

16.

SUMMARY

Gaps in Our Databases and Blanks in Our Syntheses: The Potential for Central American Archaeology in the Twenty-First Century

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The chapters in this volume have presented a critical update on prehistoric research in Central America, demonstrating a balance between filling in gaps in the space-time charts and contributing to broader interpretive or theoretical syntheses. Our principal continuing deficiency is that we have not attempted, except in a few specific cases or at the most general level, to interpret the social dynamics of the prehistoric societies with which we are dealing.

In large part this is because, until recently, either the database was insufficient (and it still is in many locations) or we have depended too heavily on models of cultural evolution and social organization developed for noncomparable, i.e., state-level, terminus Mesamerican and Andean cultures. One of Wolfgang Haberland's most enduring contributions to American archaeology was his distinction between the Mesamerican and non-Mesoamerican sectors of El Salvador; it is in areas such as these, where different levels of prehistoric cultural organization are geographically associated, that we may hope to achieve greater insights into similar but different processes of cultural evolution.

Brunhs reviews Haberland's contributions to the study of the southern Mesamerican frontier. The southeastern frontier has evidently shifted through time, so that there are serious methodological problems in delineating a frontier in an area that is poorly known archaeologically.

John Hoopes and Payson Sheets have been strong advocates in urging a different approach to the evolution of more complex societies in lower Central America and the Intermediate Area.¹ Sheets (1992a:36) has noted that "the Intermediate Area has long been obscured by the extensive shadows cast by the towering civilizations of Mesoamerica and the Andes," and Hoopes (1992:71-73) has written:

With the autochthonous, regionalized model, it is assumed that the cultural trajectories of societies in distinct regions of the Intermediate Area may in fact be quite different, and that broad developmental schemes may obscure the individual structures of societies. Universal economic or symbolic values for items such as maize, tree crops, manioc, jade, birds, or reptiles cannot be assumed, and differences in the structure and organization of Formative societies may have had a significant effect on the nature of emergent rank and social complexity.

In a recent characterization of prehistoric social organization on the Pacific coast of Nicaragua, Lange et al. (1992:53–62) divided the isthmus of Rivas into four noncoextensive lithic and ceramic “zones” or “spheres” and noted that these spheres overlapping lithic and ceramic zones could be viewed as fundamentally self-sufficient (see also Lange 1992:131). These units would appear to be examples of what Hoopes referred to as the “individual structures of societies” with associated but still distinct cultural trajectories, a specific example of which would be the Arenal region of the cordillera of Guanacaste in northern Costa Rica (Sheets 1984). Hoopes also has noted (1992:73): “A concentration on the emergence of ‘chiefdoms’ and centralized authority (cf. Snarskis 1987; Hansell 1987) may well be inappropriate for many parts of the Intermediate Area. Alternative structures, such as decentralized complex tribes (Habicht-Mauche, Hoopes, and Geselowitz n.d.; Hoopes 1988) and segmentary societies may prove to fit the data better than hierarchical models derived from idealized stages in the cultural evolution of New World state societies.

I have also suggested consideration of the contrasting terms “active or coercive” and “passive” ranking (Lange 1992:109–111), with passive ranking being “kinship based, where one’s position within the social group is defined by abilities such as age, knowledge, hunting prowess, and so forth. Active ranking is viewed as negating the importance of passive criteria in interpersonal [relationships] through the imposition of externally defined criteria.”

In addition, Lange et al. (1992:278), in summarizing the current evidence for cultural development on the Pacific coast of Nicaragua, have noted that “simpler societies traditionally have been seen as having failed to evolve higher organizational levels comparable to those of their more complex neighbors. Rather than failure, the relative isolation of these less complex societies, their economic self-sufficiency, and their ability to passively resist external influences are unquestionably indications of success.”

These writers also conclude (Lange et al. 1992:277) that “our inability to develop an alternative, non-imperial model for Nicaragua is currently rooted in a severe lack of data at both the site and regional levels.” Fowler (1989:264–272), in his work on the Pipil-Nicarao, discussed this problem in

considerable detail. He concludes that a historical materialist perspective is a productive means of viewing these differences in complexity.

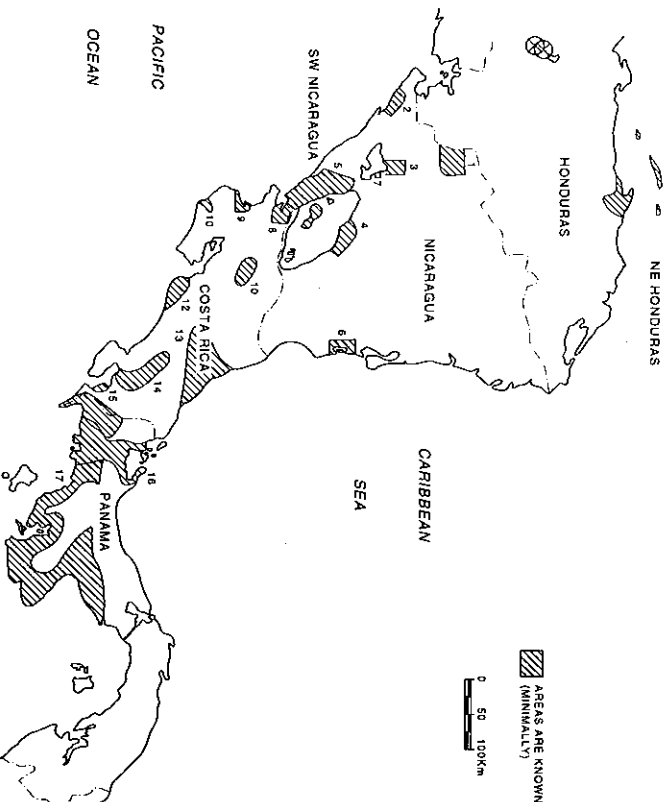
Finally, as Solís (1991:14) has pointed out, we have only a very limited database at the level of *micropatron de asentamiento* (“household level of settlement pattern”) where the data that could contribute to the description of activity areas that would increase our understanding of household and community organization could be obtained. Partially because of the research emphases of Michael Snarskis (1983) and partially because of the presence of river cobble constructions, most such studies in Costa Rica have been carried out in late period (A.D. 1000–1500) sites on the Atlantic coast, in the Central Valley, and on the Central Pacific coast.

