Settlement Patterns and Prehistory of the Paraíso Basin of El Salvador

William R. Fowler, Jr.
University of North Dakota
Grand Forks, North Dakota

Howard H. Earnest, Jr.
U.S.D.A. Forest Service
Cleveland, Tennessee

The lowland Paraíso Basin of El Salvador, which was investigated by the Cerrón Grande Archaeological Salvage Project, supported considerable agricultural populations from at least the late Middle Preclassic to the Early Postclassic, with a population decline during the Early Classic. The cultural sequence of the basin differs substantially from that of the nearby SE Maya highlands, especially during the Preclassic, even though large-scale events (e.g., Ilopango eruption, Pipil migrations) had similar impacts in both regions. Differences in ceramic and lithic technology are correlated with environmental variation and probable differences in subsistence strategy between the two regions.

Introduction

From its headwaters in eastern Guatemala, the Lempa River flows to the SE to cut through the Sierra Madre of Central America and runs southward as it enters northern El Salvador. From there it takes a sinuous course to the SSW for about 45 km and then turns eastward to flow through a segment of the interior structural trough referred to as the Central American graben or depression.[1] At the heart of this middle stretch of the Lempa is an exceptionally broad area of flood plain and relict terraces characterized by low relief (FIG. 1). The relatively flat floor of the basin around the confluence of the Lempa and a major tributary, the Río Acelhuate, consists of a downfaulted Pliocene volcanic surface partially overlain by Quaternary alluvium and pumice deposited by the two streams over an area of more than 500 sq km and arranged in a series of terraces.[2]

This is a well defined area that is quite distinct environmentally from the uplands that surround it. Despite its distinctiveness, definition, and contrast to surrounding landforms, this portion of the Lempa Valley has never been given an exclusive designation by geomorphologists. It has been referred to as a portion of the Central American depression or graben, the Middle Lempa Valley, the Central Basin of El Salvador, and by other terms. None of these names is specific or exclusive enough. Middle Lempa and Central Basin probably best refer to the entire 130 km stretch of the river that flows W-E. This area includes not only the basin in question but also some very different landforms. As for the Central American depression or graben, it is certainly too broad a term, and there is considerable disagreement among geologists over what the term refers to and what it should include.[3] There may, in fact, be two main grabens running the entire length of El Salvador—one connecting the Metapán Basin in the NW with the Olomega Basin in the SE, and the other running from near Ahuachapán, parallelling the Recent volcanic axis and converging with the first in the Olomega region.[4]

In order to avoid this confusion, we have adopted the

1. Howel Williams, "The Great Eruption of Cosegüina, Nicaragua, in 1835, with Notes on the Nicaraguan Volcanic Chain," *University of California Publications in Geological Sciences* 29 (1952) 21–46; Howard E. Daugherty, "Man Induced Ecological Change in El Salvador," Ph.D. dissertation, University of California, Los Angeles (University Microfilms: Ann Arbor 1969) 10–18; William R. Fowler, Jr., "The Pipil-Nicarao of Central America," unpublished Ph.D. dissertation, University of Calgary (1981) 684–685.

2. Karl Rode, *Das intramontane Lempa-Becken (El Salvador, Mittel-Amerika). Geologisches Jahrbuch* B13 (Herausgegeben von der Bundesanstalt für Geowissenschaften und Rohstoffe und den Geologischen Landesämtern der Bundesrepublik Deutschland: Hannover 1975).

3. Richard Weyl, *Geology of Central America*, 2nd rev. edn. (Gebruder Borntraeger: Berlin 1980) 65-66. A graben is a structural trough or trench in the crust of the earth bounded by parallel faults.

4. Ibid. 256–257.

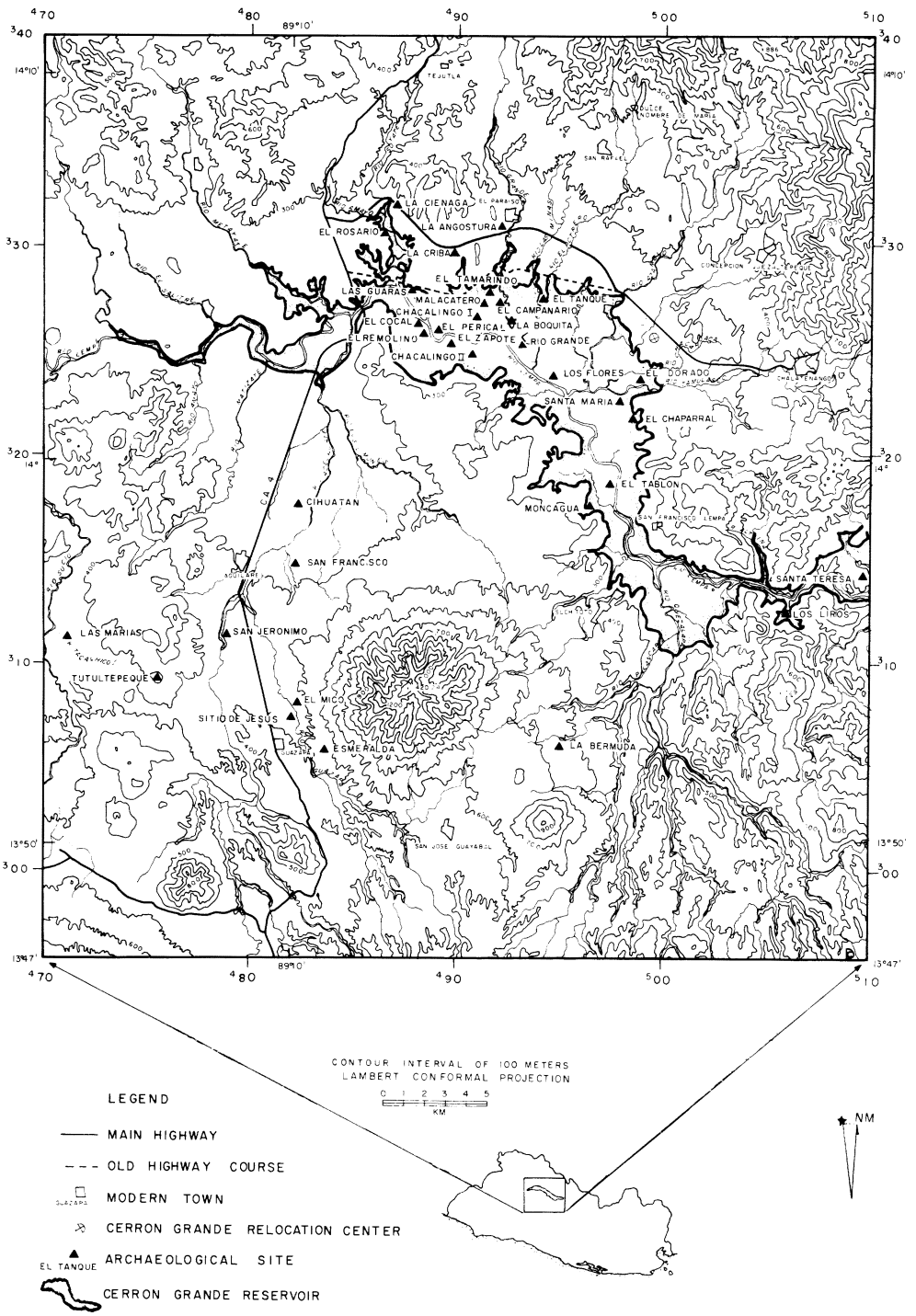

Figure 1. Map of the Paraíso Basin of El Salvador and surrounding area showing locations of archaeological sites.

term "Paraíso Basin." The name is borrowed from the town of El Paraíso, located on the north edge of the basin. The term Paraíso Basin will be used to refer specifically to the terrace and floodplain lands of the Río Lempa from just east of the mouth of the Río Suquiapa (about 89° 20′ W) to the mouth of the Río Quezalapa near Suchitoto (89° W), an area ca. 50 km × 10 km.[5] The term also includes the terrace and floodplain lands that lie along, and may have been formed by, larger

5. This is the region that Fowler, loc. cit. (in note 1), has referred to as the Central Basin of El Salvador, but this term is rather misleading,

tributaries of the Lempa. The most extensive of these border the Río Acelhuate from the modern town of Aguilares north to its confluence with the Lempa (FIG. 1).

