

PREHISTORIC MICROSETTLEMENT PATTERNS IN THE CENTRAL HIGHLANDS -

ATLANTIC WATERSHED OF COSTA RICA

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ABSTRACT

With the exception of a few drawings and verbal descriptions by Spanish chroniclers and early researchers, precolumbian house forms, activity areas, and intra-site patterning have, until recently, been lacking in most of the Costa Rican archaeological sequence. Large scale horizontal excavations carried out by the National Museum of Costa Rica from 1976 to 1981 have changed this picture. Sedentary agricultural villages were present from at least 100 BC, and three complete rectangular house plans are known for the El Bosque phase, AD 1-500, in the central Atlantic watershed. The circular house form seems to have appeared in Costa Rica during the sixth or seventh centuries after Christ. As late as 900 AD, square houses were present in some Central Highland sites, but the circular pattern apparently became well established by 1000 AD. The archaeological microsettlement patterns of Costa Rica are analysed diachronically, with an eye toward developing models of socio-political evolution and changing demographics. New and relevant subsistence data are also presented.

Introduction

Studies of what may be called microsettlement patterns, the organization of features within a single site, from household and individual activity areas to complete village plans (Trigger 1968: 54-55) have been scarce in Costa Rican archaeology. Over the last six years, the National Museum of Costa Rica has carried out several projects incorporating horizontal excavation or stripping, most of which were part of salvage or rescue archaeology programs. The excavated zones, however, were usually of considerable size, and much new data on microsettlement patterns were recovered. In this paper, emphasis is placed on the individual structure and its associated features, and on the variability of structures in a single village when this is perceived. Most information comes from the Central Highlands-Atlantic Watershed regions over the first 1200 years after Christ, although comparative data from northwestern and southwestern Costa Rica are also presented. (Fig. 1). Lastly, some hypotheses are offered concerning the cultural dynamics behind the pattern of changes observed to date.

Previous Investigations

Hartman (1901) published a partial sketch map of the important Las Mercedes site, discovered in the late 19th century in the eastern lowlands. Although he also published the results of the excavation of several stone cist tombs at the site, Las Mercedes was heavily looted at the time by

employees of Minor Keith, builder of the railroad that passed directly through the site (Mason 1945). Hartman's sketch of Las Mercedes shows a circular stone-faced mound some 6 m high and 20 m in diameter at its highest part. From three sides of it branch longer ridge-like features, also of earth covered with river cobbles. Two decades later, Lothrop (1926:462) published another sketch by Alanson Skinner of a similar site called Costa Rica Farm only 10 km from Las Mercedes. It shows two circular mounds abutting a rectangular plaza defined by cobble-faced ridges; a causeway paved with cobbles connects this plaza with another similar one some 2-300 m away (author's observation).

Today, Las Mercedes has been completely destroyed by looters and agriculture, while Costa Rica Farm is still relatively well preserved.

Sites like these were for many years the only known vestiges of precolumbian architecture in Costa Rica. Although not radiocarbon dated, they were assumed to have been occupied during the last few centuries before the Spanish arrival, a chronological placement based on Hartman's discovery of a few European glass beads in a Las Mercedes tomb (Coe 1962).

Guayabo de Turrialba, the largest known site of the Las Mercedes type, was discovered in the 1880s by Anastasio Alfaro, who opened and recorded the contents of several large stone cist tombs. Carlos Aguilar worked at the site during the 1960s, publishing a partial plan that showed quantities of mounds, circular house foundations, causeways and even underground aqueducts (1972). A single C14 date of approximately 900 AD was obtained from charcoal in mixed mound fill, and is ambiguous. As a result of Aguilar's lobbying, Guayabo was made a national park, and the University of Costa Rica project continues at the site today, under the direction of Oscar Fonseca and Luis Hurtado de Mendoza. These investigators are doing a microsettlement pattern analysis, and have apparently discerned an internal hierarchy of site divisions and architectural features that may reflect functional and/or social distinctions (Fonseca 1979). They are also interested in the regional importance of a site like Guayabo, and are taking the first steps to comprehend the settlement system in which this large site almost certainly played a key role.