Similar studies in Guanacaste are limited to those by Vázquez (1986) and Guerrero and Blanco (1987), and in southern Costa Rica, to Drolet (1984, 1992) and de la Cruz (1986). Solís (1991:table 1) lists forty-one such sites in Costa Rica, of which the majority have been only visited, mapped, and had surface collections made. Many fewer have been the focus of rescue archaeological efforts, and even fewer have been subjected to careful, planned excavation.

There seems to be general agreement, supported by a growing body of data, that a different model of cultural development and the evolution of social complexity is needed for lower Central America—the Intermediate Area and that the traditional, idealized models developed for the highland and lowland Mesoamerican and the South American Andean civilizations states may be of limited, if any, applicability except as distinct contrasts for Central America and Intermediate Area patterns. How do we go about developing one or more new models for these overlapping areas?

If we are to focus our attention on “defining what may have been very significant differences in the organizational structures of Formative [Editor’s note: and subsequent] societies in relatively small, circumscribed areas rather than defining of substrate of unitary origin,” then filling in the missing space-time gaps in clearly defined ecologically bounded basins, plains, and valleys is a top priority. As some of the chapters in this volume indicate, we have begun to make some progress in this aspect of Central American research, after (with a few exceptions) a lapse for the past twenty years. The most ambitious project under way is the systematic archaeological inventory of Nicaragua developed in cooperation between the government of Sweden and the Organization of American States (Gorin and González, this volume; Fletcher, Salgado, and Espinoza 1993).

This recent sense of urgency to fill in some existing space-time gaps has been stimulated by an unprecedented surge of site-destructive economic development in the area, combined with a sense of how many areas we still know nothing about. The combination of the sense of impending loss and the recognition of still significant unknown areas has given new emphasis to this more “traditional” dimension of Central American research (Drolet 1980,



16.1 Archaeologically known, lesser-known, and unknown areas of Central America.

Hoopes 1984; Gorin 1990; Baudiez et al., this volume). In this volume and elsewhere (Lange 1989), I have returned to earlier work (Lange, ed., 1969, 1970, 1971) to suggest a local space-time sequence for the Bay of Salinas area in northwestern Costa Rica.

Five of the chapters in this volume have not only cast other beams of light on generally unknown areas of the Central American isthmus but also contributed to continuing regional synthesis efforts for the subareas of Greater Nicoya and Greater Chiriquí (Figure 16.1). The term *Greater Nicoya* was first coined by Norweb (1961) and *Greater Chiriquí* by Haberland (1961a). Both terms have been used somewhat uncritically; the utility of the term *Greater Nicoya* was recently reviewed in Lange et al. (1992), and both Drollet (1983a) and Hoopes (this volume) have examined the nature of *Greater Chiriquí*. A number of the chapters in this volume contribute to a better understanding of both of these cultural-historical-geographical units, individually considered to be subunits of either lower Central America or the Intermediate Area.

In the north, Dominique Rigat and Rafael González's survey in the previously little-known Cuenca del Lago de Managua region developed the first

chronological sequence for the north-central part of Nicaragua. Seventy-eight sites were recorded, ranging temporally from 300 B.C. to A.D. 1520, with the majority being from the latter 400 years of the sequence; in part this reflects an almost total dependence on surface materials. Most of the identified ceramic types can be related to the Greater Nicoya typological system to the south, with a limited number of "local" types also represented. Fletcher, Salgado, and Espinoza (1993) have reported a ceramic typology from northern Nicaragua that, even though some ceramics are derived from the Greater Nicoya area, is clearly most closely allied with southern Honduras.

Although northern Nicaragua is spatially closer to the southern Honduran area than is the Ayala site sequence reported by Salgado González (this volume), Fletcher, Salgado, and Espinoza report none of the non-Greater Nicoya southern Honduran ceramics reported in some quantity by S. Salgado. Rigat and González also note a much higher percentage of obsidian in the lithic sample than Gorin and Rigat had found in Chontales (Gorin 1990; Rigat 1992).

Thus, Rigat and González Rivas not only developed a local sequence but also contributed to ongoing efforts at regional synthesis and the attempts to understand the fluctuations in the geographical-ecological boundaries of Greater Nicoya through time. The exact relationship of the Lake Managua Basin to Greater Nicoya or to other existing cultural-geographical units such as southern Mesamerica remains to be determined through future research.

Silvia Salgado González's report on the Ayala site near Granada, Nicaragua, was a space-time analysis of a collection of stratigraphically excavated Nicaraguan materials that have been curated at the Peabody Museum at Harvard since they were excavated by Gordon R. Willey and Albert H. Norweb between 1959 and 1961. Salgado González's chapter discusses the Ayala site's chronological position and its relationship to the Rivas area of Greater Nicoya and Honduras, with particular emphasis on the Bagaces period (A.D. 300–800 in Nicaragua, A.D. 500–800 in northwestern Costa Rica).

Her study of Ayala's ceramics was conducted to further expand Norweb's and Healy's work, to build a new regional chronological sequence, and to make interregional comparisons within Greater Nicoya, especially during the Bagaces period, which is still poorly understood. She also summarizes local differences with the general Greater Nicoya sequence and defines new phase names. As she notes, the definition of the new phases was based not only on the Ayala site ceramic complexes but also on comparisons with those of other regional sequences of Greater Nicoya. It is interesting—and indicative of the relative uniqueness of the Ayala site sequence—that she felt comfortable cross-dating her phases with the southern Honduran sequences.

In addition to ceramic types from the northern sector of Greater Nicoya similar to those reported by Healy (1980) from relatively nearby sites,² the Ayala site appears to have a comparatively high percentage (given its geographical location) of types with relationships to southeastern Honduras. As

with the Rigat and González Rivas space-time chapter, the report on the Ayala materials both fills in a spatial gap in our knowledge of Greater Nicoya prehistory and contributes to our slowly evolving understanding of the nature of the relationship between southern Mesoamerica and Greater Nicoya.

