Formative Mexican Chiefdoms and the Myth of the “Mother Culture”

Kent V. Flannery and Joyce Marcus

_Museum of Anthropology, University of Michigan, Ann Arbor, Michigan 48109-1079_

Most scholars agree that the urban states of Classic Mexico developed from Formative chiefdoms which preceded them. They disagree over whether that development (1) took place over the whole area from the Basin of Mexico to Chiapas, or (2) emanated entirely from one unique culture on the Gulf Coast. Recently Diehl and Coe (1996) put forth 11 assertions in defense of the second scenario, which assumes an Olmec “Mother Culture.” This paper disputes those assertions. It suggests that a model for rapid evolution, originally presented by biologist Sewall Wright, provides a better explanation for the explosive development of Formative Mexican society.

INTRODUCTION

On occasion, archaeologists revive ideas so anachronistic as to have been declared dead. The most recent attempt came when Richard Diehl and Michael Coe (1996) parted the icy lips of the Olmec “Mother Culture” and gave it mouth-to-mouth resuscitation. ¹

The notion that the Olmec of the Gulf Coast were the mother of all Mesoamerican civilizations goes back more than half a century (Covarrubias 1944), to a time when Formative archaeology was in its infancy. Scholars of the 1940s saw general stylistic similarities between the Gulf Coast and the Mexican highlands; since Olmec centers had stone monuments and the highlands generally did not, it was assumed that the Gulf Coast was in the forefront and the highlands were begging to be civilized. Five decades of subsequent excavation have shown the situation to be more complex than that, but old ideas die hard.

In “Olmec Archaeology” (hereafter abbreviated OA), Diehl and Coe (1996:11) propose that there are two contrasting “schools of thought” on the relationship between the Olmec and the rest of Mesoamerica. In the Olmec-centric school they place themselves, John Clark, Beatriz de la Fuente, Paul Tolstoy, and the late Alfonso Caso, Ignacio Bernal, Miguel Covarrubias, Matthew Stirling, and George Vaillant. This group, they allege, agrees with them that the Olmec were different from their contemporaries in kind rather than degree, creating the entire symbolic system of 1150–500 b.c. ² and becoming the Mother Culture of later Mesoamerican civilization. In the primus inter pares school they place William R. Coe, Arthur Demarest, John Graham, David Grove, Norman Hammond, Flannery and Marcus, Robert Stuckenrath, Jr., and the late Sir Eric Thompson. They describe this school as believing that the Olmec were “no more advanced than any other” Formative cul-

¹ While Diehl is given as the co-author of the 1996 resuscitation, he and Coe are not always in full agreement. For example, Diehl believes (as do we) that the Olmec were a set of chiefdoms; Coe does not (Coe and Diehl 1980b:147). Coe believes that the Olmec site of San Lorenzo is a gigantic bird effigy; Diehl (personal communication, 1990) does not. We thus feel uncomfortable including Diehl in our rebuttal of what are largely Coe’s views. Our compromise is simply to refer to the Diehl and Coe (1996) paper by its title, “Olmec Archaeology.”

² In this paper, lowercase “b.c.” is used for uncalibrated radiocarbon years before the Christian era.
ture and contributed "little if anything to later [Mesoamerican] civilization."

Our school would be happy to challenge the Olmec-centrists to a tug-of-war, since half the members of their team are dead. However, their portrayal of our position is not accurate—a familiar problem when one is being used as a straw man. We would not describe the Olmec as "no more advanced" or "contributing little." Their contribution has simply been exaggerated by Olmec-centrists, who credit the Olmec with many things their neighbors did earlier or better.

OA presents 11 "traits" which allegedly show the Olmecs' maternal role in Mesoamerica's genealogy (Diehl and Coe 1996:23). We find those traits unconvincing and suggest that there are better frameworks than the Mother Culture model, which we do not find appropriate for any world region. One alternative is a model for the conditions leading to rapid evolution, presented by the distinguished biologist Sewall Wright (1939). Even before refuting the 11 traits, however, we must modify the authors' caricature of our position.

PRIMUS INTER PARES: A CLARIFICATION


Among the most interesting societies in the ethnographic and archaeological records are chiefdoms—societies based on hereditary differences in rank, in which the chief's authority extends to satellite communities. Chiefdoms are not a monolithic category; they come in many different types. Some, like those of Panama's Azuero Peninsula, were sedentary and flamboyant (Lothrop 1937; Linares 1977; Helms 1979). Others, like those of Iran's Zagros Mountains, were pastoral and non-flamboyant (Barth 1964; Flannery in press). Within Polynesia alone, Goldman (1970) has classified some chiefdoms as "traditional" (based more on sacred authority), others as "open" (based more on secular power), and still others as "stratified" (large, with a combination of sacred authority and secular power). Nowadays the term "paramount" often substitutes for Goldman's "stratified." While rank in traditional chiefdoms usually took the form of a continuum from higher to lower status, a few paramount chiefdoms—like those in Hawai'i (Kirch 1984: Fig. 85)—achieved stratification by cutting lower-status families out of the genealogy, reducing them to a commoner class.

In some parts of the ancient world, chiefdoms persisted for centuries. Research in such regions has defined a long-term process called "chiefly cycling" (H. Wright 1984; Anderson 1994). In this process, paramount chiefdoms rose, peaked, then collapsed amid a regional landscape of smaller traditional or open chiefdoms. It is increasingly clear that paramount chiefdoms formed by taking over their weaker neighbors (Carneiro 1981, 1991). Their collapses resulted from such factors as competition between chiefly families or factions, endemic raiding, agricultural failure, or demographic imbalance, and usually took the form of fragmentation back into the smaller units from which they had been created. We view the Olmec as one more set of paramount chiefdoms that rose, peaked, and eventually collapsed in a landscape of traditional and open chiefdoms.

A rare paramount chiefdom might succeed in subduing and incorporating other
large chiefdoms, creating a polity so great that it could no longer be administered as a chiefdom (Spencer 1998). This is how indigenous states formed in Madagascar (Dewar and Wright 1993) and among the Zulu, Ashanti, Hunza, and Hawai`ians (Flannery 1999). It is becoming increasingly clear that the first states in southwest Iran, Egypt, Peru, Oaxaca, and the Maya region also formed this way (H. Wright 1986; Flannery 1995; Marcus 1992, 1993, 1998a; Marcus and Flannery 1996). It makes the study of chiefdoms all the more interesting to discover that, on at least some occasions, they became the “precursors” of states (Carneiro 1981; H. Wright 1984).

It took more than 1000 years for Mexico’s Formative societies to become complex enough to serve as precursors for states. By the middle of the second millennium b.c., agricultural villages were spread over the whole area from the Basin of Mexico to the Pacific Coast of Chiapas. Some, but not all, of these village societies had been reorganized into states by the beginning of the Christian era.

We know less about this transitional period than we should, since some archaeologists assume that their sites belong to chiefdoms without producing evidence of the requisite sociopolitical institutions. Elsewhere we have suggested that as many as ten lines of evidence may be necessary to confirm a chiefdom (Marcus and Flannery 1996:110). At this writing, we are confident that the Valleys of Mexico, Puebla, Morelos, and Oaxaca, and various parts of Guerrero, Chiapas, and southern Veracruz-Tabasco had chiefly societies by 1150 b.c. We are less confident about areas such as the Tehuacán Valley and the Cañada de Cuicatlán, but they show evidence of modest chiefdoms by 600–450 b.c. (Spencer 1993).

Most chiefly centers of 1150–450 b.c. were in frequent contact with each other, exchanging goods like obsidian, marine shell, iron ore mirrors, and the like (Pires-Ferreira 1975). Tlapacoya in the Basin of Mexico sent Paloma Negative and Cesto White pottery to San José Mogote in the Valley of Oaxaca; Oaxaca sent Leandro Gray and Delfina Fine Gray pottery to Tlapacoya and to San Lorenzo, Veracruz (Marcus 1989:192; Flannery and Marcus 1994:259–263, 286). San José Mogote received turtle shell drums and pearly freshwater mussels from the San Lorenzo region; it also received Guamuchal Brushed pottery from Chiapas (Flannery and Marcus 1994:286). Magnetite from Oaxaca reached San Pablo in Morelos and San Lorenzo in Veracruz (Pires-Ferreira 1975).

There are two reasons why such exchanges of goods should not surprise us. The first is that intersite distances were not great. Given foot travel estimates of 4.5 km per h (Morley 1938:234) or 32 km per day (Hammond 1978), even a trip from the Basin of Mexico to the Chiapas Coast would take less than a month. The second reason is that chiefly elites are always eager for prestigious gifts from other chiefly elites.

THE OLMEC IN WIDER CONTEXT

Let us now look at the Olmec in the context of chiefdoms worldwide. The apoeege of this flamboyant society took place between 1150 and 300 b.c. on Mexico’s Gulf Coast (Grove 1997). What we know of its demographic history suggests typical chiefly cycling. San Lorenzo, perhaps the earliest Olmec center, peaked between 1150 and 900 b.c.; it then suffered a loss of population and many of its stone monuments were defaced, most likely by a rival chiefdom (Coe and Diehl 1980a, b; Cyphers 1997). San Lorenzo’s population was partially restored between 600 and 400 b.c., after which it collapsed again and lay abandoned for centuries rather than becoming part of a state.
La Venta, a second Olmec center some 90 km to the northeast, rose to prominence between 900 and 600 b.c. (Drucker et al. 1959; González Lauck 1996). It is probably no accident that La Venta’s rise coincided with San Lorenzo’s 900–600 b.c. hiatus. Whether La Venta or a third chiefly center was responsible for defacing San Lorenzo’s monuments, this cycle of synchronized rises and collapses is typical of chiefdoms competing for labor and resources (H. Wright 1984; Anderson 1994).