W.J. Kennedy (1968:235) also worked in the Turrialba valley during the 1960s, publishing a partial plan of the Nájera site; besides the usual circular house foundations, Nájera has a unusual circular ridged enclosure or plaza with three entry ways.

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The author (Snarskis 1978: 278-89) was the first to focus directly on microsettlement pattern problems such as the relationship between the forms of structures and their functions, population estimates, and the implications of these variables for prehistoric socio-political organization. This work, carried out in 1976-77 at the eastern lowland site of La Cabaña (c.1000-1400 AD), marks the first use of extensive horizontal excavation designed to expose human activity areas in and around precolumbian houses in Costa Rica. It was followed up by similar work in other sites shortly thereafter (Snarskis and Herra 1980; Blanco and Salgado 1980; Guerrero 1980).

Projects of the National Museum of Costa Rica

The Department of Anthropology and History has carried out several

large-scale horizontal excavation projects since 1976. They are described below in the chronological sequence of their archaeological components, not in the calendrical order in which they were executed.

Severo Ledesma: El Bosque Phase (1-500 AD)

This site is located between Las Mercedes and Costa Rica Farm, near the modern town of Guácimo on the Línea Vieja railroad. Although multi-component, with occupations ranging from 500 BC to 1200-1500 AD, Severo Ledesma is dominated by El Bosque phase remains. It was here that the earliest precolumbian structures in Costa Rica were excavated in 1978-79. Field work was directed principally by C. Enrique Herra.

Horizontal stripping was begun in 1978 on a slightly elevated area with a few river cobbles showing on the surface. As the excavation slowly proceeded, leaving every stone in place, it soon became apparent that the El Bosque phase structures were of a very different form than those of late sites like Las Mercedes and Guayabo (Snarskis 1978:164). A large (25 x 15 m) rectangular complex of wall foundations, built of river cobbles, was finally revealed (Fig. 2). Chocked holes were observed where large timbers had stood along the perimeter and interior walls, implying large roofed areas. There were three main rectangular sections, the center one containing many more cobbles. Carbonized palm nuts, mano and metate fragments, and charcoal were scattered within the structure, but no definite hearths could be discerned, nor was there a distinct floor. Underneath the structure numerous caches and/or burials were discovered; some of the burials were defined by standing rows of cobbles and one contained 27 pieces of grave furniture, including a jade necklace, the plate of a flying panel metate, fancy ceramic tripod vessels, ocarinas, rattles, and stone celts. Two C14 dates from the fill of this structure (below the probable floor level) were 50 BC \pm 90 (UCLA 2175-D) and AD 350 \pm 60 (UCLA 2175-C).

More El Bosque structures were sought at the same site in 1979 (they were recognized by very slight mounds), and this time we uncovered two smaller rectangular foundations of 3.5 x 11-12 m (Fig. 3). As their proportions were similar to the inner divisions of the larger 1978 structure, I now feel that it was in fact two houses, with a shared, perhaps open-air patio (the cobbled center section). Each of the 1979 El Bosque structures had two round or oval cobbles with cup-like depressions placed near the middle of one wall, reminiscent of offertory receptacles like that at the entrance to the main mound at Guayabo de Turrialba (Fonseca 1979: 38). Because the concavities varied in form, however, they could also be interpreted as celt sharpeners and mortars.

A N.M.C.R. excavation at Mojica, Guanacaste in 1977 (Ryder 1980, in press) (Ricardo Vázquez was field director) revealed a rectangular feature of field stones that was strikingly similar to the smaller Severo Ledesma El Bosque phase structures. Although interpreted at the time as a funerary feature - ceramic and other grave goods were found within it (F.W. Lange, personal communication) - it may well be an early Guanacastecan house form.