The chapter proposing a separate sequence for the Bay of Salinas (independent from the adjacent sequences of the isthmus of Rivas and Ometepe Island in Nicaragua and the Santa Elena Peninsula, the Bay of Culebra, Tempisque River Valley, and Tamaindo Bay in Costa Rica; see Figure 6.1) was added after the New Orleans meeting in 1991, and it represents the revision of an earlier paper (Lange 1989). This separation is a departure from previous publications (Lange 1971a; Lange and Norr, eds., 1986:4; Lange and Abel-Vidor 1980:4); the decision to establish a separate sequence for the Bay of Salinas was based on re-examination of the ceramic and lithic assemblages, a significant expansion of the regional database since 1969-1971, and a clearer understanding of the Bay of Salinas's position in a broader context. The predominant presence of typically southern sector (Costa Rica) ceramics, together with a more typically northern sector (Nicaragua) expedient chipped-stone lithic assemblage, clearly distinguishes the Bay of Salinas sites from sites either to the north or to the south.

The chapter by Francis Corrales Ulloa and Ifigenia Quintanilla Jiménez on the archaeology of the central Pacific coast of Costa Rica summarized some aspects of a multiyear project (Corrales 1986, 1988a, 1989a, 1990; Corrales and Quintanilla 1986, 1989; Quintanilla 1988a, 1988b, 1990). Like Rigat, González Rivas, and Salgado González, these scholars fill in a previously unknown space in the chronological sequence of the prehistoric map of Costa Rica.

As for space-time concerns, it is worth noting that Corrales Ulloa and Quintanilla Jiménez have suggested the establishment of a new archaeological subarea (the central Pacific) that has no local stratigraphic sequence; all chronological placements are dependent on cross-dating with either the Central Valley or Greater Nicoya sequences. Although in general this should yield relatively reliable results, we need to bear in mind that in another Central American archaeological subarea (Greater Nicoya), the 200-year differences between the beginning and end of the Early Polychrome periods in adjacent Pacific Nicaragua and northwestern Costa Rica can have a significant impact on the interpretation of regional cultural processes (Lange et al. 1992:177; Salgado, this volume). An archaeological subarea without an *in situ* chronological sequence is incomplete.

In their contribution Corrales Ulloa and Quintanilla Jiménez also provide significant new data on the southern extension of Greater Nicoya and interrelationships with the Central Valley of Costa Rica, as there was a significant quantity of Greater Nicoya ceramics primarily dating from A.D. 800 to 1200 in many of the sites. Finally, they also feel, on the basis of available data, that

they can suggest a "Central Archaeological Region" of Costa Rica, as distinct from the more traditional tripartite "Nicoya," "Central Valley," and "Atlantic coast" regions.

Corrales Ulloa and Quintanilla Jiménez also address another concern in this summary chapter—that of the archaeological identification of levels of social organization. In discussing social organization, they write, "evidence of . . . socio-political complexity is characterized by a transitional status between tribal and chiefdom social organizations," and they echo the need to reassess our means of characterizing prehistoric Central American social organization.

Based on fieldwork from farther south along the Pacific coast, Claude Baudez and his students summarize a survey and testing program carried in 1990 in the lower Diguís Area, Costa Rica. The project resulted in a chronological sequence for southern Pacific Costa Rica and allowed comparisons with previous work by Lothrop (1963), Drollet (1984, 1992), and Corrales (1989a) in Costa Rica and Linares de Sapir (1968b) in Panamá. As with the Greater Nicoya and central Pacific works already mentioned, their chapter not only contributes to filling a space-time gap but also adds to a better understanding of the Greater Chiriquí spatial-temporal dynamic.

As space-time gaps continue to be filled and correlated with existing sequences, we also need to continue to address some priority regional themes for the Central America area, themes that, incidentally, can only be more thoroughly studied as the space-time basis expands. It is equally important that attempts at more synthetic, regional research (prehistoric nutrition, trade patterns, subsistence, settlement pattern, etc.) can also help to identify where some of the most critical space-time gaps still exist. In the best of all worlds the development of space-time controls and the development of regional sequences are interdependent and interactive. What are some of the more important themes to be pursued?

REGIONAL THEMES

The Development of Central American Social Organization:

Tribes, Chiefdoms, and Other Forms of Ranked Societies

As discussed, this is a top priority. Creamer and Haas (1985) may well have intentionally or otherwise, set this process in motion when they reviewed relationship of archaeological data and social organization in Greater Nicoya. Although their selection of examples may not have been the most representative, they performed a valuable service by stimulating a re-examination of the social implications of archaeological remains. However, archaeological data necessary for such interpretations are still far from adequate. As Healy (1992:86-87) observes, "Though they focused on prehistoric groups in Costa Rica and Panamá, they enumerated characteristics that are equally applicable to the aboriginal societies of ancient Honduras

Unfortunately, the archaeological data for this area are often incomplete, and hardly uniform, making a full, detailed interpretation premature, if not problematic."

Many of us previously had assumed that jade, polychrome ceramics, and other specialized craft products had been the work of specialists and reflected a chiefdom level of organization. We now realize that the evidence for chiefdoms is not as strong as we thought and that the use of the concept is perhaps even inappropriate in Central America—the Intermediate Area. For example, almost without exception, even the fanciest Greater Nicoya ceramics occur both in domestic and mortuary settings (Lange 1992).

The 1987 Dunbarton Oaks conference that focused on archaeological detection of wealth and hierarchy in the Intermediate Area (Lange 1992) also addressed a number of examples of archaeological representations of elite behavior and objects of material culture. As Sheets (1992a:28) noted, "High levels of aesthetic achievement are not unusual in relatively simple societies" and "Intermediate Area societies expended considerable time and effort in selected crafts, with resultant high achievements in artistic representations. There is no reason to expect that most of these achievements required particularly complex societies." These views were echoed by other contributors to the symposium and to the resulting volume (Lange, ed., 1992). There is a growing acceptance among Central American archaeologists that any assumption of a direct correlation between artifact quality and social complexity is speculative at best.

Whether most of the archaeological data represent tribes or chiefdoms, as traditionally defined, is one issue; whether a more simple system of unranked, passively ranked, actively ranked, and complexly ranked tribes is a more productive analytical framework is another. As Hoopes has written (1992:73), "A concentration on the identification of the emergence of 'chiefdoms' and centralized authority (cf. Sharskis 1987; Hansell 1987) may well be inappropriate for many parts of the Intermediate Area."

Available data strongly indicate that limited-scale (single-site or superfluous) data are not reliable indicators of differing levels of social organization. The potential for the most useful data seems to be in the potential for intensive regional survey and testing programs (also known as improved space-time control) and assessing the data for the presence or absence of systems of site hierarchies, rather than attempting to distinguish hierarchical positions within individual sites and, even worse, trying to apply these intra-site assessments to regional models.