Indeed, the Olmec resembled many other chiefdoms worldwide. Some of their chiefly centers covered hundreds of hectares, like the largest Mississippian centers of North America. The Olmec built earthen mounds like some Polynesian chiefdoms. They set up huge stone sculptures like chiefdoms on Easter Island, and carved wooden statues and jade sumptuary goods like the Maori. While they were not identical to any of those other chiefdoms, the difference was more of degree than kind.

Many chiefly centers sprawled over areas larger than that of a typical Bronze Age city. This results from the fact that chiefs cannot control people at a distance, as states can; many chiefs therefore concentrated thousands of farmers, warriors, and craftsmen as close to their residences as possible. Conversely, when a chiefdom “cycled down,” its loss of population could be as spectacular as that recorded from San Lorenzo at 900 b.c. by Symonds and Lunagómez (1997:135).

Even at their peaks, San Lorenzo and La Venta were smaller than Cahokia, a Mississippian chiefly center in Illinois. At its apogee in A.D. 1250, Cahokia is estimated to have covered 13 km² (Milner 1998:109; Pauketat 1994). This is six times the current estimate for La Venta (González Lauck 1996:75) and twice the most hyperbolic estimate for San Lorenzo (Lunagómez 1995). Surveys of the American Bottom, the alluvial valley surrounding Cahokia, suggest that the site’s immediate “sustaining area” may have covered 3000 km². By A.D. 1400 it had collapsed without becoming part of a state.

Like the Olmec, Cahokia was once conceived of as a “mother culture.” Forty years ago, when we had much less information than we do now, the American Bottom was considered “something of a font from which all Mississippian [culture] arose, even the source of invading waves of population” for other parts of the eastern United States (Anderson 1994:144). Over the past four decades, that model of Cahokian mother culture has been replaced by a multiple-center model. The Mississippian is now seen as “emerging” (Smith 1990) simultaneously from local Woodland cultures all over the Southeast, and “any recourse to population movement is suspect” (Anderson 1994:144).

Even within the 3000 km² American Bottom, Milner (1990:29) would now see Cahokia as primus inter pares, the dominant political entity among a number of organizationally similar (if less complex) semiautonomous chiefdoms which exercised considerable control over their own territories—something analogous, in other words, to Powhatan’s confederacy of 200 villages (Rountree 1989). Anderson (1994:141) points to a significant difference between Cahokia and most early states: “the complete absence [at Cahokia] of evidence for formal, differentiated administrative structures.”

While it lacked administrative structures, Cahokia did build earthen mounds. One of these, Monks Mound, stands 30 m high and covers an area 300 × 212 m (Anderson 1994:138). It is the largest

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3 The largest estimates for San Lorenzo would include, within the boundaries of that one site, localities which other reports consider separate sites in the settlement hierarchy below San Lorenzo.
earthen structure in the New World, dwarfing even the largest pyramid at La Venta (Drucker et al. 1959:11).

Some Polynesian chiefdoms also built mound groups rivaling La Venta. The Tu’i Tonga, or hereditary chief, of Tonga ruled from a fortified ceremonial center called Lapaha on the island of Tongatapu (McKern 1929; Kirch 1984:228). Stretching along the shore of a lagoon for 1.5 km, Lapaha featured a series of plazas and 20–30 earthen mounds, both circular and rectangular. Historically known chiefs or their brothers and sisters lie buried under specific mounds.

Several Polynesian chiefdoms, most notably Easter Island, erected monumental stone statues analogous to the colossal heads of San Lorenzo and La Venta (Fig. 1). Based on ethnohistoric records, Bahn and Flenley (1992) suggest that the huge statues or moai of Easter Island represent important ancestors. They were set on slopes above villages to stand guard during the ceremonies of their descendants, but were sometimes toppled by victorious enemies. Easter Island was an open chiefdom in Goldman’s (1970:21) terms, not nearly as powerful as the paramount chiefdoms of Tonga and Hawai’i. Despite this, Easter Island carved 900 to 1000 moai (Van Tilburg 1994), roughly 100 times as many colossal heads as are known from San Lorenzo (Diehl and Coe 1996:15).

Many chiefdoms carved jade, another activity for which the Olmec are known. Among the most spectacular were the tikis of jadeite or nephrite carved by the Maori (Mead et al. 1985), a traditional Polynesian chiefdom. Some carvers were renowned throughout New Zealand, and the best jades were given names and became heirlooms for the elite.

Maori chiefs also supported carvers of wooden house posts and statues (e.g. Mead et al. 1985: Pl. 37, 39, 47, 58). This craft is another with which the Olmec are now credited, based on the discovery of waterlogged wooden busts in a spring at El Manatí, Veracruz (Ortíz and Rodríguez 1989, 1999). As Fig. 2 should make clear, however, the best Maori carvers took a backseat to no one, including the Olmec. Maori chiefs’ houses had carved lintels, thresholds, side posts, roof beams, and support posts. Each house was considered a work of art and given a name. Similar craftsmanship was lavished even on storage houses, which might be given names like Te Oha, “The Abundance.” Maori chiefs also commissioned Meeting Houses for their followers. The roofs of these Meeting Houses were supported by huge upright posts, sometimes carved to re-

FIG. 1. Many chiefdoms erected stone sculptures of chiefly ancestors. (a) Moai 27 from Easter Island (height 5.45 m). (b) Colossal Head 4 from San Lorenzo (height 1.78 m). Redrawn from Van Tilburg (1994) and de la Fuente (1975).
semble warriors; the door posts were also
carved, often depicting legendary ances-
tors.

San Lorenzo has produced one feature
which (although enigmatic) hints that the
Olmec may have had comparable public
buildings, but with roofs supported by ba-
salt columns instead of wooden posts. The
evidence consists of a carved basalt col-
umn (now broken in half), its upright base
set in a patch of red clay floor with asso-
ciated steps and a stone-lined drain
(Cyphers 1997: Fig. 7.15).¹

In sum, the Olmec fit comfortably
within the parameters of chiefdoms
worldwide. They built mounds and plazas
like Tongan chiefdoms, carved jades and
wooden statues like the Maori, erected co-
lossal heads like Easter Island, and con-
centrated thousands of farmers, warriors,
and artisans in sprawling settlements as
the chiefs of Cahokia did. The Olmec look
impressive relative to their contemporar-
ies, but not in comparison to later societies
like those centered at Teotihuacán and
Monte Albán.

THE 11 OLMEC-CENTRIC TRAITS
PROPOSED IN OA

In spite of the Olmecs’ resemblance to
other chiefdoms, Coe has always imag-
ined them to be a colonizing empire, “Me-
soamerica’s first true civilization.” Let us
look at the 11 “traits” which he and his
co-author believe support the Olmec-cen-
tric view (Diehl and Coe 1996:11).

Trait 1. San Lorenzo and La Venta had
“multitiered, hierarchical settlement sys-
tems that integrated towns, smaller vil-
lages, tiny hamlets, craft workshops and
special ritual locales”—systems that “oc-
curred nowhere else in Mesoamerica until
centuries later.” (Convinced that “special
ritual locales” were unique to the Olmec,
the authors of OA use them again as
Trait 7.)

Someone evidently hasn’t been reading
the settlement pattern literature. Every

¹ The basalt column is called Monument 57. Un-
fortunately, the patch of red clay floor with steps has
been nicknamed “El Palacio Rojo,” an easily remem-
bered but misleading label since we lack a plan of
the building, and what we do have looks nothing like
a Mesoamerican palace (see Flannery 1998 for exam-
pies).
major chiefly center of the period 1150–450 B.C. whose hinterland has been systematically surveyed had villages and hamlets hierarchically below it. The Basin of Mexico (Sanders, Parsons, and Santley 1979; Niederberger 1996: Map 1), the Valley of Morelos (Hirth 1980, Grove 1987), the Valley of Oaxaca (Kowalewski et al. 1989; Marcus and Flannery 1996), the Chiapas coast (Clark and Blake 1994), and northern Belize (Hammond 1991) all had hierarchies of villages and hamlets below major centers. As for “craft workshops,” examples include the Matadamas chert quarries (Whalen 1986) and Fábrica San José saltworks (Drennan 1976) in the Valley of Oaxaca. “Special ritual locales” are also widespread; consider the painted cliffs and caves above the site of Tlapacoya in the Basin of Mexico which, oriented east toward the volcanoes Ixtacihuatl and Popocatepetl, receive the early light of sunrise and “may have constituted a significant component of sacred space” (Niederberger 1996:87). The painted cave of Oxtotitlán in Guerrero (Grove 1970) would be a second example.