It might be said most "architecture" in all prehistoric periods of eastern Costa Rica is found underground. El Bosque phase cemeteries are extensive, many covering 5-20 acres, the tombs often being fairly elaborate constructions of river cobbles. These cobbles, some of which weigh more than 100 kg, were carried from river beds anywhere from 50 m to several kilometers distant. El Bosque tomb forms observed to date are 1 x 2 m rectangles of cobbles, ellipses, long corridors up to 12 m, or simply a

scooped out oval area in the subsoil, with no cobble edifice. Tombs in the larger cemeteries always have walls of cobbles and are usually long rectangles, often ordered neatly in ranks and files, with a space between groups of 15 to 30, if we can judge by one example at Severo Ledesma (Fig. 4). These tomb groups may correspond to clan, lineage or other social units; at Severo Ledesma, each tomb contained a jade pendant, along with pottery offerings. Lines of standing stones marked prestige burials in the large El Bosque house found in 1978, but the smaller structures located in 1979 were surrounded by simple, non-marked tombs cut into the subsoil. Since we have not found a single bone or tooth because of non-preservation (acid soil and heavy rainfall), I cannot confidently say that all burials, no matter how humble, are accompanied by grave goods. However, this seems to be the case; ceramics are ubiquitous, often arranged in the typical El Bosque fashion of one pot inverted over the mouth of another, an arrangement possibly indicating that they contained foodstuffs.

During the excavation of the Severo Ledesma El Bosque phase structures, numerous fragments of carbonized palm nuts (inner kernels) were recovered. These have been identified as *Elaeis oleifera* HBK, previously known as *Corozo oleifera*, an American oil palm related to the commercially important African oil palm (Robert McK. Bird, personal communication). Previously, a carbonized maize cob had been found in an El Bosque context at Severo Ledesma (Snarskis 1976: 348, in press). The only other carbonized floral samples associated with El Bosque materials have been identified as grass stems and a "dicotyledonous charcoal, diffuse and porous, with many rays; possibly Leguminosae" (C. Earle Smith, personal communication). No faunal remains of any kind have been found, but this is obviously a function of poor preservation. A puzzle is the frequency of what appears to be shell-stamped decoration in El Bosque; this suggests marine or estuary exploitation, perhaps seasonal, but no shells are preserved in these inland sites. Metates of various forms, loaf-shaped manos, pestles and other ground stone tools are very numerous (Snarskis 1978, in press).

We see, then, that some early El Bosque phase houses in eastern Costa Rica were rectangular. The smaller versions, given their roofed area (c. 40m²), probably housed nuclear families; associated tombs were simple affairs dug into the subsoil around the house, and there were no prestige burials or caches placed beneath the floor itself. Nevertheless, a well developed socio-political/religious hierarchy is revealed by the much larger double structure with complex high status tomb features and offerings both beneath and around it. There are about 100 m between each of these structures at Severo Ledesma, but they do not show a standard orientation; entrances in the smaller versions are not clear, nor do we know the size of the village to which they belonged. Modern houses in the locality are spaced 50-300 m from each other, often reflecting extended family groupings. They face primitive road cuts made by the United Fruit Company in the first decades of the 20th century.

La Fábrica: Curridabat Phase (c.400-700 AD)

During earthmoving activities preparatory to the construction of a new National Liquor Factory near Grecia, in the Central Highlands, an archaeological site with cobble features was discovered. The National Museum intervened and, over three seasons from 1977-79, excavated parts of 13 circular house foundations, a stone-paved causeway, and several other domestic and funerary features. The excavation probably revealed 50 to 75%

of the complete village. Field work was directed by Juan Vicente Guerrero (1980).

At La Fábrica were found large quantities of fired adobe fragments with cane impressions, usually in association with the cobble house foundations. It is probable that the perishable structures of wood, cane, vines and thatch that surmounted the stone foundations were plastered with adobe to a height of perhaps 50 cm; this would serve as protection against rot and moisture, just as some modern wooden houses in Costa Rica are built on a low foundation of cement blocks.

The principal structure, 15 m in diameter, has two opposing ramps, apparently entrances; they were oriented NE-SW (Fig. 5). The paved causeway, 4.5 m in width, approaches this structure from the northern part of the site. In and around most structures were numerous manos, metates and other tools, including many of chipped basalt. No definite hearths were observed, and the original occupation floors may have been disturbed by bulldozers.