Finally, there is also a problem with "paradigm disjuncture" or the difference between what various scholars mean by a social organization term, such as *chiefdom*; a good example is the comparison with what some of our Central American colleagues mean by the same term, usually translated as *cacicazgo* (clearly recognizing that not all English-speaking researchers agree on what *chiefdom* means!). Because of differences in educational

background and theoretical training, a *chiefdom* is not necessarily a *cacicazgo*; the Central American term is more in the vein of the ranked and unranked options discussed earlier.

Fonseca (1986) has dealt extensively with the issue of the interpretation of social organization in archaeological research, and in a recent publication Ibarra (1990:47) defined *cacicazgo* as (translation mine): "the life style of semi-cultivator/distributor, characteristic of the Costa Rican chiefdoms, was based especially in agricultural activities, complemented by hunting, fishing, and gathering. . . . The ownership of the means of production, the land, the raw material and the tools, was communal." This definition contrasts with the more traditional strongly centralized redistributive system often associated with chiefdoms (although this concept has been reexamined and made more flexible depending on its geographical and temporal locus (cf. Drennan and Urbe, eds., 1987)). On a practical level, the use of translations of English language material for teaching and the development of regional syntheses derived from both English- and Spanish-language publications requires a communality of terminology and conceptual comprehension. There is a great need to align the different terminologies so that we are in fact all writing about the same thing, from the same mutually understood (even if not agreed upon) conceptual framework.

A number of the chapters in the volume bear directly on our interests in archaeological representation of social complexity. John Hoopes's chapter on reappraisal of settlement, subsistence, and the origins of social complexity in the Aguas Buenas tradition of Greater Chiriquí contains the most comprehensive overview to date of previous research in the region, focusing on "the earliest villages in Greater Chiriquí . . . with the goal of identifying problems and questions for future research in the area." Combined with the more narrowly focused chapter by Baudéz and his students and with Drolet's research (1992), we have a new perspective on the prehistory of southern Costa Rica and Greater Chiriquí. Drolet (1992:235–236) writes that:

tracing the evolution of two artisan industries over an approximately 2,000-year span of cultural settlement in the Térraba Basin of southern Costa Rica has permitted a reconstruction of the organizational features associated with early chiefdom formation in this subregion of Greater Chiriquí. The seeds of this form of polity organization began in the Formative Period and intensified until Spanish Contact. One key factor in this growth was the formation of the settlement territory. This corporate unit permitted the integration of settlements over a wide geographical area and stimulated the appearance of a higher level of leadership and authority structure.

Similar settlement territories appear not to have formed in Greater Nicoya or in the Arenal area of the cordillera of Guanacaste, but they can be suggested for the Central Valley and higher Atlantic watershed of Costa Rica.

Jane Stevenson Day and Alice Chiles Tillet's examination of the archaeological data and symbolism reflecting prehistoric shamanism in Nicoya displays interesting differences between the northern and southern sectors of the Greater Nicoya region of Nicaragua and Costa Rica with regard to possible interpretations of prehistoric shamanism. Most of the suggested shamanistic traits from the Nicoya region of Costa Rica are absent from the Rivas region of Nicaragua and, interestingly, from the Bay of Salinas region as well. (See Lange 1992:115-123, for a discussion of these distributional differences; the differences in the presence or absence of these artifact categories between the northern sector of Greater Nicoya in Nicaragua and the southern sector in Costa Rica require considerable additional research and analysis.) For the moment, this chapter clearly demonstrates the hazards of basing interpretations of social complexity solely on artifact associations.

In his chapter, Mark Miller Graham suggests that the presence of predominantly gold metallurgy may be utilized as a horizon marker in Central America. He also discusses the reliability of the identification and interpretation of gold objects on stone statuary and the "role of Atlantic watershed Costa Rican polities in the commerce in metalwork with the Maya of Yucatán." His interpretation that prehistorically eastern Mesoamerica and the Intermediate Area were more linked than separate, with major routes of contact passing through Central America, points out the need for a greatly expanded space-time database in the eastern two-thirds of Honduras if this model is to be further developed. His ideas are reinforced by some of the emphases in Karen Olsen Bruhns's chapter.

The Absence of the State

Closely related to the theme of social complexity is the concern with the evolution or, in Central American terms, the nonevolution of the state. Archaeologically, we have data from over 2,500 years of culture history in an area full of rich natural resources, which, at the time of the Spanish Conquest, had not a single community approaching the size or complexity of Tikal, Tenochtitlán, Monte Albán, or other such well-known sites. Very few Central American sites even left permanent aboveground architecture, and the prehistoric landscape was dotted by varying levels of loosely ranked and even unranked societies. It has been fashionable in some circles to ask a seemingly pejorative question: Why didn't Central America achieve state-level complexity? (cf. Willey 1984:375). As Hoopes stated the issue (1992:46), "For several years, a principal research question for Americanists approaching the Intermediate Area has been: why did some cultures flourish and eventually attain the status of civilizations while others stagnated?"

We have begun to suspect that these Central American groups managed to avoid state-level complexity; whether accidentally or whether there are indications of purposeful evasion is another issue. Lange, Sheets, Martínez, and Abel-Vidor (1992) have suggested a new model in which longer cultural periods and slower cultural evolution in Greater Nicoya in general and in Nicaragua Pacific specifically, in comparison with the Maya and the Mesoamericans, generated a more stable and more peaceful existence for the people who lived there. This is contrasted with the more rapidly changing cultural fabric of prehistoric Mesoamerica, which featured tribute, human sacrifice, and much larger-scale warfare than previously thought. We suggest that Central America and Costa Rica did not achieve state-level complexity not because of cultural ineptness but because of the cultural and ecological opportunities that existed and the options that were selected.

Interregional Trade Networks and Cultural Connections

A better understanding of social organization is also essential for interpreting the forms of artifact production and patterns of exchange that may have existed. Previous research has demonstrated that we need various forms of instrumental analyses to reconstruct patterns of raw material exploitation, processes of artifact production, and patterns of exchange.

To date, instrumental analyses of three groups of artifacts (ceramics, obsidian, and jade) have greatly enhanced our ability to track and reconstruct prehistoric networks in Central America and to evaluate Mesoamerican contacts and influence on more than an impressionistic level. Jade has been the least useful, largely because of our inability to connect artifacts to raw material sources and the lack of large quantities of artifacts from controlled contexts (Bishop, Sayre, and van Zeist 1985; Lange, ed., 1993).