The Cerrón Grande Project

In the mid-1970s the Cerrón Grande dam was built, inundating an area of ca. 135 sq km of this floodplain and terrace land. The Cerrón Grande Archaeological Salvage Project was organized in 1974 in order to mitigate the impending loss of the archaeological resources of this hitherto uninvestigated region of the SE periphery of Mesoamerica. The project was coordinated by the Administración del Patrimonio Cultural (APC), an agency of El Salvador's Ministry of Education, and was under the general direction of Stanley H. Boggs, head of the APC Department of Archaeology.[6] The investigations and subsequent analyses were conducted under the direct supervision of Richard S. Crane, Howard H. Earnest, Jr., and William R. Fowler, Jr.

Reconnaissance, survey, and excavation began in April 1974 and continued intermittently until the reservoir was filled by two stages of inundation occurring during the rainy seasons (May to September) of 1976 and 1977. The inundation schedule dictated field priorities and often forced changes in the strategy of investigation for the sites to be affected. Analysis was conducted during and between field seasons, and some aspects of analysis of materials recovered are ongoing. Preliminary reports on the results of the project have been published in El Salvador.[7] Additional research at the important Postclassic center of Cihuatan, which lies within the Paraíso Basin and outside the Cerrón Grande inundation zone, was conducted by Fowler.[8] A Ph.D. dissertation dealing with the Preclassic occupations and adaptations of the valley is currently in preparation by Earnest.

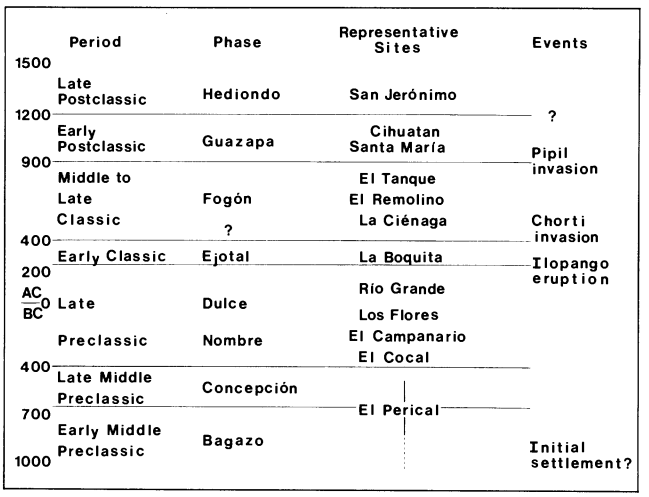

Figure 2. Prehistoric chronological sequence of the Paraíso Basin of El Salvador.

Our research has made possible the delineation of a culture-historical sequence running from at least the early Middle Preclassic to the Early Postclassic. A population decline in the Early Classic was noted (FIG. 2). This paper briefly describes the material aspects of the chronological sequence and attempts to explain changes in the site distributions through time.

Geomorphic Setting

While the study area may be viewed as a relatively homogeneous geomorphic unit, it contains several distinctive microenvironments that apparently exercised a strong influence over prehistoric site location and resource utilization. Our analysis of microenvironmental variation is based upon general field observations, information gleaned from topographic and geologic maps, and site-specific stratigraphic and environmental data.

The basin may be divided into the following microenvironments or physiographic zones: (1) the channel of the Lempa River and its tributaries, (2) the Recent floodplain of the Lempa and its tributaries, (3) relict river

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and we believe that the name "Paraíso Basin" is geographically more precise. We use the term "basin" in its general sense to refer to a large depression in the surface of the earth, which may be of structural or erosional origin. This usage is equivalent to the Spanish *cuenca* and the German *Becken*.

6. Stanley H. Boggs, "Origen y Desarrollo del Programa Cerrón Grande," *La Cofradía* 12 (APC: San Salvador 1976) 5–9.

7. Richard S. Crane, "Informe Preliminar de las Excavaciones Arqueológicas de Rescate Efectuadas en 1974 en la Hacienda 'Colima,' Depto. de Cuscatlán (Proyecto No. 2, Programa de 'Cerrón Grande')," *Anales del Museo Nacional "David J. Guzmán" (AMNDJG)* 42–48 (Ministerio de Educación: San Salvador 1976) 13–27; Howard H. Earnest, Jr., "Investigaciones Efectuadas por el Proyecto No. 1, Programa de Rescate Arqueológico Cerrón Grande, en la Hacienda Santa Barabara, Depto. de Chalatenango," *AMNDJG* 49 (1976) 57–73; William R. Fowler, Jr., "Programa de Rescate 'Cerrón Grande,' Sub-Proyecto Hacienda Los Flores," *AMNDJG* 49 (1976a) 13–56; idem, "Informe Preliminar sobre las Excavaciones del Monticulo 3, El Tanque, Hacienda El Morrito, Depto. de Chalatenango," *AMNDJG* 49 (1976b) 83–92; William R. Fowler, Jr. and E. Margarita Solís, "El Mapa de Santa María: Un Sitio Postclásico de la Región Cerrón Grande," *AMNDJG* 50 (1977) 13–19.

8. Fowler, op. cit. (in note 1). For further work at Cihuatan, see also Karen Olsen Bruhns, *Cihuatan: An Early Postclassic Town of El Salvador. University of Missouri Monographs in Anthropology* 5 (Columbia 1980); idem, "Two Early Postclassic Caches from El Salvador," *Cerámica de Cultura Maya* 12 (1982) 1–4; Jane H. Kelley, "The 1979 Season at Cihuatan, Central El Salvador," paper presented at the 45th Annual Meeting of the Society for American Archaeology, Philadelphia (1980) (her address is Department of Archaeology, University of Calgary, Calgary, Alberta, Canada).