Burials were found beneath some structures, between them, and in separate cemetery zones. There was some preservation of skeletal remains, which showed that most burials were primary and extended, usually accompanied by ceramics and ground stone tools. Special offerings ranged from jade tubes in the oldest part of the cemetery to deer antlers and a copper bell in the main circular structure. Although the general configuration of La Fábrica is much like that of sites in the Las Mercedes pattern, it does not present stone cist tombs. Most burials were either unmarked or had a rough circle of stones near the top. Also present were huge accumulations of rocks with burials and fired adobe floors beneath, reminiscent of some mortuary patterns seen earlier in Guanacaste (Lynette Norr, personal communication). It is not clear if the floors are remnants of earlier occupations or are part of the funerary features.

Carbonized palm nuts, maize and beans have been found at La Fábrica; more specific identifications are pending. At present, La Fábrica seems to be among the earliest sites known with circular house foundations, although its chronological placement (400-700 AD) is based on comparative ceramic analysis, three radiocarbon dates being ambiguous.

Barrial de Heredia (CENADA): Curridabat-Cartago Phases (800-1100 AD)

The Barrial de Heredia site in the Central Highlands is multicomponent, having been occupied in all phases from Barba B (500-200 BC) to Cartago A (800-1100 AD). Aida Blanco was the field director. The occupation of most interest is associated with architectural remains and seems to have run from Curridabat B into Cartago A, perhaps from 700 to 1000 AD. Whether for temporal, geographic or cultural reasons, house forms at Barrial did not conform to the circular pattern expected for that time period. Two shapes were found: quadrangular (square or slightly rectangular) and ellipsoidal; the latter sometimes showed straight sides and rounded ends. This shape difference seemed to correlate with a difference in function. Of the eight cobble foundations excavated, four were quadrangular with burials incorporating imported Nicoya polychrome pottery beneath their floors; these are considered to have been primarily domiciles (Fig. 6). The rounded structures, only one of which was excavated completely, contained much greater quantities of charcoal, used stone tools and flakes, sometimes

large sunken ovens or hearths, and did not contain burials with polychrome ceramics. The principal (largest) quadrangular structure was immediately adjacent to the largest ellipsoidal one (Fig. 7), as if the latter were placed specifically to handle the domestic maintenance of the former's high ranking occupants, a pattern also seen in later eastern watershed sites like La Cabaña.

Both stone cist and a modified version of "corridor" tombs are present at Barrial; the latter showed just one line of standing cobbles, and was found only beneath the largest quadrangular structures. Of seven vessels included as grave goods in the main burial within the largest square house excavated, five were Nicoya polychromes. The Nicoya polychromes found at Barrial were almost all from the period AD 800-1200. In all, 20 such vessels were recovered, representing 4.5% of the total number of vessels found in burials or caches. Polychrome sherds from surface collections and excavations totalled 356, 1.15% of all sherds collected. Within the largest quadrangular structure, five types of Nicoya polychrome were found: Mora, Birmania, Highland, Papagayo, and Chircot (Accola 1978). It was interesting to note the high percentage of polychrome trade sherds at the site which showed evidence of crack-lacing; obviously, the bright Nicoya-Guanacaste ceramics were highly valued, and their quantity suggests well established trade channels with northwestern Costa Rica (Snarskis and Blanco 1978).

According to W.C. Galinat, the last prehistoric inhabitants of Barrial possessed two kinds of maize, Pollo and a slender popcorn, suggesting that they were purposefully cultivated for their different traits. Two samples of *Phaseolus vulgaris* were also found, as well as many fragments from larger seeds as yet unidentified. The presence of avocado seeds has now been confirmed (C. Earle Smith, personal communication) (Galinat 1978; Lawrence Kaplan, personal communication). The architectural component at Barrial has three C14 dates so far, one from just below a house floor (AD 950 \pm 60; UCLA 2175-H), another from charcoal within a rock-filled oven inside the largest ellipsoidal structure (AD 870 \pm 80; UCLA 2175-F), and the third from a hearth in the same structure (AD 890 \pm 40; BETA-2802).