The study of Greater Nicoya ceramics (Bonilla et al. 1990; Bishop, Lange, and Lange 1988; Lange, Canouts, and Salgado 1992) has contributed significantly to the study of regional patterns because of both the size of the analyzed sample and its temporal and geographical range. More than 1,300 samples in the Greater Nicoya Ceramic Sample link over fifty sites in Nicaragua and Costa Rica (Lange et al. 1992:fig. 6.7a-b) as members of a multi-regional analytical network.

A central assemblage of eighty highly distinctive stylistic types and varieties is the common denominator of the ceramic assemblage of Greater Nicoya. The ceramic assemblages of the northern and southern sectors can be distinguished by type-variety classifications that have been confirmed and refined by instrumental neutron activation analyses, or INAA. The methodology and results of the 1,300+ sample Greater Nicoya analytical assemblage have been summarized both in English (Lange, Bishop, and Lange 1990) and in Spanish (Lange, Bishop, and Lange 1990).

All presently classified ceramic types and varieties fall into the following categories:

1. Types/varieties manufactured only in the northern sector;
2. Types/varieties manufactured only in the southern sector;
3. Types with one or more varieties manufactured in the northern sector and one or more varieties manufactured in the southern sector; and
4. "Foreign" ceramics falling into extra-areal southern Mesoamerican ceramic groups.

The distributional patterns of ceramics in the four different categories offer excellent opportunities to examine intraregional relationships and exchange patterns with southern Mesoamerica and the Caribbean-Atlantic coastal areas. With regard to a specific comment in Brubns's chapter, none of the samples of Usulután analyzed so far by the Greater Nicoya Ceramic Project were imported from outside the area. As noted elsewhere (cf. Lange 1992:115) we are dealing with the broadly dispersed decorative technique applied to local ceramics. For the future we need to expand the combination of ceramic typological and instrumental analytical abilities, as well as auxiliary analytical techniques that are of less analytical power but of greater utility to the other regions, spheres, and zones of Central America.

Obsidian is another source-related raw material highly suitable for tracing patterns of resource exploitation, artifact production, and both resource and artifact distribution in Central America. Although still limited by comparison with Mesoamerican obsidian databases (cf. Charlton and Spence 1982; Zeitlin 1982; Cobean et al. 1991; Stark et al. 1992), the database for Central America is slowly accumulating (Sheets et al. 1990; Stross, Asaro, and Michel 1992; Healy et al., this volume).

Despite a highly volcanic landscape, obsidian has not been found in Costa Rica in usable size or quality nodules or veins. All obsidian analyzed thus far (Sheets et al. 1990; Stross, Asaro, and Michel 1992) from Costa Rica and Nicaragua was either from the Piccaya or Ixtepeque sources in Guatemala or from the newly identified Güinope source on the western Honduran border with Nicaragua. Most of the analyzed obsidian has been recovered from contexts that coincide chronologically with both Mora Polychrome and Papagayo Polychrome and are excellent complementary data to the ceramics for evaluating inter-site and interregional contacts (cf. Zeitlin 1982; Stark et al. 1992).

In Ranere and Cooke's chapter, the authors examine regional trade systems that are not dependent on instrumental analyses for their definition. They also make the interesting observation that some lithic distribution patterns were more extensive than those of ceramics patterns and that

"lithic and ceramic styles were not always governed by the same constraints." This also seems to have been the case in Pacific Nicaragua, where Lange and Sheets (Lange et al. 1992:figs. 3.1, 3.2, 3.3) identified varying distributions for ceramic and lithic spheres in the northern sector of Greater Nicoya.

Comparative Importance of Maize and Other Subsistence Systems

From the beginning of my research in northwestern Costa Rica (Lange 1969, 1970), I questioned the Mesoamerican-based "myth" of maize agricultural dependence that had been promoted about the prehistoric residents of the southern sector of Greater Nicoya. In sequential periods of research in different parts of the Pacific coast of Guanacaste from 1969 to 1979 (Lange 1971a, 1976, 1977a, 1978, 1980a; Lange et al. 1976), there were no vegetal remains, no artistic representations, no cob impressions, and few functional manos or metates in domestic contexts.

Since that time the ability to reconstruct diets from human remains has advanced greatly. In the most comprehensive analyses to date, eight individuals from the Vidor site were included with a much larger sample from Panamá, as well as other limited samples from Costa Rica (Norr 1991). Closely related to this more extensive research, Norr's chapter in this volume presents extensive stable carbon and nitrogen isotopic data derived from bone collagen analysis of some of the prehistoric inhabitants. Part of Norr's sample population was derived from sites on the Pacific coast of Guanacaste Province in Costa Rica, where there was the potential for both agricultural and marine subsistence exploitation. She concludes that a complex pattern of dietary exploitation existed, with exploitation of either major resource base being variable with time period, geographical location, and climate. In most locations she notes an inverse relationship between marine and maize diets and "a strong correlation between settlement environment and subsistence strategy."

We now know that the dietary strategies of prehistoric Central American populations were more complex and much less monolithic than we realized. The available data appear to coincide conveniently with the models of more individually structured societies presented earlier. However, considerably more research on diet and nutrition and on the auxiliary impact on mortality and mortuary patterns needs to be conducted. Integration of the ceramic, lithic, faunal, molluscan, and human skeletal data from research throughout Central America should provide a much more accurate overview of the development of prehistoric subsistence patterns and related social patterns.

GEOGRAPHICAL GAPS

In the preceding section, I have sketched out some of the various themes that need to be addressed in conjunction with basic space-time studies as we

gradually reduce the number of gaps and increase our interpretive understanding.

Methodologically, as we enter the twenty-first century, it is clear that our basic time-space data must drive our hypothesis testing and our syntheses and that these efforts at model testing and synthesis will in turn continue to indicate where space-time data gaps exist. Central American prehistory requires this interactive process and balance.

The next step is to identify those gaps as specifically as possible for the four countries of the Central American isthmus: Honduras, Nicaragua, Costa Rica, and Panamá (Figure 16.1). The following inventory of priority areas for future time-space studies was developed in consultation with persons working in each of the individual countries and is not meant to be exhaustive in detail. Some minimal information may exist for certain areas not shown on the map, and at the same time not all geographical subunits are individually identified.