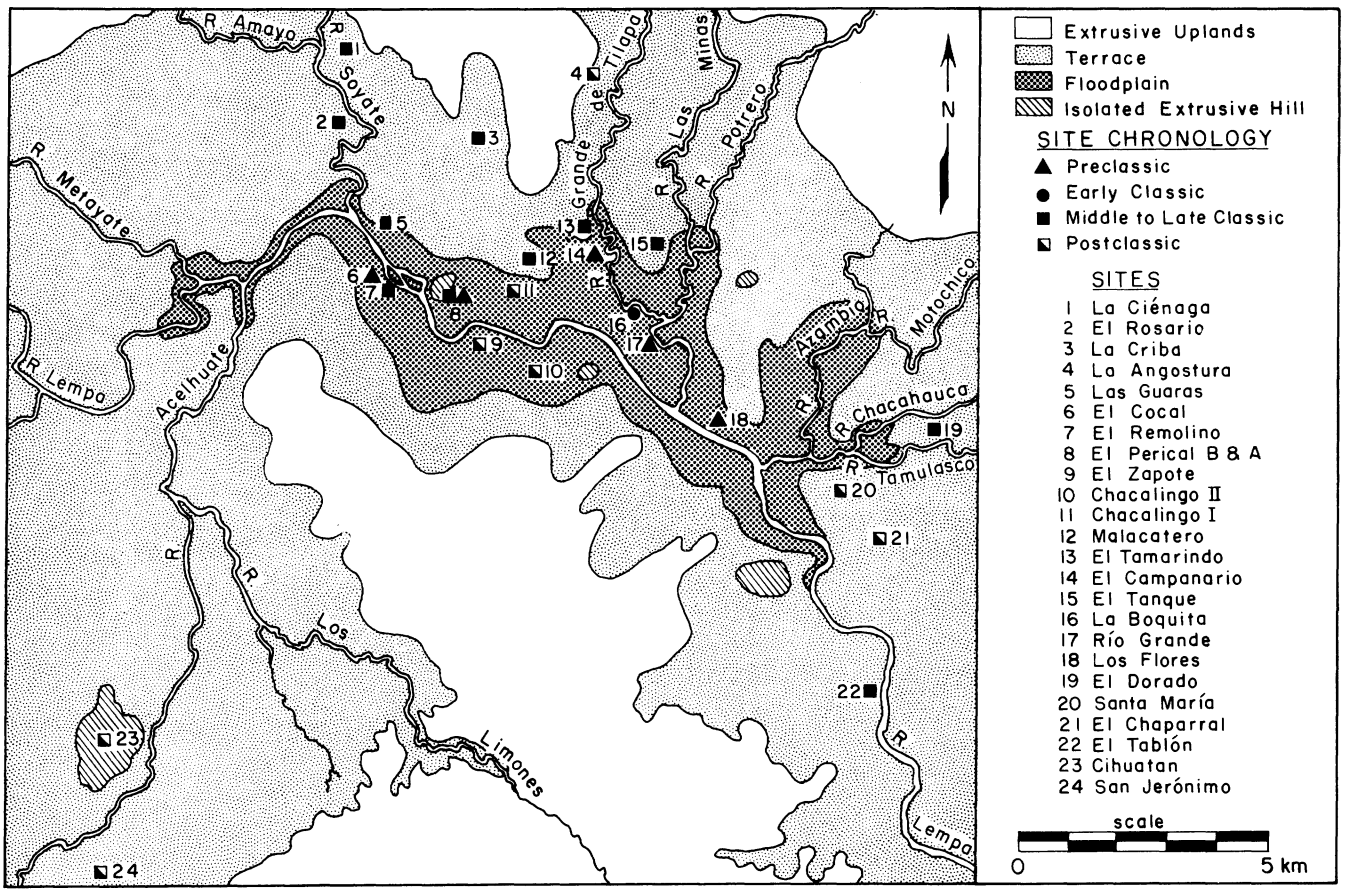

Figure 3. Map of the central area of the Paraíso Basin of El Salvador showing distribution of archaeological sites in relation to physiographic zones.

terraces with intercalated colluvium, and (4) uplands of Recent extrusive origin (FIG. 3). The floodplain may be further subdivided into natural levee and backswamp microzones. In addition to these four microenvironments, the adjacent uplands of the Sierra Madre de Centro América to the north and the slopes of the ancient volcano of Guazapa to the south could have been exploited for their distinctive highland resources.

Culture-Historical Sequence

The chronology of the sequence is based largely on cross-dating with other Salvadoran sites, primarily Quelepa, Chalchuapa, and Santa Leticia, that have well defined sequences supported by numerous radiocarbon dates.[9] The only available absolute dates for the Paraíso Basin sequence pertain to Late Classic and Postclassic materials.[10] The absolute dating of the sequence, especially its early phases, is regarded as tentative and subject to future revisions.

Early Middle Preclassic Bagazo Phase (1000–650 B.C.)

Preliminary field analyses led Earnest to believe that there was no occupation in the basin prior to the late Middle Preclassic; a recent reexamination of the few badly weathered sherds from the lowest levels of the El Perical site has resulted in the recognition of an earlier ceramic complex. Modal similarities with the Colos and possibly Tok ceramic complexes of Chalchuapa[11] include flat-bottomed bowls, modeling on jar shoulders, tecomate forms, and zoned punctation. This evidence permits the hypothesis of an early Middle Preclassic occupation in the basin. It should be noted that all surfaces

9. E. Wyllys Andrews V, *The Archaeology of Quelepa, El Salvador MARIPub* 42 (Tulane University: New Orleans 1976); Robert J. Sharer, *Pottery and Conclusions. The Prehistory of Chalchuapa, El Salvador*, Vol. 3 (University of Pennsylvania Press: Philadelphia 1978); Arthur A. Demarest, "Santa Leticia and the Development of Complex Society in Southeastern Mesoamerica," unpublished Ph.D. dissertation, Harvard University (Cambridge 1981).

10. Fowler, op. cit. (in note 1) 8, 46–54.

11. Sharer, op. cit. (in note 9) 124.

Figure 4. The Río Grande site. Ridged field of the Late Preclassic Dulce Nombre phase buried by volcanic ash and pumice from Ilopango Volcano. View to N.

in the floodplain dating to this time are probably deeply buried and/or below the water table.

Late Middle Preclassic Concepción Phase (650–400 B.C.)

The evidence for this early ceramic complex also comes from deep stratigraphic levels at El Perical. Some of the ceramic groups that characterize this complex are Puxtla, Cuitapan, and Jinuapa,[12] indicating a chronological placement roughly contemporaneous with the Kal phase at Chalchuapa. A distinctive pattern of lithic resource utilization which persisted throughout the Preclassic had already been established by this time. Unlike Chalchuapa, where the chipped-stone industry was based predominantly on obsidian,[13] obsidian accounts for less than 20% of the chipped-stone complex of this phase. Far more important were locally available igneous and cryptocrystalline quartz materials. Typologically, the chipped-stone assemblage consists of prismatic blades, *pièces esquillées*, and scrapers of obsidian, as well as a variety of flake tools (spokeshaves, scrapers, and denticulates), choppers, and scraper planes, all manufactured from river cobbles.

12. Ibid. 23–27.

13. Payson D. Sheets, "Artifacts," in R. J. Sharer, ed., *The Prehistory of Chalchuapa, El Salvador*, Vol. 2, Pt. 1 (University of Pennsylvania Press: Philadelphia 1978) 9.

Late Preclassic Dulce Nombre Phase (400 B.C.–250 A.C.)

Several Late Preclassic settlements with limited ceramic connections to the Chul-Caynac phase at Chalchuapa are known in the basin. Burnished pottery (Pinos Black-brown, Santa Tecla Red), which is quite popular at Late Preclassic sites in the volcanic highlands,[14] is present but rare in the Paraíso Basin. Jicalapa and Izalco Usulutan ceramics are as common in the basin as in the volcanic highlands.[15] The remainder of the Dulce Nombre ceramic complex has a very different character from that of sites of the SE highlands. Many types and modes are retained in only slightly modified form from the earlier Concepción (Kal) phase, indicating a basic conservatism that is not found at contemporaneous sites of the volcanic highlands.

The chipped-stone complex of Dulce Nombre-phase sites also shows a substantial retention of characteristics from the Concepción phase, with the only significant change being a slight increase in the percentage of prismatic blades represented in the obsidian collections.

Two important sites of the Dulce Nombre phase are Río Grande (FIG. 4), where Earnest excavated a portion of a ridged agricultural field built over an earlier do-

14. Sharer, op. cit. (in note 9); Demarest, op. cit. (in note 9); Ronald K. Wetherington, "The Ceramic Chronology of Kaminaljuyu," in R. K. Wetherington, ed., *The Ceramics of Kaminaljuyu, Guatemala* (The Pennsylvania State University Press: University Park 1978) 115–149.