Trait 2. Although we “cannot yet decipher the meanings,” San Lorenzo and La Venta “were laid out as cosmograms.” This is sheer speculation, based on Coe’s belief that San Lorenzo was laid out to resemble a “gigantic bird flying east” (Coe and Diehl 1980a:387). This notion is refuted by geological studies which show that, although modified by architectural terracing, the overall shape of the San Lorenzo plateau is largely the result of natural erosion (Cyphers 1997:102–105).

While true cosmograms have not been found, many early Mesoamerican cultures used solar or astral principles in orienting important buildings. As early as 1350 B.C., the occupants of the Valley of Oaxaca were apparently aligning their Men’s Houses to the sun’s path during the equinox. This resulted in an orientation 8° N of east, or as it is often given, 8° W of north (Flannery and Marcus 1994:31–33; Marcus and Flannery 1996:87). Complex A at La Venta had a similar orientation (Drucker et al. 1959), but since the Oaxaca Men’s Houses antedate Complex A by 500 years, one can hardly credit the Olmec with Mexico’s first solar or astral alignments.

Trait 3. Although admitting that “we lack precise data on the size of Olmec polities,” the authors of OA argue that the territories controlled by Olmec centers may have been “significantly larger than those of their contemporaries.” The truth is that we also lack precise data on the size of their contemporaries’ polities, making the whole topic speculative.

Trait 4. The Olmec, OA asserts, “had a highly sophisticated symbol system expressed in a coherent art style.” We defer our discussion of this trait to a later section, where we show that San Lorenzo had only a subset of the repertoire of symbols used throughout early Mexico.

Trait 5. The Olmec invented monumental stone carving, which was “a defining characteristic of every Mesoamerican civilization.” We agree that monumental sculpture was a defining characteristic of the Olmec; the question is, how accurate an indicator of sociopolitical complexity is it? We have already shown that Easter Island, a modest chiefdom by Polynesian standards, produced 100 times as many colossal heads as are known from San Lorenzo.

Trait 6. Predictably, the authors of OA use the colossal heads for a second trait. Both the heads, and the wooden busts found in the spring at El Manatí, are thought by them to be “portraits of rulers.” Again, this is pure speculation. Like the statues of Easter Island, the Olmec colossal heads might represent chiefly ancestors. As for the busts of El Manatí, they might be (1) ancestors, like some Maori woodcarvings, or (2) surrogate sacrificial victims tossed into a spring.
Trait 7. This trait, “special ritual locales,” has already been discussed under Trait 1.

Trait 8. The ballgame, OA claims, finds its “oldest known evidence” in Olmec deposits; San Lorenzo’s Palangana mound complex (600–400 b.c.) “is the first known, purposefully constructed ballcourt.” This assertion is contradicted by Hill et al. (1998), who claim to have found a 1400 b.c. ballcourt at Paso de la Amada, Chiapas. The game itself is surely older than the Olmec; we even have one preceramic camp site with a boulder-lined area that could be for ballgames (Marcus and Flannery 1996:58–59).

The most convincing evidence for an early Mexican ballgame comes from rubber balls preserved by waterlogging in the spring at El Manatí (Ortíz and Rodríguez 1989, 1999). The discovery of these balls, however, is an accident of good preservation. We cannot assume that similar ballgames were unknown in the highlands; after all, there are very early figurines of ballplayers at El Opeño, Michoacán (Óliveros 1974).

Trait 9. The authors of OA use El Manatí for a second trait: the first “ritual use of rubber.” It makes sense that the first ritual use of rubber might occur on the Gulf Coast, where rubber trees are native—just as it makes sense that the first ritual use of obsidian and magnetite might occur in the highlands, where those raw materials are native. The point is, every region has something it did “first.”

Trait 10. But wait; El Manatí gets used for a third trait. It provides the Olmec with the oldest evidence for “infant sacrifice in water-related rituals.”

The truth is that by the time El Manatí was occupied, infant sacrifice had existed in Mexico for thousands of years. Several infants were sacrificed (perhaps even cannibalized) in Level XIV of Coxcatlán Cave in the Tehuacán Valley, an occupation dating to 5000 b.c. (MacNeish et al. 1972:266–270). The fact that the occupants of the arid Tehuacán Valley used a dry cave for such sacrifices, while the occupants of the humid Gulf Coast used a spring, hardly seems earth-shaking.

Trait 11. The Olmec had “extensive trade networks.” While they admit that most Formative cultures had extensive networks, the authors of OA insist that the Olmec “moved a greater quantity and more different kinds of goods” than their contemporaries (they then pad the list with “probable exports” for which we have no physical evidence.) The fact is that we currently have no objective, quantified measure of goods moved by any Formative society, especially in the case of perishables.

We cannot resist pointing out the irony of the OA authors’ position on Trait 11: All Formative cultures had trade, but the Olmec had the most trade. Doesn’t that make the Olmec primus inter pares?

TRAITS CONSPICUOUS BY THEIR ABSENCE

As interesting as the 11 traits given in OA are the “firsts” the authors do not list for the Olmec. These include the first use of lime plaster, adobe brick, and stone masonry, three materials emblematic of Classic Mesoamerican civilization. OA cannot list these as Olmec innovations because their first use occurred in the Mexican highlands. In the Valley of Oaxaca, for example, lime plaster was used in Men’s Houses as early as 1350 b.c.; adobes were used in public buildings by 1000 b.c.; and stone masonry platforms up to 2.5 m in height were in use by 1000 b.c. (Marcus and Flannery 1996:87, 109–110). By the time such construction techniques reached Complex A, La Venta (Drucker et al. 1959), they had been used in the highlands for centuries.
A DETAILED LOOK AT TRAIT 4

We now look at Trait 4, the “highly sophisticated Olmec symbol system/art style.” OA asserts that this style spread over all of Mesoamerica between 1150 and 850 b.c., and its principal components were “monumental, three-dimensional stone sculpture; hollow whiteware figurines depicting babies; and Calzadas Carved pottery” (Diehl and Coe 1996:23). The OA authors insist that these elements “are indigenous in San Lorenzo’s Initial Olmec period culture and appear as intrusive elements at San José Mogote in the Valley of Oaxaca; Tlatilco, Tlapacoya, and Las Bocas in central Mexico; several sites in Guerrero; and Abaj Takalik, La Blanca, and the Mazatán region in the Pacific coastal region of Chiapas and Guatemala” (ibid.). As we shall see, the available data do not support the notion that carved pottery and hollow baby dolls are “intrusive” in the highlands of Mexico.

It is now clear that widespread regional styles existed in Mexico even before the Olmec rose to prominence. Between 1400 and 1150 b.c., as pointed out by Clark (1991: Fig. 8), Mexico was divided into at least two ceramic style provinces (Fig. 3).
The Basin of Mexico, Morelos, Puebla, the Tehuacán Valley, the Valleys of Oaxaca and Nochixtlán, and the Cuicatlán Cañada all shared red-on-buff bowls, bottles, and jars (Fig. 4). East of Tehuacán and Oaxaca, this red-on-buff complex gradually gave way to one linking southern Veracruz, Tabasco, and Chiapas. This lowland complex featured tecomates or neckless jars with bichrome slips, fluting, or crosshatching (Fig. 5).

Despite these regional differences, a few pottery types were present on both sides of the style boundary. One of these was a pure white product called “kaolin ware,” believed on the basis of petrographic analysis to have been made in two to three different regions (Fig. 6). Also found on both sides of the boundary were tecomates decorated with rocker stamping in zones (Fig. 7). Such vessels make the point that plastic decoration was already
popular at 1400–1150 b.c., in what we assume the Olmec-centrists would have to consider "Grandmother Cultures."

The So-Called "Early Horizon"

Sometime around 1200–1150 b.c., in the words of Tolstoy (1989:275), "conditions over much of Mesoamerica evidently favored demographic growth, craft specialization, increased interregional exchange, greater disparities in social rank, and more elaborate ceremonialism." Certain communities (often the largest in each region) seem to display these characteristics more than others. The increased interregional exchange mentioned by Tolstoy involved obsidian, marine shell, iron ores

FIG. 5. Southern Veracruz, Tabasco, and Chiapas were part of a lowland style province at 1400–1150 b.c. (a) Chilpate Red-on-Cream tecomate, San Lorenzo. (b) Tepa Red-and-White tecomate, coastal Chiapas. (c) Centavito Red fluted tecomate, San Lorenzo. (d) Cotán Red fluted tecomate, coastal Chiapas. (e) Tusta Red fluted tecomate, coastal Chiapas. (f) Achiotal Gray tecomate with zoned crosshatch, San Lorenzo. (g) Salta Orange tecomate with zoned crosshatch, coastal Chiapas. (Redrawn from Coe and Diehl 1980a; Blake et al. 1995.)
and pigments, jade, mica, stingray spines, turtle shell drums, and pottery. Often flamboyant, the pottery came in white, black, gray, red, red-and-white, and black-and-white. Its plastic decoration, while still including rocker stamping, now featured delicate fine-line incising, deep excising or carving, and combinations of these. Many of the carved and incised motifs of 1150 b.c. were so stereotyped and pan-Mesoamerican that some scholars assign them to an “Early Horizon” (see Grove 1989 for discussion).