Honduras

Although the western one-third of Honduras is firmly allied with the Maya area (Healy 1984a, 1992), the vast eastern two-thirds is more closely allied with lower Central America and the Caribbean, and it has received much less research emphasis. There are two principal unknown regions and targets for future investigation.

Pacific

The Gulf of Fonseca unites part of Honduras with Pacific coastal El Salvador and Nicaragua. The gulf needs to be treated as a single multinational research area, both to increase our understanding of southern Mesoamerican-lower Central American patterns on the Pacific coast and to provide additional data on possible Caribbean-Pacific contacts via the Choluteca River Valley and related connecting river systems, for which the Gulf of Fonseca is the Pacific terminus.

Caribbean

As Figure 16.1 shows, despite Healy's efforts on the north coast (1974, 1975a, 1978a, 1978b, 1984a, 1984b) and research by others (cf. Clark, Dawson, and Drake 1983), the vast eastern two-thirds of Honduras remains virtually unknown. This area has been overlooked in part because of logistical difficulties and in part because it shows little potential for contributing to our understanding of Maya civilization. As Healy has noted:

In eastern Honduras . . . linkages to Mesoamerica . . . are unclear and probably quite limited. Whether due to its geographical isolation caused by the rugged mountain interior of Honduras, and therefore the difficulty of maintaining continuous trade and communication

links, or because of the obvious sparseness of nucleated populations due to the delayed development of agriculture, is debatable. Indeed, during the . . . first millennium A.D., we see signs that northeast Honduras, increasingly isolated from the western chiefdoms, instead commenced contacts with Lower Central American groups of the Atlantic coast, with Nicaragua, Costa Rica, and even regions of northern South America (Healy 1984b:233-236).

However, the non-Maya research opportunities for this area are significant. The Lake Tansin and Lake Caratasca areas and the Aguan, Guayape, Guayambre, Patuca, Sico, and Paulaya river drainages (Figure 16.1) all appear to offer ecologically and geographically bounded study regions suitable for the development of both basic cultural-historical sequences and for contributing to theoretical issues of broader interest.

Potential significance

As Healy (1992:85) has noted, "What is apparent, however, is that even by 800 B.C., parts of western Honduras were already ruled by emergent chiefdoms, while more easterly regions of Honduras remained at a tribal level of sociopolitical organization." The area offers the potential for studies of Caribbean-Atlantic coastal systems and alternate patterns of regionalized, sociocultural evolution. Even closer to the Mesoamericanized part of central Honduras, in the El Cajon region, the Hirths (Hirth and Hirth 1993) have defined a distinctive lapidary industry, differentiated both from the Maya tradition to the west and north and from the Central American tradition from the south. The eastern two-thirds of Honduras potentially also holds significant data for Graham's "metallurgical horizon" hypothesis (this volume) and for the development and distribution of modeled, appliqué, and incised ceramic traditions, as opposed to the better-known polychrome traditions from the western and Pacific areas of Central America.

Nicaragua

Taken as a single political unit, Nicaragua is still archaeologically the least known of all the Central American republics. As Figure 16.1 shows, the Pacific side of the country is known in a spotty fashion, and the Caribbean side, except for the work of Magnus (1975, 1976), not at all. There are two principal unknown regions and targets for future investigation.

Pacific

As pointed out in Lange et al. (1992:260), "many thousands of sites are thought to be buried and preserved, including Paleo-Indian and Archaic campsites, later agricultural settlements, and Contact period habitation." Because of the direction of the prevailing winds and episodes of tepha deposition, maximum potential for finding buried sites would seem to be on

the northern Pacific coastal plain, especially from Managua north to the Gulf of Fonseca. The nineteenth-century eruption of Cosiguina and the more recent inundations of León Viejo and the eruption of Cerro Negro are ample proof of the ongoing natural forces in this region. As was noted (Lange et al. 1992:260), "archaeologists working in Nicaragua should take advantage of this volcanic 'protective' shield and pay special attention to erosional cuts, road cuts, and other vertical 'windows' into the substrata." The benefits of locating and studying buried cultural remains have been amply demonstrated by Sheets's work in El Salvador (Sheets 1992b). The importance of multinational research around the gulf was emphasized in the preceding section and is not repeated here.

Caribbean

The reasons for increasing studies on the Atlantic coast of Nicaragua are much the same as those for eastern Honduras, in terms of the need to add to our knowledge of Atlantic-Caribbean coastal systems. In addition, there have been isolated pot-hunter reports and some superficial avocational and professional visits to sites with mounds and stone pillars that suggest a wide range of cultural variations, from the expansion of the Mesoamerican frontier to non-Mesoamerican architectural traditions, perhaps related to late prehistoric Chibchan expansion up the Caribbean coast. In addition, numerous sites on the Atlantic coast seem to have the carved stone statuary characteristic of the Chontales area and of the islands in Lake Nicaragua (Haberland 1973; Arellano 1979-1980). Prograding of the Atlantic coast means that early sites are now much farther inland and that except for high points of land, the areas around the modern coastal lagoons may not be rich in archaeological remains. From north to south, the Huahua, Cucataya, Prinzapolka, Grande, Curinhuas, Mica, and Punta Gorda drainages should all be carefully studied.

Potential significance

Nicaragua is both part of the Caribbean cultural arc on the Atlantic side and the true transition zone between Mesoamerican and non-Mesoamerican peoples on the Pacific. Ceramic, lithic, and settlement data all show distinct contrasts with Mexican-Maya traditions (Lange et al. 1992:chap. 7) but with connections to those areas via imported obsidian, use of the Usulután decorative technique, representations of the Papagayo and Delirio White-on-Red ceramic groups, and, in contrast with adjacent Costa Rica, the reliance on local lithic sources for a widespread and developed chipped-stone industry. All of these elements suggest that Nicaragua will contribute significantly to our understanding of regional development in Central America.

Costa Rica

In terms of geographical distribution of archaeological research, Costa Rica is the best known of the Central American republics, but as Figure 16.1 shows, there are still large areas that are known only from pot-hunter reports or not at all. There are several principal targets for future investigation.