15. Sharer, op. cit. (in note 9) 30–31, 39–41; Demarest, op. cit. (in note 9) 168–196, 247–251.

Figure 5. The principal structure (Mound 10) of the Los Flores site; view to W. The structure was round in plan, ca. 40 m in diameter, and more than 6 m high. Compare with Figure 7.

mestic area with graves and trash pits,[16] and Los Flores (FIG. 5), where Fowler investigated a large, round structure similar in form and construction technique to Mound B-V-6 of the Providencia phase at Kaminaljuyu.[17] Los Flores is interpreted as the ritual/administrative center of a considerable Late Preclassic population in the Paraíso Basin.

Sites of the Dulce Nombre phase are found directly beneath a thick layer of volcanic ash from Ilopango Volcano, located about 45 km to the south, which erupted in the mid-3rd century A.C.[18] The cultural and environmental effects of this eruption have been documented by Sheets.[19] It is likely that, as in most regions of western and central El Salvador, extensive tephra damage to agricultural fields and to natural flora and fauna rendered most of the floodplain portion of the Paraíso Basin virtually uninhabitable for several centuries.

16. Earnest, op. cit. (in note 7).

17. Fowler, 1976a op. cit. (in note 7).

18. Payson D. Sheets, *Ilopango Volcano and the Maya Protoclassic: A Report of the 1975 Field Season of the Protoclassic Project in El Salvador. Research Records* 9. (University of Southern Illinois Museum of Anthropology: Carbondale 1976); idem, "Environmental and Cultural Effects of the Ilopango Eruption in Central America," in P. D. Sheets and D. Grayson, eds., *Volcanic Activity and Human Ecology* (Academic Press: New York 1979) 525–564.

19. 1979 op. cit. (in note 18).

Early Classic Ejotal Phase (250–400 A.C.)

We view the Paraíso Basin as being sparsely occupied during this phase. The Ejotal phase is known from limited surface collection and test excavation at one site, La Boquita. There are a number of correspondences between Ejotal ceramics and those of the Early Classic Shila ceramic complex at Quelepa[20] such as mammiform supports, annular bases, and specific typological linkages. In addition to the Shila connections, there is definite evidence of continuity from the Dulce Nombre phase in both ceramics and chipped stone.

Middle to Late Classic Fogón Phase (400–900 A.C.)

While there were people in the basin during the Early Classic, the region was not substantially repopulated following the Ilopango devastation until the Middle to Late Classic. The evidence indicates that the Paraíso Basin was colonized from the north or the west by a Chorti Maya or Chorti-allied group.[21]

Ten sites of the Fogón phase were located in the Cerrón Grande reconnaissance. The site of San Francisco,[22] near the Postclassic center of Cihuatan, may also

20. Andrews V, op. cit. (in note 9) 71–96.

21. Fowler, op. cit. (in note 1) 11–16.

22. Wolfgang Haberland, "Ceramic Sequences in El Salvador," *AmAnt* 26 (1960) 21–29; idem, "Marihua Red-on-Buff and the Pipil Question," *Ethnos* 29 (1964) 73–86.

be assignable to this phase. A radiocarbon determination for the Fogón phase pertains to a subconstruction level at La Ciénaga. The estimated age is 1235 ± 50 years: 715 A.C. (ELSx-15), corrected to 737 ± 71 A.C., with a corrected one-sigma range of 666–808 A.C.

The ceramic characteristics noted by Longyear[23] for the Classic period in western and central El Salvador are essentially those of the Fogón ceramic complex. This complex is dominated by a number of ceramic groups and modes that resemble those of Middle and Late Classic Copan[24] and the Xocco and Payu ceramic complexes at Chalchuapa.[25] The Copador ceramic group and the closely related Gualpopa and Arambala ceramic groups[26] are represented in the Fogón complex by a wide range of types and forms. Trade types, including Machacal,[27] Campana,[28] and Ulua[29] polychromes, occur but are far less frequent than the Copador and related groups. Typical modes of the Fogón ceramic complex are unsupported convex-wall bowls, cylindrical vases with slab tripod supports, flaring high-neck jars, three- and four-color polychrome painting, and carving or plano-relief decoration (compare with characteristic modes of the Late Classic Payu ceramic complex at Chalchuapa).[30] This ceramic evidence indicates that the Paraíso Basin, like the Chalchuapa Valley[31] and the Zapotitán Valley,[32] maintained close contacts with Copan during the Middle to Late Classic. The precise nature of this relationship remains to be understood, but there is no doubt that the Fogón phase was a time when the Paraíso Basin participated to a strong degree in what might be called the "Copan interaction sphere."

In terms of architecture and settlement patterns, larger sites of the Fogón phase such as El Tanque, are characterized by plazuela groups at the center of tightly nucleated settlements.[33] Ballcourts with open ends are a salient feature of civic centers. One site, La Ciénaga, which was investigated prior to being plowed and leveled for sugar cane cultivation, showed a dense clustering of low house mounds over an area of ca. 100 ha. Other sites of this phase, such as Las Guaras and La Criba, were small, isolated farmsteads with little or no platform construction.

Early Postclassic Guazapa Phase (900–1200 A.C.)

The material culture remains of the Early Postclassic Guazapa phase bear almost no resemblance to those of the Late Classic Fogón phase. An entirely new suite of cultural mannerisms, derived from the central highlands and Gulf Coast regions of Mexico, appeared in the basin in the Early Postclassic. These new traits signal the arrival of a Nahuat-speaking Pipil population. The archaeological indications of a Mexican intrusion into the Paraíso Basin during the Guazapa phase receive strong support from ethnohistorical and historical linguistic data.[34]

Early Postclassic occupation in the basin is represented by eight known sites, five of which were located in the Cerrón Grande reconnaissance. The best known site from the Guazapa phase is Cihuatan (FIG. 6), which was reported for the first time over a century ago.[35] Two sites reported by Haberland, San Francisco and San Jerónimo, are also assigned to this phase.[36] Eleven radiocarbon determinations, 10 from Cihuatan and one from the closely related center of Santa María, help to date the Guazapa phase. The weighted average of the corrected means of the eight most reliable results is $1037 \pm {}^{36}$ A.C.[37]

The material culture traits of the Guazapa phase are known in detail from Cihuatan and Santa María. The Guazapa ceramic complex appears to be essentially homogeneous and exhibits little diversity. Three major ce-

23. John M. Longyear III, "Archaeological Survey of El Salvador," in R. Wauchope, G. P. Ekholm, and G. R. Willey, eds., *Handbook of Middle American Indians, Vol. 4: Archaeological Frontiers and External Connections* (University of Texas Press: Austin 1966) 132–156.

24. John M. Longyear III, *Copan Ceramics: A Study of Southeastern Maya Pottery. CarnInstPub* 597 (Washington, D.C. 1952) 29–31.

25. Sharer, op. cit. (in note 9) 127–128.

26. Ibid. 51–58.

27. Ibid. 69–70.

28. Ibid. 70–71; Andrews V, op. cit. (in note 9) 125–126.

29. John B. Glass, "Archaeological Survey of Western Honduras," in Wauchope et al., eds., op. cit. (in note 23) 157–179.

30. Sharer, op. cit. (in note 9) 128.

31. Ibid. 213–215.

32. Marilyn P. Beaudry, "The Ceramics of the Zapotitán Valley," in P. D. Sheets, ed., *Archaeology and Volcanism in Central America: The Zapotitán Valley of El Salvador* (University of Texas Press: Austin 1983) 161–190.

33. Fowler, 1976b op. cit. (in note 7).

34. Idem, op. cit. (in note 1).

35. S. Habel, *The Sculptures of Santa Lucia Cosumalwhuapa in Guatemala, With an Account of Travels in Central America and on the Western Coast of South America. SmithConKnowl 269* (Washington, D.C. 1878).