Olmec-centrists want us to believe that this style was created by the Olmec and imposed on the rest of Mexico. There are several reasons why that is unconvincing. One reason is that Mexico did not, in fact, become one uniform style province between 1150 and 850 b.c. Ceramic assemblages from the Basin of Mexico, Puebla, Morelos, and Oaxaca—components of the old red-on-buff province—still resembled each other more than they did the assemblages of the lowlands. Assemblages from southern Veracruz, Tabasco, and Chiapas—components of the old lowland province—still found their strongest ties with each other. Another reason the Olmec-centrists’ model will not work is that many of the ceramic features they attribute to the Olmec appear earlier, are more abundant, and/or are better made at Tlapacoya, Tlatilco, Las Bocas, and San José Mogote than at San Lorenzo or La Venta (Grove 1989).

Almost 30 years ago, Joralemon (1971) assembled an inventory of 176 allegedly “Olmec” motifs. While widely cited by Olmec-centrists (e.g. Coe and Diehl 1980a, b), this study has two flawed assumptions: (1) a belief that every motif was Olmec no matter what region it came from, and (2) the notion that every motif was a deity. Joralemon created a “pantheon” of alleged “Olmec gods,” but he did so relying heavily on decorated wares from Tlatilco, Tlapacoya, Las Bocas, and other sites in
the Mexican highlands, rather than on Gulf Coast pottery. As a result, a funny thing happened to the “pantheon” on the way to San Lorenzo: most of its “gods” dropped out. Disappointed Olmec-centrists failed to realize that this was because the bulk of Joralemon’s motifs were not Olmec at all, but highland Mexican.

A few years later, Pyne (1976) studied 595 examples of decorated pottery from 1150–650 B.C. in the Valley of Oaxaca. Pyne identified 18 free-standing motifs, the full inventory of which can be found in Figs. 12.5–12.6 of Flannery and Marcus (1994). Rather than referring to these as “gods,” Pyne simply called them “Motifs 1–18.” She did point out that Motifs 1–6 resembled a being Coe had called the “fire-serpent” or “sky-dragon,” while Motifs 8–14 resembled another being, the “were-jaguar” (Pyne 1976:273). Because the ceramics Pyne studied could be linked to house floors, burials, or features (an advantage Joralemon did not have), Pyne was able to point out that Motifs 1–6 and Motifs 8–14 were mutually exclusive, that is, associated with different households or residential wards (Pyne 1976:278).

Eventually, by combining Otomanguean ethnohistory with an even larger sample of ceramics, Marcus (1989) concluded that most of the motifs were not “gods” at all, but references to the great world-divisions Earth and Sky (Flannery and Marcus 1994:136–149). Motifs 1–6 depicted Sky in its “angry” form, Lightning, a “serpent of fire” in the sky (Figs. 8a–c). Motifs 8–14 depicted Earth—sometimes as an Earth mask (Fig. 9) but often in its “angry” form, Earthquake, complete with a cleft head representing a fissure in the earth (Fig. 8d).

The reason such motifs were widespread in early Mexico is because Earth and Sky were parts of an ancient cosmological dichotomy, not because of anything the Olmec did. Grove (1989) suggests that much of the symbolic content existed before 1150 B.C. and is more likely to reflect the common ancestry of Formative cultures than the ingenuity of one culture. By the time the motifs first appeared on ceramics, they were already stylized and had regional variants. For example, while Earth was often shown as Earthquake in the tremor-prone highlands, other artisans referred to Earth by rendering the foot of the Great Crocodile on whose back they believed they resided (Fig. 10; see Marcus 1989).

In sum, despite references to the period 1150–850 B.C. as an Early Horizon, Mexico was still divided into roughly the same...
stylistic provinces seen at 1400–1150 b.c. (Fig. 3). Ties between the Basin of Mexico, Morelos, Puebla, and Oaxaca remained strong, with San José Mogote and Tlatilco/Tlapacoya using similar distinctive artifacts (Figs. 11, 12) and displaying similar motifs on similar vessels (Fig. 13). Ties between Veracruz/Tabasco and Chiapas also remained close; for example, a Brainerd-Robinson matrix calculated by Agrinier (1989) shows strong similarity in ceramic assemblages between San Lorenzo (Veracruz) and Mirador-Plumajillo (Chiapas). Further artifact similarities between those two sites include thousands of iron ore "lug nuts" or multi-drilled cubes (Fig. 14). These unusual artifacts—present also at Las Limas, Veracruz (Agrinier 1989:21)—are virtually absent to the west of the style boundary.

EVALUATING THE CLAIM OF "INTRUSIVENESS"

Having shown that the major stylistic provinces of early Mexico were unchanged by the rise of the Olmec, let us look at the claim in OA that "monumental three-dimensional stone sculpture; hollow whiteware figurines depicting babies; and Calzadas Carved pottery" were "intrusive elements" at highland centers.

FIG. 8. Representations of Sky/Lightning (a–c) and Earth/Earthquake (d–f) on the pottery of 1150–850 b.c. (a) Lightning as a "serpent of fire," Tlatilco. (b) Pyne's Motif 1 (a stylized version of Lightning in which the eyebrow flames are sine curves and the serpent's gums are inverted Us), San José Mogote. (c) Motif 1 set at a 45° angle, as it often was in the highlands. (d) Angry versions of Earth with its head cleft by a seismic fissure, Tlapacoya. (e) Stylized Earth mask with cleft head framed by "music brackets," Tierras Largas. (f) Pyne's Motif 13, Earth's cleft head, as it often appeared on white ware in the highlands (see Fig. 19).
How does one evaluate such a claim? To argue that a specific area was the center of origin for an artifact category, we believe you should be able to show that it occurred first in that area; that it was more abundant in that area; that it displayed greater variety in that area; and/or that it was more skillfully made in that area. Let us see if these criteria are met.

**Monumental Three-Dimensional Stone Sculpture**

The Gulf Coast does indeed have monumental stone sculpture in greatest abun-

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**FIG. 9.** Fine-line incised versions of Earth on pottery, highland style province (1150–850 B.C.). (a) Earth mask on Pilli White vessel, Tlapacoya; the crossed bands in the mouth are Pyne’s Motif 7. (b) Stylized Earth mask on Leandro Gray vessel, Tierras Largas. (Redrawn from Niederberger 1976; Flannery and Marcus 1994.)

**FIG. 10.** Alternative ways of depicting Earth on pottery, 1150–850 B.C. (a) Angry Earth (with cleft head and anthropomorphized world directions) incised on a Pilli White vessel from Tlapacoya. No vessel with a motif this complex has been found in the San Lorenzo phase, which lacked an incised white ware comparable to Pilli White. (b) The hide of a crocodile, as depicted on a human figure from Atlhuaikan. The foot of the crocodile (often mistakenly called a “paw-wing” motif) was widely used as a symbol for Earth (see text). (Redrawn from Niederberger 1987: Fig. 439; Benson and de la Fuente 1996:187.)
dance and variety. San Lorenzo alone has produced more than 70 stone monuments, including 10 colossal heads (Cyphers 1997). To be sure, since many heads were found reused, rededicated, defaced, reworked, or out of context, we cannot be sure how many actually date to the Early Horizon. Many similar monuments from La Venta are thought to be Middle Formative (850–500 b.c.) in date (Drucker et al. 1959; Hammond 1988; Graham 1989; Grove 1997).

The real question is, how often does such sculpture appear as an “intrusive element” in the Mexican highlands? Teopantecuanitlán (Guerrero) has some three-dimensional monuments (Martínez Donjuán 1985, 1994), but most of these are Middle Formative and might have been influenced by the much nearer highland site of Chalcatzingo (Grove 1987). Oaxaca’s Early Horizon sculptures, such as Monuments 1 and 2 of San José Mogote, are not Olmec in style (Marcus 1989; Flannery and Marcus 1994: Fig. 18.9). In the Basin of Mexico neither Tlatilco, Cóixapexco, nor Tlapacoya has produced stone monuments imitating those of the Olmec. Thus, while conceding a Gulf Coast origin for colossal heads, we find little evidence for their “intrusion” into the Mexican highlands.

Hollow Whiteware Figurines Depicting Babies

Hollow white-slipped “baby dolls” appear to have been present at every major Mexican site of 1150–500 b.c. Tlatilco, Tlapacoya, Gualupita, Las Bocas, Teopantecuanitlán, San José Mogote, Etlatongo, San Lorenzo, La Venta, and Paso de la Amada have all produced fragments or complete specimens.

For hollow white dolls, we lack detailed statistics comparable to those for the carved pottery discussed below. It is instructive, however, to examine examples for which proveniences are known or alleged. Consider the catalogues for two recent exhibits of supposedly “Olmec” art: (1) one held by the National Gallery of Art in Washington, D.C. (Benson and de la Fuente 1996) and (2) one held by The Art Museum of Princeton University (1996).

The National Gallery catalog illustrates seven hollow white dolls of young individuals. All are masterpieces; none are from the Gulf Coast. Two are from Tlatilco, two are from Tlapacoya, one is from...
Las Bocas, one is from Atlihuayan (Morelos), and the last is “said to be” from Xochipala (Guerrero). Pages 130–139 of the Princeton catalogue illustrate nine more which look relatively authentic. The alleged proveniences are: three from Las Bocas; two from Guerrero; one each from Tlapacoya, “Morelos,” and “the central highlands of Mexico;” and one listed simply as “Mexico,” although it was once attributed to Las Bocas (Coe 1965: Fig. 184).