La Cabaña, La Cabaña Phase (1000-1550 AD)

This late village site is found near Guácimo in the eastern lowlands, and, like Severo Ledesma, is midway between Las Mercedes and Costa Rica Farm. As at Las Mercedes, only a portion of the La Cabaña site containing the more prominent main mound, and hence the probable focus of the community, was exposed. Here, Mound I was also 20 m across, but only 2.5 m high. Adjoining it was a lower circular mound (M.2) with a projecting curved porch. Stairways from both mounds led into a square, empty plaza, outlined by cobble-faced ridges which, upon closer inspection, proved to be arms of a double-walled, earth-filled enclosure which contained tiny caches or burials with prestige grave goods. A cobble-paved causeway led into the plaza opposite the stairways of the two main mounds, after skirting a non-mound, circular house foundation of cobbles, some 12 m in diameter (Figs. 8,9). It is significant that the major sites so far mapped for Period VI in eastern Costa Rica (La Cabaña, Costa Rica Farm, Las Mercedes, and Guayabo - Fonseca has recently found and mapped several new features) have a quadrangular plaza formed by raised ridges associated with the principal mounds. This suggest a ritual or "civic" use, perhaps as the locus of ceremonial encounters between the ruling group and the rest of the

population, or for redistribution of goods (Snarskis 1978; Snarskis and Herra 1980).

Careful troweling of the house floors at La Cabaña revealed that, while all three circular structures uncovered had central hearths, only Mound 2 (the large, eccentrically-shaped structure next to Mound 1) had definite domestic activity foci, composed of large, flat river stones with marked grinding wear, some with other stones as seats and manos still associated. This evidence for functional difference between the two main structures suggests that the inhabitants of Mound 2 had to do with the domestic maintenance of the Mound 1 residents. This interpretation is strengthened by a document sent to the Spanish King by Fray Agustin de Cevallos in 1610, in which he describes several customs of the people then living in eastern Costa Rica: "... they live in palenques, which are forts built in the native fashion ... the chiefs have the women they desire all in the same house and the common people generally have one ..." (Lothrop 1926:446, emphasis added). A final series of spoke-like trenches excavated to subsoil in Mound 1 revealed a layer of ash and charcoal (many carbonized cane fragments) and a small section of cobble foundation at the former ground surface, indicating that a smaller, non-mound, circular structure was burned down before Mound 1 was built over it.

Tombs for this period in the eastern and central region of Costa Rica are usually of the well-known stone cist type, and can be circular, ellipsoidal or rectangular. La Cabaña had a cemetery of some 500 (mostly looted) stone cist tombs, 250 m to the south of the main mound. The excellent ethnographic work of Stone (1962) and Bozzoli (1975) has allowed archaeologists to make feasible analogies between prehistoric material culture and historic data of many kinds, but has been especially valuable for funerary contexts. A recent archaeological study of a stone cist cemetery (Vázquez 1982) has also been useful. Thus we know that in this late period the stone floors and lids frequently encountered in stone cist tombs probably were the result of taboos against the deceased's body touching earth, even in the tomb; in historic times (and probably prehistoric too), wooden, not stone, slabs occasionally served this purpose. Tombs are still found both under and around houses and in separate cemeteries. Spanish artifacts have been found in stone cist tombs by Hartman (1901) at Las Mercedes and Orosi, and by Stone (1977: 167) at Tuis, Chirripó.

The author has also mapped part of a large architectural complex, including a paved causeway 9 m wide, at the site of La Zoila (5-ZT) near Turrialba; this means that large centers like Guayabo, Nájera, and La Zoila on the eastern slopes (and Las Mercedes, La Cabaña, and Costa Rica Farm in the lowland plain) all lie within a 10 km circle. It remains to be seen if they were part of a contemporaneously occupied site network (they all have similar ceramics for this period), or were constructed sequentially in response to changing cultural frontiers. Similar sites have been reported from the Cartago valley by Hartman (1901), Stone (1977), and Vázquez (personal communication), and the National Museum of Costa Rica has recently excavated sections of large stone cist cemeteries there, much like those described by Hartman at Chircot and Orosi (Vázquez 1982; Blanco 1981).