Pacific (northern)

The Santa Cruz Valley and the Nicoya Valley are both natural basins with large modern populations and extensive farm- and ranchlands, and there is superficial evidence that there were substantial prehistoric populations as well. No extended work has been done in either of these areas, and we currently have no idea of how the local sequence of cultural development compares with that on the adjacent Pacific coast or in the Tempisque River Valley to the east. As for the Tempisque River Valley itself, despite many different research projects that have studied various aspects of the drainage (Bauduz 1967; Hoopes 1979; Day 1984c; Guerrero and Blanco 1987), it has never been the focus of a systematic survey. As with the potential for tephra buried sites on the northern Pacific coast of Nicaragua, the La Guinea area sampled by both Bauduz and Hoopes and the suballuvial finds of most of the private collection from Hacienda Tempisque suggest the strong potential for extensive protected subsurface remains in the valley.

Pacific (central)

Although there has been a significant amount of research in this area in recent years (cf. Corrales Ulloa and Quintanilla Jiménez, this volume), there is still a need for a local, rather than cross-dated, cultural-historical sequence.

Central Valley and Caribbean coast

Many of the same reasons given for studying the Caribbean-Atlantic coastal systems of eastern Honduras and eastern Nicaragua can be repeated here. There is an extensive presence of polychrome ceramics (primarily from the years A.D. 800-1200) in sites in this area, as well as a shared jade lapidary tradition (from ca. 300 B.C.-A.D. 700), which suggests we still have a great deal to learn about Pacific-Atlantic interaction during the prehistoric period. W. J. Kennedy (1978), Snarskis (1975, 1976, 1978, 1984a, 1992), Fonseca (1981), Gutiérrez (1986), Blanco (1986), and Hurtado de Mendoza and Arias (1986) have all worked in the central portion of the Central Valley-Atlantic watershed continuum, but we have little indication of how the patterns and sequences they have developed and described will apply to still unstudied geographical areas to the north and to the south. The southern Central Highlands, purportedly the stimulus for much of the stone sculpture in the Bariles area of Panamá, and the extreme southern Caribbean coast in the Sixaloa River Valley along the Panamanian border,

which was supposedly an Aztec outpost, are both poorly known areas. They presumably have much to offer to our understanding of interregional contacts and systems and should be the focal points of studies in the near future. The north-central San Carlos plain, with its many rivers, and the multiple drainages leading from the Central Valley and eastern flank of the Central Highlands should also receive intensive study.

Potential significance

Costa Rica has much to offer in further data development for many of the appositions and contrasts that we find in different guises in Central American archaeology: ecologically contrasting cultural historical development in the dry Pacific and wet Atlantic climatic regimes, the contrasts of polychrome ceramics on the Pacific watershed and modeled and appliqué ceramics on the Atlantic, and the overarching presence of some material cultural classes (for example, jade). Others were more geographically restricted in their production and occurrence (such as polychrome ceramics).

Panamá

The archeology of Panamá in the twentieth century has been an interesting contrast of largely opportunistic access to major cemetery sites, such as Cocle (Lothrop 1937, 1942a), the Veragus area (Lothrop 1950), and Venado Beach (Lothrop 1954), and more carefully structured settlement pattern and human ecology studies (Linares de Sapir 1968b; Linares and Ranere, eds., 1980; Cooke and Ranere 1984). For a variety of reasons these efforts have focused on what is commonly referred to as the Central Province of Panamá; research in the Chiriquí region to the west and to the Darién area to the east has been considerably more modest. In this area, there are two principal unknown regions and targets for future investigation.

Caribbean

This area shows tentative linkages with eastern Honduras, Nicaragua, and Costa Rica. Just as Nicaragua and Honduras form the southern border of the Maya area, Panamá is distinctly on the northern boundary of South American peoples, most of whom had their relationships with the tropical lowland rather than Andean highland groups.

Pacific

Sites in this area are considerably earlier than coastal sites anywhere on the Pacific coast of Costa Rica and Nicaragua, and the present database, which has come from a number of sites in limited areas of investigation, needs to be expanded.

Potential significance

Panamá presently provides us with the best ecological data, mortuary data, and Paleoindian and Archaic period data of any of the countries in Central America. Nonetheless more than half of the country is unexplored, and we have little idea of how data from these regions may alter or amplify our present interpretations. In particular, research in Panamá may help us to better understand the expansion of gold metallurgical techniques from South America to Central America and Mesoamerica and to better explain whether the initial expansion was over land, over water, or by a variety of different means and mechanisms.

ANALYTICAL GAPS

An admirable array of advanced analytical techniques, ranging from INAA applications to jade (Bishop, Sayre, and van Zest 1985) and Greater Nicoya ceramics (Lange and Bishop 1988; Bonilla et al. 1990) to isotopic reconstructions of prehistoric diets (Norr 1991), detailed environmental reconstructions (Cooke and Ranere 1984, 1992), utilization of remote sensing techniques (Sheets, ed., 1984), phytolith analyses (Piperno 1988), and gradual development of a regional obsidian database (Sheets et al. 1990), have all made significant contributions to current interpretations. However, these techniques have usually been applied, either experimentally or exclusively, to one region or subarea or another. The corpus of radiocarbon determinations is also very heavily biased toward the Panamanian area, with Nicaragua, by comparison, being represented by less than a dozen total radiocarbon determinations. These unbalanced or limited applications have fallen short of providing databases that can serve as the basis for regional comparisons. Filling in analytical gaps, through the expansion of the application of techniques that have already proved successful in other locations to address similar problems, will help to tie together space-time sequences through instrumental or other technical analyses not dependent on impressionistic analyses of style or technique.

Locating a local jade source remains one of the highest priorities in artifact source, production, and distribution studies in Central America. Chronological control needs to be improved, whether through increased radiocarbon dating or through the introduction of archaeomagnetic dating as a chronometric alternative.

We also need to greatly increase our sample of Paleoindian and Archaic period sites if we are to make progress in our attempts to study the origin of the settled village transition in Central America and its distinctive subsequent development that resulted in nonstate-level societies. At the other end of the spectrum we have very few sites, if any, that we can say with confidence were occupied at the time of the Spanish invasion, and which truly represent the endpoint in indigenous cultural development in the area.

The methodology and intellectual framework of the Greater Nicoya Ceramic Suite need to be applied to other appropriate situations. The ceramic database has been used to clarify some thinking about the interareal and interregional aspects of the chronological organization of the Greater Nicoya cultural sequence. The Greater Nicoya Ceramic Project has made it apparent that most types and varieties have a long duration compared to rates of ceramic change during the Classic periods in México and the Maya area. This long duration of types and varieties is being interpreted not as a lack of chronological control nor a lack of analytical ability to further subdivide the chronological sequences but rather as an indication of relatively stable cultural, economic, and political conditions (Lange et al. 1992). Very few true trade vessels from Mesoamerica have been identified in Greater Nicoya, and some speculatively identified links to southern Mesoamerica (such as the use of the Usulután decorative technique) have been shown analytically to be the borrowing or imitation of a technique, rather than the import-export of ceramic vessels.