The dolls illustrated in both catalogues exceed in craftsmanship any hollow figurine found by Coe and Diehl (1980a:261–279) at San Lorenzo or by Drucker et al. (1959) at La Venta. This reinforces what we learned 35 years ago with Coe’s (1965) publication of The Jaguar’s Children: if you want masterpieces in the hollow white baby doll genre, turn to the Mexican highlands. Such baby dolls were neither demonstrably earlier, nor more abundant, nor more varied, nor more skillfully made on the Gulf Coast; indeed, one could make a case that their epicenter was Mexico’s central highlands.

Coe is aware of this fact, and has tried to dismiss it by arguing that while fragments of hollow white dolls occur in “household debris” at San Lorenzo, they were treated as “prized burial furniture” at highland sites like Las Bocas or Gualupita (Coe 1989:77). The archaeological data do not support this contrast. The restored baby doll shown in Fig. 15 was pieced together from fragments in “occupational refuse” at Tlapacoya (Tolstoy and Paradis 1970: 347). Pieces of hollow white dolls occur regularly in houses and middens at Valley of Oaxaca sites, even hamlets as small as Tierras Largas (Marcus 1998b: Figs. 10.25, 11.14, 11.44, 12.7, 12.15, 12.22, 14.15, 14.34, 15.2). And at Etlatongo in the Nochixtlán Valley, a broken hollow doll was swept

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5 It is disturbing to see how many of the objects in the Princeton exhibit resulted from looting. Page after page of the catalogue attributes pieces to private collections. Don’t look for the names of any Mexican archaeologists in the table of contents; they wouldn’t have been caught dead participating in this display of their stolen patrimony. It is perhaps forgivable when a peasant farmer plows up an important piece in his field and sells it to feed his family. It is unforgivable when a professional archaeologist or art historian, who knows better, validates looting by authenticating and glamorizing such pieces.
into a trash-filled pit with the remains of a
dead dog (Blomster 1998).

*Pottery with Pan-Mesoamerican Carved
Motifs*

Finally, let us examine the claim in OA
that Calzadas Carved pottery was an “in-
trusive element” at sites like Tlapacoya
and San José Mogote. Since key strati-
graphic units from Tlapacoya, San José
Mogote, and San Lorenzo have been pub-
lished in detail, we can compare all three
sites to see if the evidence supports this
claim. We will look at several aspects of
the pottery with pan-Mesoamerican mo-
tifs—its abundance in terms of sherds per
cubic meter; the percentage of the ceramic
assemblage it makes up; its diversity in
surface color and vessel shape; and the
variety of pan-Mesoamerican motifs
present in each region.

*The Basin of Mexico*

We begin at Tlapacoya in the Basin of
Mexico (Niederberger 1976, 1987). Nieder-

![FIG. 13. Between 1150 and 850 b.c. pottery as-
semblages of the highland style province shared
similar combinations of vessel shape and motif. Here we see dark bottles with crosshatched sun-
burst motifs from Tlatilco (a) and San José Mogote
(b). (Redrawn from Porter 1953:Pl. 61; Flannery and
Marcus 1994:99). Height of (a) 16.2 cm.](image)

![FIG. 14. Just as highland Mexican sites of 1150–
850 b.c. shared ground-stone yuguitos, many lowland
sites shared multidrilled iron ore cubes or “lug
nuts.” These examples, averaging 3.1 cm thick, come
from Mirador-Plumajillo (a–c) and San Lorenzo (d–f).
(Drawn from photographs in Agrinier 1989:25; Coe
and Diehl 1980a:242.)](image)
berger's unit "Zohapilco-Tlapacoya IV" was a stratigraphic trench one meter wide, dug by natural stratigraphy. The relevant phases are Nevada (Levels 13, 12), 1350–1250 b.c.; Ayotla (Levels 11, 10, 9), 1250–1000 b.c.; and Manantial (Levels 8, 7, 6), 1000–800 b.c. Profile drawings suggest that 39 m of the trench were opened to the depth of Level 9, while no more than 30 m were opened to Level 13 or below (Niederberger 1976: Pl. 3, 4).

The trench itself was quite long, and few of the levels ran for its full length. For example, Level 9 ran for 20 m and was 60 cm thick, so approximately 12 cubic meters were removed ($1 \times 20 \times 0.6$ m). Roughly 12 m$^3$ of Level 8 were excavated; the volume removed from Level 7 was only 4.4 m$^3$ ($1 \times 11 \times 0.4$ m). We have chosen to highlight Levels 9–7 at Tlapacoya because they have the highest frequency of pan-Mesoamerican motifs. The volumes of earth removed can be compared with those at San José Mogote and San Lorenzo (see below).

Now let us look at Fig. 16, the graph of sherd frequencies in Niederberger's trench, and Table 1, the sherd counts of all Tlapacoya pottery types bearing pan-Mesoamerican motifs. Note, first of all, that 6 pottery types at Tlapacoya bear pan-Mesoamerican motifs. Such motifs occur on local dark gray wares (Tortuga Polished and Volcán Polished); gray ware possibly imported from Oaxaca (Atoyac Fine Gray); white-rimmed black ware (Valle White-rim Black); white-slipped ware (Pilli White); and resist white ware (Paloma Negative).

Next, note how common many of these types were. Tortuga Polished was the second most abundant ware of the Ayotla phase, outnumbered only by the sherds of utilitarian jars (Chalco Smoothed). Tortuga Polished was 20% of the sherds in Levels 13-6; there were 7728 sherds of it in Level 8 alone. Volcán Polished, a related ware constituting less than 5% of the pottery, reached a peak of 787 sherds in Level 9. These two gray wares bore many different motifs, from carved versions of Pyne's Motifs 1, 2, and 7 to fine-line incised or hachured versions of her Motifs 12 and 15 (Niederberger 1976: Pl. 35, 37).

Third, note that Tortuga Polished and Volcán Polished were local types; they did not appear suddenly at 1150 b.c., as if introduced from elsewhere. Both were present throughout the Nevada phase (1350–1250 b.c.), with Tortuga Polished representing more than 20% of the classified sherds at that time. Valle White-rim Black—another type already present at Tlapacoya by 1350 b.c.—was also used for pan-Mesoamerican motifs (Niederberger 1976: Pl. 45).

What adds to the variety of Tlapacoya pottery is the fact that white-slipped...
FIG. 16. Frequencies of classified sherds in Levels 13–6 at Zohapilco-Tlapacoya IV, Basin of Mexico. Pottery types bearing pan-Mesoamerican motifs are printed in capital letters. (Based on Niederberger 1976: Pl. 32.)

<table>
<thead>
<tr>
<th>Dates b.c.</th>
<th>Phase</th>
<th>Level</th>
<th>Chilco Smoothed</th>
<th>TORTUGA POLISHED</th>
<th>VOLCÁN POLISHED</th>
<th>Pilli Red</th>
<th>Pilli Red-on-Buff</th>
<th>Pilli White</th>
<th>Pilli Red-on-White</th>
<th>PALOMA NEGATIVE</th>
<th>VALLE WHITE-RIM BLACK</th>
<th>Xochitepec White</th>
<th>ATOYAC FINE GRAY</th>
<th>El Arbolillo Sandy</th>
<th>Tunal Thick-walled</th>
<th>Puebla Red</th>
<th>Cesto White</th>
<th>Agua Smoothed</th>
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= 20%
wares were also used for pan-Mesoamerican motifs. Pilli White appeared in numerous bowl forms, some carved with Pyne’s Motif 1 and others showing her Motifs 10 and 15 in fine-line hachure (Niederberger 1976: Pl. 42). Paloma Negative, a related ware of the Ayotla phase, was used for one of the most elegant versions of Earth ever found, a vessel eclipsing any found by Coe and Diehl at San Lorenzo (Fig. 17).

Finally we come to Atoyac Fine Gray, an imported ware decorated with Pyne’s Motifs 1, 2, and 7 (Niederberger 1976: Pl. 46). Some vessels of this type (under the earlier name “Tlapacoya Gray”) have been studied by geologists Howel Williams and Wayne Lambert, who consider them to have been made in Oaxaca (Weaver 1967: 30; Lambert 1972; Niederberger 1987:564; Flannery and Marcus 1994:259–262). We suspect that many of these vessels belong to a Oaxaca type called Delfina Fine Gray. However, other Atoyac Fine Gray vessels illustrated by Niederberger (1976: Pl. 46) were probably made locally.