36. Haberland, 1960 op. cit. (in note 22) 25–26; idem, 1964 op. cit. (in note 22) 73–74.

37. The weighted average was calculated following the procedure described by Austin Long and Bruce Rippeteau, "Testing Contemporaneity and Averaging Radiocarbon Dates," *AmAnt* 29 (1974) 205–215. For detailed consideration of Cihuatan-Santa María chronology see Fowler, op. cit. (in note 1) 46–54.

Figure 6. Cihuatan, Structure P-7 (right background), south end of North Ballcourt (left middle ground), and Guazapa Volcano (left background); view to SE. The Southeast Patio (shown in FIG. 8) is to the right of and behind Structure P-7.

ramic groups, representing three wares, comprise 87.6% of the total of 28,335 sherds classified from both sites. The Las Lajas Coarse ceramic group forms a ceremonial subcomplex with large, biconical, spiked censers and life-size modeled effigies representing animals and deities as principal forms and types. The censers are closely allied with those of Tula, Hidalgo,[38] and the effigies, which often portray Mexican deities such as Tlaloc (or Quiahuit) and Xipe Totec, have Mazapan-horizon counterparts in central Mexico[39] and central and southern Veracruz.[40]

The Tamulasco Plain and Garcia Red ceramic groups make up the bulk of a domestic or culinary subcomplex. Jars and flaring-wall bowls are the most frequently occurring forms of these two groups. Comals are a noteworthy form of the Tamulasco Plain group. White-based and red-based polychromes with geometric motifs occur in flaring-wall bowls, convex-wall bowls, and vertical-wall vessels. The Guazapa complex polychrome ceramic groups contrast sharply in form and style with the earlier Fogón-complex Copador and related polychromes. Fine, hard, red-on-buff pottery of the Guazapa complex (Tamoa Red-on-buff) is broadly similar to Mazapan Red-on-buff[41] and is probably a direct antecedent to Late Postclassic Marihua Red-on-buff.[42] The predominant trade wares found at Cihuatan and Santa María are the two most widely traded ceramics of Early Postclassic Mesoamerica: Tohil Plumbate and Nicoya Polychrome.[43]

The Cihuatan-Santa María chipped-stone industry is based almost entirely on obsidian. Preliminary results of X-ray fluorescence analysis conducted at the Lawrence Berkeley Laboratory on 20 obsidian specimens from Cihuatan indicate a multiple-source procurement pattern. Sources identified in this analysis include Ixtepeque, El Chayal, and Río Pixcayá.[44] Obsidian appears to have been traded to the Paraíso Basin in the form of macrocores; cortex was observed on only 20 of the 16,303 chipped-stone specimens analyzed from Cihuatan and Santa María. The predominant tool type of the chipped-stone industry of the Guazapa phase is the prismatic blade, which accounts for 82.3% of all chipped-stone artifacts analyzed from the two sites. Other types include polyhedral cores, macroblades, small percussion-produced blades, scrapers made from macroblades, and a

38. Jorge R. Acosta, "Interpretación de Algunos de los Datos Obtenidos en Tula Relativos a la Epoca Tolteca," *RevMexEstAntr* 14 (1956–1957) 75–110.

39. Marshall H. Saville, "An Ancient Figure of Terra Cotta from the Valley of Mexico," *AmMusNatHisBull* 9 (1897) 221–224; S. Linné *Archaeological Researches at Teotihuacan, Mexico. The Ethnographical Museum of Sweden, Publication* 1 (Stockholm 1934).

40. Philip Drucker, *Ceramic Stratigraphy at Cerro de las Mesas, Veracruz, Mexico. BAEBull* 141 (1943); Jose García Payón, *Breves Apuntes Sobre la Arqueología de Chachalacas* (Universidad Veracruzana: Xalapa 1951).

41. Paul Tolstoy, "Surface Survey of the Northern Valley of Mexico: The Classic and Postclassic Periods," *TAPA* 48, pt. 5 (1958) 42–45; Jeffrey R. Parsons, *Prehistoric Settlement Patterns in the Texcoco Region, Mexico. MMichMusAnth* 3 (1971) 290–294; Robert Cobean, "The Ceramics of Tula," in R. A. Diehl, ed., *Studies of Ancient Tollan: A Report of the University of Missouri Tula Archaeological Project. University of Missouri Monographs in Anthropology* 1 (Columbia 1974) 32–33, 35.

42. Haberland, 1964 op. cit. (in note 22).

43. Fowler, op. cit. (in note 1) 215–243.

44. Ibid. 287–289; F. Asaro and H.V. Michel, personal communication to Fowler, 1981. Twelve samples were attributed to Ixtepeque, seven to El Chayal, and one to Río Pixcayá.

wide range of bifaces. The industry is astoundingly complex but is probably typical of Postclassic chipped-stone complexes of central and western El Salvador. It is very similar in composition and diversity to the Late Classic-Postclassic Xival chipped-stone complex at Chalchuapa.[45]

The ground-stone industry was based mainly on locally available andesite and consists of a variety of forms of manos, metates, other grinding stones, two palettes, and a barkbeater. Bruhns has reported an effigy metate from Cihuatan that may indicate contacts with or influence from the south, possibly Costa Rica.[46] The ground-and-polished-stone industry is based on rare or exotic materials and consists mostly of celts, beads, and an incised plaque. The worked-bone industry is noteworthy for a collection of incised-carved bone tubes made from mammal longbones and a large worked disc made from the intervertebral epiphysis of a marine mammal (Cetacea). The most interesting artifacts of the fired-clay industry are spindle whorls and grooved, spherical or subspherical net weights.

Outstanding architectural traits of the two sites include talud-tablero construction on public buildings, T-shaped temple platforms, and enclosed I-shaped ballcourts. The plan of both sites involves a nuclear zone composed of monumental public buildings and elite residences with lower status residences and special-function structures (including neighborhood temples) arranged in a nonnucleated pattern surrounding the "downtown" nucleus. Both sites are quite large in spatial extent with Cihuatan covering an area of 375 ha and Santa María encompassing ca. 360 ha. Settlement-pattern studies at Cihuatan strongly suggest that the ancient community was divided into barrios or wards. These spatial divisions appear to be an archaeological reflection of the ethnohistorically documented *calpulli* (conical descent group), a fundamental integrative unit of Pipil social organization.[47]

Late Postclassic Hediondo Phase (1200–1524 A.C.)

With one or two possible exceptions, all structures—public and residential— excavated at Cihuatan and Santa María had been destroyed by fire. In many cases, smashed ceramic vessels were associated with burned and toppled *bajareque* (a type of wattle and daub) walls of structures. The burning and destruction at both towns were probably essentially synchronous, and these actions appear to mark the effective abandonment of the two centers. The possibility of small, "post-occupation" populations at the two sites during the Late Postclassic is not excluded, although no cultural evidence of such an occupation has been recognized.

Late Postclassic occupation elsewhere in the basin is also problematic. Given the fact that the Paraíso Basin was continuously occupied, although by at least three distinct cultural or ethnic groups, from as early as the early Middle Preclassic until the Early Postclassic, it would seem unlikely that there were no Late Postclassic occupations in the basin. Such occupations would be characterized by the occurrence of Marihua Red-on-buff[48] and probably Chinautla Polychrome[49] pottery, both of which are important horizon markers for the Late Postclassic in western and central El Salvador. Neither of these ceramic groups has been positively identified in the Cihuatan-Santa María material nor, for that matter, from any of the Cerrón Grande sites. Haberland has noted the presence of Marihua Red-on-buff at sites in or near the Paraíso Basin, for example at San Jerónimo and particularly at Sitio de Jesús II, located on the west slope of Guazapa Volcano.[50] The nearby site of El Mico (FIG. 1) also has Marihua materials on the surface.

