teopantecuanitlan, 67; at Tres Zapotes, 118, 120, 126; visual imagery as substitute for, 146–147, 148n6
X symbol, 67, 68, 143, 144
Xoc (Chiapas), 74, 286, 287
Yaxchilan, Lintels 14 and 15 at, 272–273
year-stones, 289–290
Yoffee, Norman, 149–150
Young Lord statuette, 50, 152, 158
Zacatecas. See specific sites
Zacualpa (Guatemala), 234
Zapotec language, 42
Zapotec people, 17
Zapotécos, 124
Zazacatla (Morelos), 77–95; as ceremonial center, 77, 80; construction stages of, 77, 80–82; excavations at, 80; full-round sculpture at, 18; layout of, 79; location of, 78–80; maps of, 78, 79; natural resources of, 80; Olmec style at, 77; Structure 1 at (See Zazacatla Lajas Structure); Structure 2 at, 80, 82, 93; Structure 3 at, 80–82; Structure 4 at, 82; Structure 5 (Megalajas Structure) at, 82; Structure 6 at, 82; topography of, 80
Zazacatla Lajas Structure, 80–95; construction stages of, 80, 82, 85–86; different stones used at, 87; dismantling of, 82, 83, 91; distribution of monuments in, 18, 87; ethnic identity expressed in, 93–95; layout of, 82–83, 85–86, 87–89, 91–92; Monument 1 in, 77, 83–85, 87, 89; Monument 2 in, 77, 83–85, 87, 89; Monument 3 in, 86–87, 93; Monument 4 in, 86–87, 93; mountains associated with, 89–93; painting in, evidence of, 83, 85, 86; Structure 1, 80, 81, 82–85, 87–91; Structure J-A, 80, 85–87, 91–93; underworld associations in, 87, 89, 91–93; V-shaped designs in, 82–83, 89–90, 93, 94–95
Zender, Marc, 51
zoomorphic beings: distribution of, 161; in Zazacatla sculptures, 86
Zoque, “Dance of the Jaguar” ritual of, 219–220
Zoque language, 4
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