To summarize: carved and incised pan-Mesoamerican motifs were neither rare nor “intrusive” at Tlapacoya. The dark gray wares on which they occurred had been among the most common local types at 1350 b.c., and the motifs themselves were common by 1250 b.c. In Level 8, whose volume was 12 m$^3$, there were 7728 sherds of Tortuga Polished; in Level 7, amounting to only 4.4 m$^3$, there were 2569 sherds of that type. Moreover, pan-

### TABLE 1

<table>
<thead>
<tr>
<th>Type</th>
<th>Nevada</th>
<th>Ayotla</th>
<th>Manantial</th>
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<tr>
<td></td>
<td>13</td>
<td>12</td>
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<tr>
<td>Tortuga Polished</td>
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<tr>
<td>Pilli White</td>
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<td>5</td>
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<tr>
<td>Paloma Negative</td>
<td>—</td>
<td>1</td>
<td>38</td>
</tr>
<tr>
<td>Valle White-rim Black</td>
<td>31</td>
<td>19</td>
<td>220</td>
</tr>
<tr>
<td>Atoyac Fine Gray</td>
<td>1</td>
<td>4</td>
<td>73</td>
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</table>

All classified sherds: 1954 971 15637 20418 30914 11828 2278

FIG. 17. Four angry versions of Earth/Earthquake—one for each of the four great Mesoamerican world directions—circle this bowl from Tlapacoya. The type, Paloma Negative, combines (1) white slip and (2) resist white over pale brown. Locally made at Tlapacoya, Paloma Negative was traded as far as Oaxaca. Highland vessels like this should not be called “Olmec.” Coe and Diehl (1980a) report no sherds of this ware from San Lorenzo and illustrate no vessel approaching it in sophistication. (Drawn from a photograph in Benson and de la Fuente 1996: 202.)
Mesoamerican motifs (sometimes brilliantly executed) also occurred on Tlapacoya’s white-rimmed black, white-slipped, and resist white wares.

San José Mogote

The Valley of Oaxaca lies 330 km from Tlapacoya, but only 210 km from San Lorenzo. If the Olmec were truly the source of inspiration alleged in OA, Oaxaca’s Early Formative ceramics should resemble San Lorenzo’s more than Tlapacoya’s. In fact, the reverse is true (Flannery and Marcus 1994).

The relevant periods in Oaxaca are the Tierras Largas phase (1400–1150 B.C.) and San José phase (1150–850 B.C.). Fig. 18 shows the changing frequencies of pottery types during the course of these periods, including the crucial Tierras Largas/San José transition. All proveniences used in Fig. 18 come from San José Mogote and Tierras Largas, two sites excavated by natural stratigraphic units. Complete sherd counts can be found in Flannery and Marcus (1994).

Four pottery types of the San José phase were used as the medium for pan-Mesoamerican motifs. One, Leandro Gray, resembles Tlapacoya’s Tortuga Polished and Volcán Polished. Another, San José Black-and-White, resembles Tlapacoya’s Valle White-rim Black. Still another, Atoyac Yellow-white, resembles Tlapacoya’s Pilli White. Finally we come to Delfina Fine Gray, an export ware which—as we saw above—was traded to (and imitated by) Tlapacoya.

Leandro Gray was one of the most common pottery types of the San José phase, usually exceeded in frequency only by utilitarian cooking jars (Fidencio Coarse). Leandro Gray grew out of Tierras Largas Burnished Plain, the most common utilitarian ware of the Tierras Largas phase. The changes producing Leandro Gray, which emerged during the Tierras Largas/San José phase transition, simply required burnishing the ware twice instead of once, then firing it in a reducing atmosphere (Flannery and Marcus 1994:157–165). Leandro Gray went on to constitute 23% of all sherds in middle San José times, a percentage comparable to that of Tortuga Polished in Tlapacoya’s early Manantial phase.

Table 2 gives the actual counts of Leandro Gray, Delfina Fine Gray, San José Black-and-White, and Atoyac Yellow-white sherds from an excavation in Area A of San José Mogote (Flannery and Marcus 1994: Figs. 14.1, 14.4). We have chosen to feature this excavation because it covered 12 m², virtually the same area as an important excavation at San Lorenzo which we will discuss below. The stratigraphic levels consist of a midden (Zone D) and the remains of four superimposed household units (Units C4–C1). The details can be found in Flannery and Marcus (1994: Table 14.1).

The Zone D midden was roughly 40 cm thick. The volume excavated was 4.8–5.0 m³, slightly greater than that of Level 7 at Tlapacoya. The number of Leandro Gray sherds from Zone D (2332) is similar to the number of Tortuga Polished sherds from Tlapacoya’s Level 7 (2569). On the other hand, the number of Delfina Fine Gray sherds from Zone D (106) is greater than the number of Atoyac Fine Gray sherds from Tlapacoya’s Level 7 (14). This is reasonable, since petrographic evidence suggests that such gray ware is native to Oaxaca.

Household Units C4-C1 each produced fewer sherds than Zone D, since the volume of earth removed from each was on the order of 2.4 m³. Nevertheless, each household produced 674 to 1667 sherds of Leandro Gray, and 16 to 43 sherds of Delfina Fine Gray. Such quantities of sherds are consistent with what might be expected from volumes of earth half that of Tlapacoya’s Level 7. Like Tortuga Pol-
FIG. 18. Frequencies of classified sherds from eight proveniences at San José Mogote (SJM) and Tierras Largas (TL), Valley of Oaxaca. Pottery types bearing pan-Mesoamerican motifs are printed in capital letters. H.16, House 16; H.C3, Household Unit C3; C/D2, Area C, Level D2; C/E, Area C, Level E; LTL-3, House LTL-3; C/F, Area C, Level F; C/G, Area C, Level G; C/G2, Area C, Level G2. (Raw data from Flannery and Marcus 1994.)

<table>
<thead>
<tr>
<th>Dates b.c.</th>
<th>Phase</th>
<th>Level</th>
<th>Tierras Largas</th>
<th>Avelina/Clementina Red-on-Buff</th>
<th>Maladalmas Red</th>
<th>Maladalmas Orange</th>
<th>Xochitepec White</th>
<th>Fridencio Coarse</th>
<th>LEANDRO GRAY</th>
<th>ATOVAC YELLOW-WHITE</th>
<th>San José Red-on-White</th>
<th>Lupilia Heavy Plain</th>
<th>BLACK &amp; WHITE</th>
<th>DELFINA FINE GRAY</th>
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<tr>
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<td>Tierras Largas</td>
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= 20%
ished, Leandro Gray was produced in a wide variety of vessel shapes: cylinders, outleaned-wall bowls, tecomates, bolstered-rim bowls, spouted trays, vertical-necked jars, and many others. The variety of pan-Mesoamerican motifs was also great, including both carved examples (Pyne’s Motifs 1–7) and fine-line incised examples (Pyne’s Motifs 8–11 and 15–18).

Atoyac Yellow–white, a ware almost as popular as Leandro Gray, was also used as a medium for pan-Mesoamerican motifs (Marcus 1989). Like Leandro Gray, it first appeared during the Tierras Largas/San José phase transition and grew out of Tierras Largas Burnished Plain. (In this case, the new ware was created simply by giving Tierras Largas Burnished Plain a white slip.) In contrast to Leandro Gray—which was most often used for depictions of Sky/Lightning—Atoyac Yellow–white was most often used for depictions of Earth/Earthquake (Pyne’s Motifs 8–10, 12, and 14).

The Valley of Oaxaca was one of the earliest regions to feature the “double-line-break,’’ an incised motif in which parallel lines turn up or down at intervals (Flannery and Marcus 1994: Figs. 12.19–12.22). Yellow-white sherd s of the San José phase suggest that the double-line break originated as a simplified version of Earth, with its cleft head and associated “music brackets” (Fig. 19). This is significant for

<table>
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<th>D</th>
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<th>C2</th>
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<td>All Delfina Fine Gray sherds</td>
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<td>43</td>
<td>43</td>
<td>27</td>
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</tr>
<tr>
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<td>16</td>
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<td>4</td>
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<td>4</td>
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<td>5</td>
</tr>
<tr>
<td>All San José Black-and-White sherds</td>
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<td>51</td>
<td>19</td>
<td>14</td>
</tr>
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<td>1</td>
<td>2</td>
<td>—</td>
<td>—</td>
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<tr>
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<td>4546</td>
<td>6876</td>
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FIG. 19. As early as 1150 b.c., abstract versions of Earth/Earthquake were incised on white-slipped pottery in the highland style province. This sherd of Atoyac Yellow–white from the Valley of Oaxaca shows the cranial fissure (Pyne’s Motif 13) and “music brackets” often associated with depictions of Earth (see Fig. 8). No comparable white ware with incised Earth/Earthquake motifs has been found in 1150–850 b.c. levels at San Lorenzo. (Drawn from a photograph in Flannery and Marcus 1994:147.)
three reasons. First, it reinforces the association of white ware with Earth/Earthquake motifs. Second, it emphasizes the ties between Oaxaca and the Basin of Mexico, where similar motifs occur on Pilli White (compare Niederberger 1987: Figs. 475–476 with Flannery and Marcus 1994: Fig. 19.1). Third, it suggests that the double-line break variant of the Earth motif originated in the Mexican highlands around 1150 b.c. Not until three hundred years later, in the Nacaste phase, did a comparable incised white ware show up at San Lorenzo (Coe and Diehl 1980a:194).

Finally we come to San José Black-and-White, Oaxaca’s version of Tlapacoya’s Valle White-rim Black. Such ware was not present in Oaxaca until 1150 b.c.; once present, however, it was carved with Pyne’s Motifs 7 and 11.

San Lorenzo

We turn now to San Lorenzo, the alleged wellspring of pan-Mesoamerican motifs. In their report on the Yale project, Coe and Diehl (1980a: Tables 4-1 to 4-4) publish the sherd counts from four stratigraphic excavations at San Lorenzo. We assume that these were their best stratigraphic units, since they chose to publish them in detail.