It is ironic that the most recent phase of the prehistory of the Paraíso Basin is the least known. It is also interesting and somewhat unfortunate that similar Late Postclassic lacunae occur in other regional cultural sequences of El Salvador. Chalchuapa shows evidence of Late Postclassic occupation, but events and processes there during this period are rather poorly understood.[51] Only five Late Postclassic sites were located in the Zapotitán Valley survey by the University of Colorado (although others are known to be under modern towns in the region),[52] and this period in eastern El Salvador is almost completely unknown.[53]

Site Distribution and Landforms

Our archaeological survey work in the basin has revealed dramatic changes through time in the way that

45. Sheets, op. cit. (in note 13) 74–75.

46. Bruhns, op. cit, (in note 8) 54, 101.

47. Fowler, op. cit. (in note 1) 866–878; William R. Fowler, Jr., "The *Calpulli* in Pipil-Nicarao Society," paper presented at the 30th Annual Meeting of the American Society for Ethnohistory, Nashville (1982).

48. Haberland, 1964 op. cit. (in note 22).

49. Robert Wauchope, "Protohistoric Pottery of the Guatemala Highlands," in W. R. Bullard, Jr., ed. *Monographs and Papers in Maya Archaeology. PapPeaMus* 61 (1970) 108–112, 212–213, 238.

50. Haberland, 1974 op. cit. (in note 22) 74.

51. Sharer, op. cit. (in note 9) 211–212, 215, 217.

52. Payson D. Sheets, personal communication, 1983. Kevin D. Black, "The Zapotitán Valley Archaeological Survey," in Sheets, ed., op. cit. (in note 32) 83–84.

53. Andrews V, op. cit. (in note 9) 186.

different subdivisions of the valley were utilized by the prehistoric inhabitants. This analysis is based on a general reconnaissance of the Cerrón Grande reservoir area, on more intensive reconnaissance and surveys by Earnest in the area north of the Lempa bounded by the Ríos Soyate and Grande, and on settlement-pattern studies by Fowler and others at and near Cihuatan.

In the Soyate-Río Grande zone the variation in landforms is well represented. Landforms are easily observed there since most of the land is in sugar cane, corn, and other agricultural production. Most fields are either burned clean or plowed each year. Even the untilled rocky ridges and knolls of extrusive origin are now largely cleared or in low scrub vegetation. Light use for livestock forage and more persistent firewood collection have caused and maintain this condition. Further evidence of the nature and origins of landforms has been gathered from stratigraphic profiles provided by the cuts of three highways, the banks of deeply entrenched tributary streams, and archaeological excavations.

Five Preclassic sites were found in the survey area. All are located in the lower reaches of the valley at elevations below 235 m above sea level within the Recent floodplain of the Lempa. All are situated on rich loam soils, which excavations showed to have been rapidly built up by fresh alluvium during the period of occupation. At the Río Grande site, over 1.2 m of accretion occurred during the six or so centuries of the Dulce Nombre phase. Such deposits are typical of natural levee areas of floodplains. The Lempa floodplain does not have a simple channel-levee-backswamp morphology; instead, a series of "bench" levels that resemble relict terraces occurs. These benches have probably resulted from multimodal distribution of floods of different magnitudes.

Although we know the locations of five Preclassic sites and can relate these to the geomorphology of the valley, we cannot make any assumptions about the absolute number, size, or distribution of settlements because the floodplain was blanketed sometime in the 3rd century A.C. by air- and waterborne pyroclastic materials from the cataclysmic Ilopango eruption. No program of deep testing of these buried areas was carried out; the five sites were located fortuitously through observation of erosional exposures or, in the case of Los Flores, indicated by prominent mounds protruding through the tephra deposits (FIGS. 4, 5, 7). We are relatively certain that Preclassic occupation was limited to the floodplain, since reconnaissance of the upper terraces revealed no evidence of sites of this period.

Although there is no evidence of Preclassic occupation on the extrusive uplands, there is every reason to believe that this microzone would have been utilized by the prehistoric inhabitants of the basin. The hills would have been a ready source of hard igneous rock for grinding stones and minerals for pigment and other uses. These zones are rocky and steep and probably were not cleared for agriculture; the soils are thin and poor and used only in a very limited way today, even with the tremendous population pressure in the area. Their forested slopes, therefore, would have provided refuges for faunal species that had probably been largely driven out of the agricultural land of the river bottom. This hilly zone might also have been exploited as a source of wood. Hot springs, which emanate from the hills, are another feature of this environmental zone that could have been utilized.

Without doubt, the floodplain was chosen as the principal focus of Preclassic occupation primarily for its rich soils. It would also have been the most advantageous situation from which to exploit riverine floral and faunal resources as well as those of the swampy areas behind the levee. El Perical, for example, is located precisely on the edge of a backswamp area. The river channel was the source of chert and igneous stone cobbles which formed the raw material base for the unique chipped-stone industry described above. Hard river cobbles were also used for hammer stones and milling stones and as construction material, e.g., in the monumental structures at Los Flores.

The floodplain was rendered largely uninhabitable by the extensive flooding and deposition which followed the Ilopango eruption. It would seem a viable option for the Preclassic inhabitants of the valley simply to have moved up to the terraces above the floodplain to escape the flooding and other adverse effects of the eruption. Airborne tephra accumulations were not deep enough to preclude milpa agriculture. Apparently, the Preclassic inhabitats were so dependent on the river and its resources that this adjustment could not be made.

Perhaps a century or two after the eruption, a small settlement was established at La Boquita on a point-bar deposit of the meandering Río Grande, just upstream from the Río Grande site. Here the river had cut through the deep deposit of sterile alluvium and had redeposited a mixture of the rich loam soils and pumice gravel, making the area once again suitable for village agriculture. In terms of the importance of these data for a full understanding of the impact of the Ilopango catastrophe, it appears that there was not one unitary response to the disaster (i.e., large-scale emigration). It is logical that the response of the inhabitants of culturally marginal regions such as the Paraíso Basin would be different from the response in the highlands. Although the ecological consequences were similar, the highland inhabitants were much more dependent on trade networks,

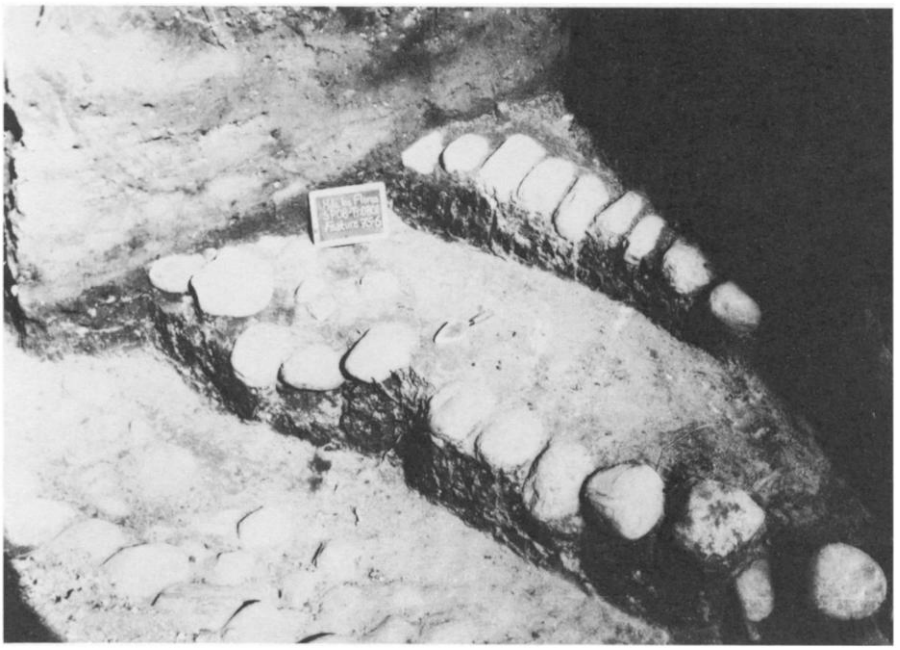

Figure 7. Los Flores, lower retaining walls and black clay surface of Mound 10 mantled by water-worked Ilopango volcanic ash. Trowel points to N.