Although INAA ceramic analyses will help us to assess Mesoamerican influence in the northern part of lower Central America, similar projects could also be developed in Panamá with the Coclé and Tonosí polychrome styles and in Atlantic-Caribbean areas in which the decorative techniques emphasized appliqué, modeling, and incising rather than painting.

Another form of analytical gap is in the lack of analyses of existing collections in museums, either in the various Central American republics or in other countries. A wealth of data, much of it from sites that no longer exist or are no longer accessible, remain to be analyzed.

POLITICAL GAPS

As we head for the twenty-first century, we also need to recognize the political and professional gaps that impede the study of Central America's prehistory. One gap results from the lack of a regional approach to cultural preservation: most precolombian culture areas cross over into the borders of adjacent countries (or as in the case of the Gulf of Fonseca, pertain to three different republics). Although each of the Central American countries struggles to one extent or another with protecting the cultural remains within its own political borders, there is not yet a will to coordinate regional conservation that will positively address the cross-border situations, or what we have called "cultures without frontiers." There have also been problems associated with the economic impediments of much of the locally sponsored Central American archaeology being limited to salvage efforts (Corrales 1987a). Frequently these projects recover a limited amount of data over a relatively brief work period and provide little opportunity to inventory and investigate the surrounding area for other sites.

For example, when the important Talamanca de Tibas site was found in the Central Valley of Costa Rica in 1979 (Snarskis 1979), efforts were focused on the salvage situation, and neither then nor since has any survey been attempted of the surrounding area—despite continuing efforts and despite continuing reports of chance finds in the process of cultivating coffee and construction for suburban development. This has been the case in a number of other sites in Costa Rica (cf. Guerrero and Blanco 1987 at La Ceiba; Blanco 1986 at Ochomogo), and it is one of the most marked distinctions between nationally funded projects and internationally funded projects that have the luxury of proceeding at a more structured pace and often involve more than one season. During the 1970s, the National Museum of Costa Rica funded ongoing projects in the northwestern Pacific part of the country (Lange and Abel-Vidor 1980), in the Atlantic watershed (Snarskis 1984a, 1992), and in the southern Pacific (Drolet 1984, 1992). Such projects are now finished, and other continuous projects are being funded from international sources. In Nicaragua, all archaeological projects, long-term or salvage, are dependent on extranational funding. In Honduras, the lack of archaeological research in the eastern part of the country is partially due to a lack of interest on the part of external agencies and the national government in funding research in the non-Maya (i.e., nontourist) sector of the country.

We must also be concerned about training nationals in these countries to assume more and more of the research responsibility. At the University of Costa Rica there has been an ongoing program to encourage students to carry out projects and write reports that would help to fill in the space-time gaps in the coverage of national geographical and ecological subdivisions (cf. Arias and Chávez 1985; Arrea 1987). However, very few of these reports have found their way into the wider scientific literature (perhaps this criticism is balanced or even outweighed by the failure of many foreign scholars to publish their results in Spanish; the reality is that we all need to do a better job of sharing our results with interested colleagues, regardless of level of training or linguistic ability or limitations). With the sole exception of Costa Rica, there is very little or no university training in archaeology available in Central America.

The impending passage to the twenty-first century is to some extent irrelevant to the study of Central American prehistory. However, the end of the present century represents 100 years, with the flexibility of some convenient rounding up or down by a few years here and there, since archaeology truly began in Central America. Stone (1984) notes that Gordon began work in Honduras in 1896 (Gordon 1898); F. de Montessus de Ballore wrote on El Salvador in 1892; Bransford (1881), Flint (1878, n.d.), and Bovallius (1886, 1887) opened the doors for serious archaeology in Nicaragua; Hartman (1901, 1907) began research in Costa Rica; and Holmes (1888) and MacCurdy (1911) initiated research in Panamá.

The passing of the century mark also seems worth observing because we began this century without the existence of a recognized scientific discipline of archaeology and are completing the century with a discipline that has gone through many changes (Willey and Sabloff 1980). As in past eras, the current direction of the discipline will have a definitive impact, for better or for worse, on research in Central America in the twenty-first century. Will the need for a return to an emphasis on space-time systematics be appreciated? Will the efforts to develop a model that challenges or complements the conventional wisdom on the evolution and preeminence of state-level societies be welcomed by those who dominate the Atlantean heights of central Mexican, lowland Maya, and Andean highland architectural complexes? Changes in broader disciplinary emphases and the industry of our own efforts will combine in as yet undefined variations and coalesce to produce, it is hoped, an enhanced view of Central American prehistory.

Notes

1. There is often confusion in distinguishing between what have been called Central America and the Intermediate Area. In the introduction to an edited volume on the Intermediate Area (Lange, ed., 1992:2-3), I have noted that "politically, Central America was designated by Baudéz (1970:1) as corresponding to 'Five states—Honduras, El Salvador, Nicaragua, Costa Rica, and Panamá.' Geographically, he noted (1970:11) that 'the isthmus can conveniently be described in three zones of unequal length. These are from west to east, the Pacific zone, the central highland zone, and the Caribbean zone.' For the purposes of the present volume, this unit has the disadvantage of including the heavily Mesomericanized western parts of Honduras and El Salvador, while excluding western Colombia, Ecuador, and Venezuela." Further on (Lange, ed., 1992:3), I noted that "the prehistoric Intermediate Area . . . includes eastern Honduras, Nicaragua, Costa Rica, Panamá, northern Ecuador, Colombia, and western Venezuela." These two definitions clearly demonstrate some overlap in geographical area and their underlying, essentially arbitrary nature.
2. The designation of the northern and southern sectors of Greater Nicoya is made in Lange (1984b:167), despite "general areal unity," to highlight "significant distribution differences in some ceramic types . . . as well as differing patterns of cultural development, subsistence orientation, and degrees of impact by external influence." The northern sector focused on the inland lakes of Nicaragua and the southern sector on the plains and bays of northwestern Costa Rica.

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