Our first surprise is that Coe and Diehl define only one pottery type—Calzadas Carved—which bears pan-Mesoamerican motifs. Their white-rimmed black ware does not bear such motifs, and even more significantly, the San Lorenzo phase has no incised white ware analogous to Atoyac Yellow-white or Pilli White. This fact has been confirmed by Ann Cyphers (personal communication, 1996) following her recent excavations at San Lorenzo. Owing to this lack of incised white wares, the San Lorenzo phase has surprisingly few pan-Mesoamerican motifs featuring Earth/Earthquake.

Calzadas Carved appears abruptly at the start of the San Lorenzo phase (Coe and Diehl 1980a: Fig. 97), rather than having a long previous history like Tlapacoya’s Tortuga Polished. Equally surprising is the fact that Calzadas Carved seems to be relatively rare, not exceeding 4% of the classified sherds. Having been shown Cyphers’ new collections from San Lorenzo, we have no doubt that she will one day be able to divide Calzadas Carved into (1) a softer and darker gray ware like Leandro Gray/Tortuga Polished, and (2) a harder and lighter gray ware like Delfina Fine Gray/Atoyac Fine Gray. At this writing, however, we are limited to Coe and Diehl’s types. Let us therefore look at their four published stratigraphic units.

SL-PNW-St. II, a major stratigraphic unit for which Coe and Diehl present both a frequency graph and a sherd count, began as a 12 m² excavation (Coe and Diehl 1980a: Fig. 51, Fig. 97, Table 4-1). In its lower levels the excavated area was twice reduced, but its upper levels are comparable in volume to the 12 m² excavation in Area A at San José Mogote. Levels O-K1 are attributed to the “pre-Olmec” Bajío and Chicharras phases (1300–1150 b.c.); K2 is mixed; and Levels J–F are assigned to the San Lorenzo phase, 1150–850 b.c. (Fig. 20, Table 3).

Calzadas Carved, regarded by Coe and Diehl (1980a:159) as “100 percent Olmec,” occurred in Levels K2-F. What stands out is the small number of sherds—only 29 in all of SL-PNW-St. II. Level K2, whose volume was somewhere between 3 and 6 m³ (3 × 2 × 0.5–1.0 m), produced 1617 classifiable sherds, of which only 19 were Calzadas Carved. Level F, whose volume was roughly 6–9 m³ (4 × 3 × 0.5–0.75 m), produced 133 classifiable sherds, of which only 5 were Calzadas Carved. Nor do the surprises end there: the total number of Calzadas Carved sherds produced by the Yale project’s four published stratigraphic cuts was only 38 (Coe and Diehl 1980a: Tables 4-1 to 4-4).
FIG. 20. Frequencies of classified sherds in Levels O–D of Stratigraphic Unit SL-PNW-St. II at San Lorenzo, Veracruz. The lone pottery type bearing pan-Mesoamerican motifs is printed in capital letters. (Based on Coe and Diehl 1980a: Fig. 97.)
We know, of course, how Coe and Diehl will rationalize these low counts; they will argue that poor preservation of sherd surfaces at San Lorenzo made it impossible to identify those sherds of Calzadas Carved vessels that did not bear the actual excising (Coe and Diehl 1980a:131). We respond to this *apologia* by giving the counts of excised Leandro Gray sherds from Area A of San José Mogote in Table 2. The Zone D midden alone, with a volume of no more than 5 m$^3$, produced 282 excised sherds of Leandro Gray and 9 more of Delfina Fine Gray. Household Unit C4, with a volume of only 2.4 m$^3$, produced 141 excised sherds of Leandro Gray and 5 more of Delfina Fine Gray. Even if we count only those gray sherds bearing actual excising, Area A produced 678.

To be sure, since Cyphers has opened up larger areas of San Lorenzo, her sample of Calzadas Carved is now larger than Coe and Diehl's. No amount of earth moved, however, will make up for the aforementioned lack of white-slipped ware comparable to Pilli White and Atoyac Yellow–white. At Tlapacoya and San José Mogote, such white wares bear fully half the pan-Mesoamerican motifs; take away the white ware and one loses most of the depictions of Earth/Earthquake. Area A of San José Mogote had more than 300 white-slipped sherds with variants of pan-Mesoamerican motifs; San Lorenzo phase levels in SL-PNW-St. II had none.

We should not be surprised, since Tlapacoya had 6 pottery types bearing such motifs, San José Mogote had 4, and San Lorenzo had only one. We have already stressed San Lorenzo's lack of Earth/Earthquake motifs on white-slipped ware; even Calzadas Carved, however, shows an impoverishment of motifs. Aside from a sunburst motif (confidently called "God III, an eagle" by Coe and Diehl 1980a:166), most illustrated motifs on Calzadas Carved are versions of Pyne's Motif 1 (e.g. Coe and Diehl 1980a: Figs. 138, 143).

When one focuses in detail on the use of Pyne's Motif 1 by the makers of Calzadas Carved, one sees another difference between the highland and lowland style.
provinces. At Tlapacoya and San José Mogote, Motif 1 was usually placed on bowls at a 45° angle (Figs. 21a–b). At San Lorenzo and various Chiapas sites, on the other hand, the same motif was usually placed horizontally (Figs. 21c–d).

The occasional exceptions to this pattern are interesting. In 1972 Pyne, after studying hundreds of carved sherds from Oaxaca, examined the Yale collection of Calzadas Carved from San Lorenzo. While most of the carved motifs were set horizontally on bolstered-rim bowls, Pyne noticed eight which were set at a 45° angle on cylindrical bowls. Pyne was allowed to take small pieces off these sherds so that William O. Payne, the Oaxaca project ceramicist, could examine them under the microscope. Four of the eight fragments appear to be Leandro Gray, one resembled Delfina Fine Gray, and two others contained decomposed gneiss or altered pegmatite like that present in Formative Oaxaca clays (Flannery and Marcus 1994:262–263). This contrasts with locally made Calzadas Carved, which is tempered with “fine, quartzite sand” (Coe and Diehl 1980a:162). Thus at least 7 examples of this

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FIG. 21. In the highland province, Pyne’s Motif 1 was usually carved onto vessels at a 45° angle, as shown in (a) and (b). In the lowland province, Motif 1 was usually carved horizontally, as shown in (c) and (d). (a) Volcán Polished bolstered-rim bowl from Tlapacoya (Niederberger 1976:170). (b) Leandro Gray cylindrical bowl from the Valley of Oaxaca (Flannery and Marcus 1994:181). (c) Calzadas Carved bolstered-rim bowl from San Lorenzo (Coe and Diehl 1980a:163). (d) Cuadros phase bolstered-rim bowl from the Chiapas coast (Blake et al. 1995:178). (To be sure, gifts and visitors crossed the style boundary often enough to provide some exceptions. For example, Blake et al. [1995: Fig. 17a] illustrate a gray jar neck from Chiapas with Motif 1 at a 45° angle, done in the way typical of jar necks at San José Mogote.)
allegedly “100 percent Olmec” ware may
be from Oaxaca.

It is significant that Pyne was successful
at picking intrusive Oaxaca sherds out of
the Yale collections based solely on vessel
shape and the 45° placement of motifs; it
confirms the relationship between stylistic
preference and region of origin. (Paren-
thetically, we did not notice any additional
“Oaxaca-like” sherds in Cyphers’ collec-
tions of Calzadas Carved, which came
from different proveniences at San
Lorenzo.)

THE NEED FOR A MORE
RESTRICTED DEFINITION OF
“OLMEC STYLE”

In sum, only for colossal sculpture can a
case be made that it is “indigenous” to the
Gulf Coast. Even Olmec-centrists turn to
the central highlands of Mexico when
their art exhibit requires lots of complete,
well-made examples of hollow white baby
dolls. We should stop calling these dolls
“Olmec,” since to do so results in the par-
dadox pointed out by Serra Puche et al.
(1996:39): it leaves us with “more objects
of [alleged] ‘Olmec’ style in the highlands
of Mesoamerica than on the coasts of Ta-
basco or Veracruz.”

In the case of pottery carved with Earth
and Sky motifs, the notion that it is “in-
trusive” in the Mexican highlands is non-
sense. At Tlapacoya, pan-Mesoamerican
motifs occur on six different pottery types
ranging from dark gray to fine gray, white,
white-rim black, and resist white. Those
types represent more than a quarter of the
pottery assemblage, occurring at densities
of up to 769 sherds per cubic meter. Vessel
shapes are diverse, and at least 6 of Pyne’s
motifs (nos. 1, 2, 7, 10, 12, 15) were com-
mon. Earth/Earthquake motifs from Tla-
pacoya include some of the most bril-
liantly executed masterpieces of Early
Horizon art, and many of them are on
white (or resist white) wares unknown in
the San Lorenzo phase.

At San José Mogote, pan-Mesoamerican
motifs occur on four different pottery
types, ranging from dark gray to fine gray,
white, and white-rim black. Because
white-slipped ware is so common in Oa-
xaca, these four types represent more than
a third of the pottery assemblage, occur-
rating at densities of up to 1180 sherds per
cubic meter. Sky/Lightning motifs (nos.
1–6) were more common on gray ware,
while Earth/Earthquake motifs (nos. 8–10,
12, 14–15) were more common on white
ware.