especially those linking Chalchuapa and Kaminaljuyu, which were severed by the effects of the eruption.[54] A plausible reconstruction would be that there were small-scale population movements from the lower floodplain of the Lempa to the limited area of the floodplain along higher, northern tributaries such as the Ríos Grande, Tamulasco, and Las Minas, the upper reaches of which were not surveyed. The site of La Boquita provides evidence that the lower floodplain was reoccupied as soon as fluvial processes created the opportunity. This reoccupation in the immediate vicinity of Preclassic Dulce Nombre phase occupation complete with material-culture ties to the earlier phase would probably not have occurred had the interim migration involved great distances.

The settlement pattern of the Middle to Late Classic Fogón phase differs strikingly from those of the Preclassic period. The Fogón phase was a time of extensive occupation in the basin and may well have witnessed the peak of prehistoric population in the survey area. There is a wide range of variation in Fogón phase settlement types, from tightly nucleated centers with plazuela groups and ballcourts to small, isolated farmsteads.

While the Preclassic inhabitants of the basin were apparently unwilling or unable to adapt to conditions following the Ilopango disaster by moving to upper terraces, the Late Classic immigrants exploited this zone intensively. This may have been part of a general adjustment taking place in southern Mesoamerica at this time, demanded by higher population densities and facilitated by new strains of maize and agricultural techniques. With only one important exception, Classic period sites are located on relict river terraces above the Ilopango alluvium. Site locations range from the edge of the alluvium to the base of the foothills of the Sierra Madre at elevations of 240–265 m above sea level. The only known Fogón phase site located on the alluvium otherwise avoided by settlers of this time is El Remolino, at an elevation of ca. 235 m above sea level. We do not yet fully understand whether this site was a typical agricultural village or if it served some special function. It is possible that the meandering of the Río Lempa had created some arable land just below this site, or it may represent settlement on less-than-desirable land because of population pressure during the Late Classic.

Occupation during the Early Postclassic Guazapa phase occurs in the full range of microenvironments in the basin, although the lower reaches of the floodplain were still sparsely occupied. There is no noticeable continuity in settlement patterns from the Late Classic to the Postclassic, and during the Guazapa phase the extrusive uplands were settled for the first time. The sprawling

54. Robert J. Sharer, "The Southeast Periphery of the Maya Area: A Prehistoric Perspective," paper presented at the 74th Annual Meeting of the American Anthropological Association, San Francisco (1975); idem, op. cit. (in note 9) 210–213; Sheets, 1979 op. cit. (in note 18) 558–559; Demarest, op. cit. (in note 9) 378–382; William R. Fowler, Jr., "Preclassic Interregional Networks and Interethnic Relations in El Salvador and Related Areas," in P. D. Francis, F. J. Kense, and P. G. Duke, eds., *Networks of the Past: Regional Interaction in Archaeology. Proceedings of the Twelfth Annual Conference, The Archaeological Association of the University of Calgary* (Calgary 1981) 437–466.

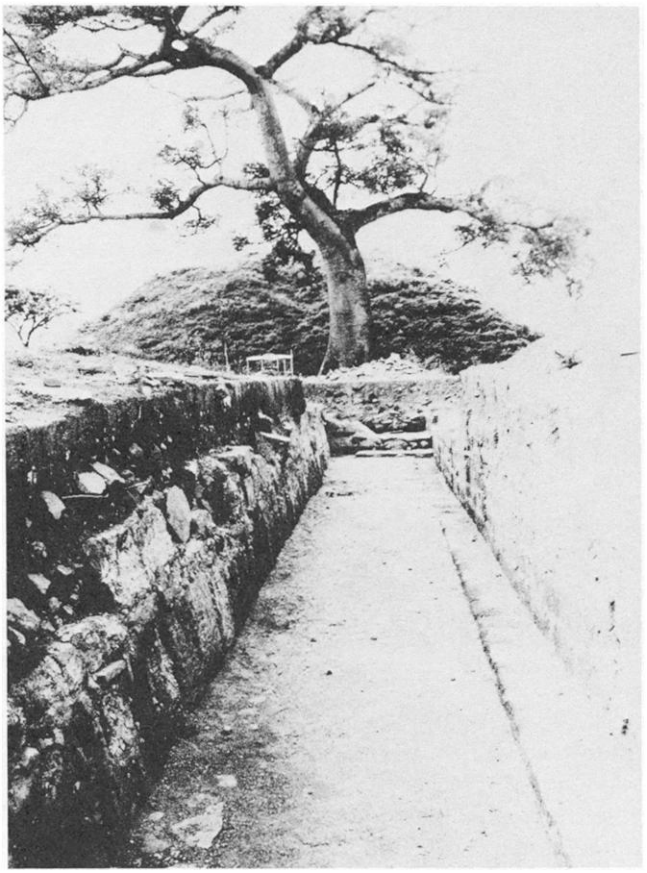

Figure 8. Cihuatan, West Alley of Southeast Patio, an elite residential compound. Structure P-7 in background. View to N.

center of Cihuatan (FIG. 8) is one site that was built in the uplands. The nucleus of the town is situated on an outcrop of weathered andesite that rises to ca. 50 m above the floor of the basin. The habitation zone covers the adjacent slopes and flats. In some places, the hillside was terraced to provide additional residential space. Elevations within the settlement range 270–333 m above sea level (the highest point is the summit of the principal structure). There is little doubt that the commanding view of the basin afforded by the site's hilltop location was one of the major considerations in the selection of this locality for settlement by its prehistoric inhabitants. Another important factor was probably availability of productive agricultural land on the terrace below the site.

The closely related site of Santa María is located on relict terraces above the floodplain of the Lempa and its tributary the Río Tamulasco. The site's maximum elevation is 248 m above sea level, and the view of the basin from this point is unobstructed as far west as the Cerro Colima, another extrusive hill ca. 12 km to the west of Santa María. As in the case of Cihuatan, strategic considerations probably figured in the location of Santa María. It does not seem fortuitous that access to the heart of the basin could have been controlled on the west from Cihuatan and on the east from Santa María.

A considerable range of variation in settlement type is also evident during the Guazapa phase. Small, isolated farmsteads, hamlets, and villages occur. Santa María was an important secondary regional center, and Cihuatan, on the basis of size and volume of monumental construction, appears to have been the primary regional center in the basin during the Early Postclassic.

Summary and Conclusions

The research conducted by the Cerrón Grande project has made possible the establishment of an archaeological sequence encompassing roughly 2,000 years in the Paraíso Basin of El Salvador. The earliest known permanent occupation in the basin, at El Perical, dates to the early Middle Preclassic. Close ceramic linkages to Chalchuapa during the Middle Preclassic suggest that the basin was colonized sometime between 1000 and 650 B.C. by agriculturalists expanding from the volcanic highlands. A major shift took place ca. 400 B.C., and the Late Preclassic sites of Río Grande and Los Flores bear evidence of increased population relative to that of the Middle Preclassic, increasing dependence on intensive agriculture with irrigation, and greater complexity in social organization. The transition to the Late Preclassic appears to mark a change in the Paraíso Basin from egalitarian to stratified society. Los Flores was probably the seat of a petty chiefdom supported by agricultural villages such as Río Grande.