At San Lorenzo, pan-Mesoamerican
motifs occur only on Calzadas Carved.
Carved sherds represent less than 4% of
the pottery assemblage, occurring at den-
sities of 3–6/m³ in Coe and Diehl’s four
best stratigraphic proveniences. The de-
sign repertoire is essentially limited to
Pyne’s Motifs 1, 7, 11, and a sunburst. In
part because the San Lorenzo phase lacks
a white ware equivalent to Pilli White or
Atoyac Yellow-white, it also lacks most of
the Earth/Earthquake motifs so wide-
spread in the highlands. Motif 1, when
present, is usually set horizontally; a few
sherds with motifs set at a 45° angle
turned out to be made of clays like those
used in Oaxaca.

What would an impartial observer con-
declude from this? That the Basin of Mexico
has so far produced the most abundant,
varied, and skillfully produced assem-
blage of vessels with pan-Mesoamerican
motifs, and that the farther away you
travel, the more impoverished the assem-
blages are in surface color, vessel shape,
range of motifs, and quality of execution.
Many regions contributed to the richness
and diversity of Early Horizon ceramics,
and San Lorenzo never had more than a
subset of the shapes and motifs. We
should stop calling such pottery “Olmec,”
and restrict that term to the chiefdoms of
southern Veracruz/Tabasco and the objects most diagnostic of that region.

DOWNIZING THE “OLMEC PANTHEON”

Our data on carved pottery do more than refute the notion that it was intrusive in the highlands. They spell *Götterdämmerung* for the pantheon of Olmec “gods.”

Recall that in his study of Formative iconography, Joralemon (1971) drew heavily on the Basin of Mexico, Morelos, Puebla, and Guerrero in assembling his inventory of motifs. Each motif was then assumed to be a “god.” Expecting to find all these “gods” at San Lorenzo, Coe and Diehl (1980a:166) expressed disappointment when they found only two. The reason for their disappointment should now be clear: it was highland Mexico that had the greatest repertoire of pan-Mesoamerican motifs. Far from being the source of all Early Horizon iconography, the Olmec were “out of the loop” relative to the Basin of Mexico, Morelos, Puebla, and Oaxaca. Had Joralemon been restricted to motifs actually found on pottery at San Lorenzo, he would have had to conclude that the Olmec were nearly monotheistic.

SEWALL WRIGHT’S MODEL: AN ALTERNATIVE TO THE OLMEC-CENTRIC VIEW

It should now be clear why our position cannot be described as *primus inter pares*. The Olmec may have been “first among equals” in sculpture; some Olmec chiefdoms may even have been “first” in population size. But they were not the first to use adobes, stone masonry, and lime plaster, nor to lay out buildings 8° N of east. Nor were they “first among equals” in the production of white-slipped baby dolls or carved pottery with pan-Mesoamerican motifs. Olmec chiefly centers were big, but not as big as Cahokia; they built mound groups, but no more impressive than Tonga’s; they set up colossal heads, but not as many as Easter Island; they carved jade and wood, but no more skillfully than the Maori. The Olmec were impressive enough not to need the hyperbolic claims of Olmec-centrists. Yet like all chiefdoms, they were a product of their time, their place, and their interactions with their neighbors.

It is no accident, we believe, that 1150–850 B.C. was a period of rapid social evolution in Mesoamerican prehistory. It was a period during which many competing chiefly centers were concentrating manpower, intensifying agriculture, exchanging sumptuary goods, and borrowing ideas from each other. We believe it was the intensity of this competitive interaction, rather than the supremacy of any one culture, that made social evolution so rapid. The social landscape of Mexico was one in which dozens of emerging chiefly centers were (1) sufficiently isolated to find the best adaptations for their respective regions, yet (2) sufficiently in contact to borrow relevant innovations from other regions as they arose. This is analogous to a situation the biologist Sewall Wright (1939) once identified as favoring rapid evolution.

Wright modeled a hypothetical “adaptive landscape” of “very rugged character” on which a genetically flexible population might live (Fig. 22). The rises in this landscape were not hills, but peaks of positive selective values—that is, gene combinations that would be selected for. Those peaks were in turn separated by “saddles” of low selective values.

Let us imagine, Wright (1939:42) said, “an indefinitely large but freely interbreeding species living under conditions which have not changed ... for a long time.” As the result of natural selection, that species has come to occupy a certain field of variation around one of the adaptive peaks—in the case of Fig. 22a, the
peak in the upper left corner of the map. There is, however, an even higher peak of selective values available in the lower right corner. The evolutionary problem then becomes: how may the species "continually find its way from lower to higher peaks in such a system" (ibid.)? Wright considered six possible scenar-
ios for change in this system. If mutation rates were to increase, or selection pressure were to be reduced (Fig. 22a), the population might spread downhill from its peak and, by further spreading across a saddle, fortuitously reach a higher peak. The cost of such a spread, however, would be an average lowering of the population's adaptive level. Wright then considered the opposite scenario, one in which the mutation rate decreased or selection pressure increased (Fig. 22b). In this case, the population might shrink to cover only the top of the peak, strengthening its adaptation but decreasing its chance of capturing a neighboring pinnacle.

Were the environment to change (Fig. 22c), so would the adaptive landscape; the species might now find itself in a saddle. Under conditions of severe selection pressure, the species would “merely be kept continually on the move” (S. Wright 1939: 44). It would, over time, be shuffled out of low peaks more easily than high ones, “and thus should gradually work its way to the higher general regions of the field as a whole” (ibid.). Wright called this “an evolutionary process of major importance,” but one which requires a long period of time and continual environmental change.

Two of Wright’s scenarios, shown in Figs. 22d and e, relate to inbreeding. Under conditions of close inbreeding (d) certain alleles gradually become fixed, regardless of whether or not they are selectively advantageous. The result is a population low in variability, one which soon moves erratically downward from its peak, and finally becomes so homogeneous that its change is slow and largely non-adaptive. Under conditions of only slight inbreeding (e), the species tends to wander continuously around its peak without leaving it entirely. It may find a higher adaptive peak during this wandering, but its rate of progress is “extremely slow” and depends largely on “trial and error” (S. Wright 1939:45).

Finally we come to the scenario of most relevance to this article, Fig. 22f. This is the case of a large species that is subdivided into smaller local races, each breeding largely within itself but occasionally cross-breeding (S. Wright 1939:46). With many local races spread out over the rugged landscape, there is a good chance that at least one will come under the influence of another peak, acquiring a preadaptation useful to the species as a whole. Better still, several of the local races may acquire preadaptations. Those races will expand in number and, by cross-breeding with the others, make useful preadaptations available to all. This in turn pulls the whole species to a higher position. “Fine division of a species into partially isolated local populations,” said Wright (1939:46), “provides a most effective mechanism for trial and error in the field of gene combinations and thus for evolutionary advance by intergroup selection.”

To be sure, Wright’s conclusions emerged from research on genetics, and are most relevant to biological evolution. We believe, however, that Wright had discovered a deeper underlying principle, one relevant to sociocultural evolution as well. That principle can be stated as follows: One of the most favorable scenarios for rapid evolutionary change is the division of a large population into numerous smaller units, all adaptively autonomous but still periodically in contact. Their autonomy increases the likelihood that each will adapt successfully to its own social and environmental setting; their periodic contact increases the likelihood that any beneficial innovation will eventually be picked up by the entire population. We believe that Wright’s principle underlies several successful middle-range theories, including Renfrew and Cherry’s (1986) “peer-polity interaction.”
CONCLUSIONS

"Competitive interaction" is a better name for our position than primus inter pares. In a scenario analogous to Wright's Model f, chiefdoms in the Basin of Mexico adapt to the humid plains of their lake system, export obsidian, and excel at carved pottery and hollow dolls. The chiefdom at Chalcatzingo builds dams and irrigation canals, exports white kaolin clay, and excels at carving bas-reliefs on living rock. Chiefdoms in the Valley of Oaxaca develop canal and well irrigation, export magnetite mirrors, and become precocious in the use of adobe, stucco, and stone masonry. The Olmec chiefdoms farm river levees, excel at three-dimensional sculpture, and build colored clay mounds. It is the adaptive autonomy and frequent competitive interaction of such chiefdoms that speed up evolution and eventually make useful technologies and sociopolitical strategies available to all regions.

The anachronistic notion of Olmec imperialism spreading outward from the Gulf Coast, colonizing highland cultures and converting them to foreign ways, is simply not supported by the archaeological record. Set aside the fact that the Olmec had no expertise at arid highland agriculture. Set aside the fact that the Olmec lacked most of the Earth/Earthquake symbols so important in highland cosmology. Consider only that the Olmec-centric model—like Wright's Model d—leads to homogeneity, which would actually slow down evolution. It would do so (1) by eliminating autonomy, which had allowed each region to produce the innovations best fitting its natural and sociocultural setting, and (2) by reducing competition among regions, one of the engines that drove social evolution.

We recommend removing the Mother Culture from life-support and laying her to rest beside the Kulturkreise and 19th-century diffusionism. The Mother Culture's dwindling band of defenders think that if they can just inflate their estimates of Olmec site sizes, find more basalt monuments, and convince us that San Lorenzo was shaped like a cosmic bird, we'll change our minds. But we have all seen Teotihuacan—that quintessential example of Classic Mesoamerican civilization—and it is not a collection of earthen mounds, colored Mesoamerican civilization—

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Clark, J. E.  

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