It has been proposed that during the Late Preclassic (400 B.C.–250 A.C.) the SE highland region was occupied by a single ethnic and linguistic group with very close intraregional contacts in the form of ideological, economic, and perhaps even political ties.[55] The Paraíso Basin appears to have been peripheral to this Late Preclassic interaction sphere that linked Kaminaljuyu, Chalchuapa, Santa Leticia, and other centers of the highlands. There is no doubt, however, that the inhabitants of the basin during the Concepción and Dulce Nombre phases were very much aware of contemporaneous societies in the highlands. Contacts between the two regions are attested by the presence of certain cultural traits in the basin, such as Izalco Usulutan ceramics[56] and the

55. Arthur A. Demarest and Robert J. Sharer, "Late Preclassic Ceramic Spheres, Culture Areas, and Cultural Evolution in the Southeastern Highlands of Mesoamerica," in E. Shortman and P. Urban, eds., *The Southern Periphery of Mesoamerica* (1981) in press.

56. Arthur A. Demarest and Robert J. Sharer, "The Origins and Evolution of Usulutan Ceramics," *AmAmt* 47 (1982) 810–822.

round civic-ceremonial structures of Los Flores, which appear to have diffused from the highlands. An increasing frequency of obsidian in the basin during the Late Preclassic also indicates connections with the highlands. In spite of the obvious contacts, there are many more differences than similarities in material culture between the two regions, and the Paraíso Basin maintained a distinctive cultural identity during the Late Preclassic.

There are several potential explanations for this observed pattern of variation. We feel that the ecological contrasts between the Paraíso Basin and the volcanic highlands are largely responsible for the cultural distinctions between the two regions. As noted, there is no evidence for isolation of the basin from the highlands; indeed, the reverse is true.

The riverine orientation of the Preclassic inhabitants of the Paraíso Basin is probably the key to understanding the cultural variation between that region and the volcanic highlands. The rich microenvironmental complexity of the basin most likely led to a more varied subsistence strategy than in the highlands. Although hydraulic agriculture was in place in the basin by the Late Preclassic, natural food resources probably remained critically important throughout this period. We suspect that the highland region was more dependent on a fully agricultural subsistence base and also more dependent on highland/coastal-plain trade networks. Thus, the material-culture variation between the two regions is, in all probability, a reflection of distinctive adaptive patterns.

We do not wish to advance a purely environmentally deterministic argument, however, and would add that there were very likely also ethnic, linguistic, and ideological bases for the cultural differences. Economic considerations could also have played a role. One might speculate, for example, that by remaining peripheral to the Kaminaljuyu-Chalchuapa axis, the populations of the Paraíso Basin probably avoided paying tribute to one or more chieftains to the west.

Both the Paraíso Basin and the SE highlands were severely affected by the eruption of Ilopango Volcano, ca. 250 A.C. The magnitude of the impact of this catastrophe appears to have varied proportionately from one affected region to the next. Environmental destruction, migration, and social disruption occurred throughout much of western and central El Salvador.[57] It appears that the response in the Paraíso Basin was abandonment of the floodplain portion of the heart of the basin and short-distance migration to the floodplains of upper tributaries. Chalchuapa and other SE highland centers were probably also partially abandoned, and the networks linking Chalchuapa, Kaminaljuyu, and other sites were severed. The latter consequence probably had little impact in the Paraíso Basin.

After a sparse occupation during the Early Classic (250–400 A.C.), the basin appears to have been colonized during the Middle to Late Classic (400–900 A.C.) by a relatively large population of Chorti Maya or their allies, who were probably loosely organized into small-scale chiefdoms. An apparent change in agricultural technology and adaptation may be reflected in a shift in settlement distribution during the Classic which resulted in settlement in all microenvironmental zones of the basin except for the extrusive uplands. There were close connections during this period between sites in the basin such as El Tanque and La Ciénaga and major Chorti centers such as Copan, San Andrés, and Chalchuapa.[58] Yet, in spite of what appears to have been essential ethnic and linguistic unity between these sites, there is still a considerable amount of regional variation. We would emphasize, however, that the degree of variation between the Fogón phase sites of the basin and Xocco-Payu phase Chalchuapa[59] does not even approach that observed between the Dulce Nombre phase occupations of the Paraíso Basin and Chul-Caynac phase Chalchuapa.[60]

With the invasion of western and central El Salvador by Nahuat-speaking Pipil immigrants from central and southern Mexico, the area experienced a different kind of linguistic unity during the Postclassic (900–1524 A.C.). The earliest Pipil migrations to SE Mesoamerica probably date to the latter half of the Late Classic, beginning ca. 650–700 A.C.; the final "wave" of Mexican movements into El Salvador probably ended ca. 1250–1300 A.C.;[61] The distinctive Mexican traits in the material culture of Cihuatan and Santa María are evidence for a Pipil presence in the Paraíso Basin by the 9th or 10th century A.C. Cihuatan was a prosperous Early Postclassic city-state having trade connections with coastal populations to the south and with highland Guatemala to the west. Santa María was probably a political subordinate to Cihuatan, and the inhabitants of both communities participated in a close-knit economic, social, political, and ideological network.[62] Early Postclassic settlements are found in the full range of microenvironments in the basin. The end of the Early Postclassic Guazapa phase in the basin is marked by the destruction by fire and the abandonment of Cihuatan and Santa

57. Sheets, 1979 op. cit. (in note 18).

58. Fowler, op. cit. (in note 1) 11–16.

59. Sharer, op. cit. (in note 9) 127–128.

60. Ibid. 125–126.

61. Fowler, op. cit. (in note 1) 825–849.

62. Ibid. 999–1001, 1015–1017.

María, probably in the 13th century A.C. It is possible that the Toltec-influenced Nonoalca Pipil, who held most of western and central El Salvador at the time of the Conquest, exerted economic and military pressures on the Pipil of the Paraíso Basin and ultimately attacked and destroyed Cihuatan and Santa María.

The final phase of the prehistory of the basin is enigmatic. Many of the Early Postclassic inhabitants of the basin may have relocated on the slopes of Guazapa Volcano sometime after 1200 A.C. There is probably continuity into the Late Postclassic in the SE portion of the basin; the town of Suchitoto (FIG. 1) appears to have been a Pipil settlement at the time of the Conquest.[63] For the most part, however, the region evidently suffered a sharp decline in population during the Late Postclassic. It is quite possible that the basin served during the Late Postclassic as a buffer zone between the Chorti to the north and the Pipil to the west and south.

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63. Samuel Kirkland Lothrop, "Pottery Types and their Sequence in El Salvador," *Indian Notes and Monographs* 1 (Museum of the American Indian, Heye Foundation: New York 1927) 185; Jorge Lardé y Larín, El Salvador: Historia de sus Pueblos, Villas y Ciudades (Ministerio de Cultura: Sán Salvador 1957) 485.

William R. Fowler, Jr. is Assistant Adjunct Professor in the Department of Anthropology and Archaeology at the University of North Dakota, Grand Forks, ND 58202. He has worked in Puebla and Oaxaca, Mexico; El Salvador; Guatemala; and North Carolina.

Howard H. Earnest, Jr. is Forest Archaeologist with the U.S.D.A. Forest Service and the Cherokee National Forest, P.O. Box 2010, Cleveland, TN 37311. He has conducted archaeological research in Yucatan, El Salvador, and Tennessee. He is a Ph.D. candidate at Harvard University.