Findlow, Snarskis and Martin (1979), using a modified version of Zarky's (1976) method for site catchment analysis, have discerned an interesting trend in settlement patterns for eastern Costa Rica. Sites dating to 800-300 BC are still located near biotopes important for hunting

or collecting, while sites through other periods up to AD 1000 show an increasing preference for alluvial farmland. In the last five or six hundred years before the Conquest, however, the site location pattern becomes random, indicating to the authors that factors other than agriculture were predominant; I think these factors were socio-political boundaries and defense.

Floral remains, unfortunately, are very scarce for this period in eastern and central Costa Rica. A few maize kernels were found at the stone cist cemetery site of Hacienda Molino (27-HM) near Cartago (Vázquez 1982), while the La Cabaña site yielded a sample of "diffuse, porous charcoal, perhaps dicotyledonous", and "a wall fragment from a polished gourd container, probably *Curcubita pepa*" (R.I. Ford, personal communication). At this time there is no reason to propose subsistence systems for this period that are radically different from earlier ones; Spanish chroniclers repeatedly described the polycropping of maize and various root and tree crops. A palm kernel and an avocado seed have recently been identified from the C-39-EC (Ochomago) stone cist cemetery (C. Earle Smith, personal communication). La Cabaña has two C14 dates, AD 1220 ± 60 (UCLA 2113-I) and AD 1360 ± 60 (UCLA 2113-G), and a charcoal sample from beneath a Period VI mound at La Zoila gave a date of AD 1270 ± 40 (I-8915).

Recent projects (1980-81) by the National Museum of Costa Rica have shown that the Las Mercedes-Guayabo-La Cabaña settlement pattern, that is, a nucleated village made up of circular house foundations of cobbles, paved causeways, terraces and sometimes stone cist tombs, is not limited to the Central Highlands-Atlantic Watershed. Robert Drolet and Robert Markens surveyed part of the Boruca region between Buenos Aires and Palmar Sur, locating numerous Chiriquí Phase sites (c.800-1500 AD) along major waterways like the Térraba. Huge amounts of river cobbles were used in the construction of stone cist cemeteries and villages. Murcielago, a large (4 km²) occupation site, was shown to have man-made terraces, small paved causeways, and several clusters of circular, non-mound house foundations, the largest of which was 30 m in diameter (Drolet and Markens 1981). These are the only microsettlement pattern data so far known for south-western Costa Rica.

In Guanacaste-Nicoya, the only published evidence of prehistoric house forms is that of Baudez (1967) from Papagayo, a Middle Polychrome site (800-1200 AD). Baudez found two adjoining circular house foundations, defined by field stones and associated with refuse scatters and stone tool fragments. The circular house form for Middle Polychrome was corroborated by the National Museum 1981 excavations at Nacascolo; again, adjoining circular foundations were discovered (6-9 m in diameter), surrounded by shell midden refuse, U - shaped hearths of fired adobe, simple burials of juveniles and a large quantity of broken stone tools (Vázquez, in press) (Fig. 10).

Conclusions and Hypotheses

I believe the National Museum horizontal excavation projects resumed above offer a basis for the following generalizations:

- (1) There were sedentary, agricultural villages in central and eastern Costa Rica (and very probably in all parts of the country) by the time of Christ at the latest.

(2) The observed variability in size, height and shape of the individual structures, and their associations with certain other "architectural" features and artifacts, reflect hierarchical socio-political organization (rank or status differentiation) from at least El Bosque phase times (c.1-500 AD).

(3) If we trust the small sample available so far, there seems to have been an evolution in house form from rectangular to circular, with a period of transition from roughly 500-900 AD.

(4) As a corollary to (3), there seems to have been a tendency for houses to increase in roofed area through time. This suggests that the demographic units they sheltered were changing, perhaps from nuclear to extended families, and, later, social divisions such as lineages, occupational groups, clans, etc.

If these generalizations do reflect true patterns of change, it is still necessary to ascertain the causes or cultural dynamics that produced them. I offer the following inductive hypotheses as the first steps toward producing an explanatory model:

(A) The shape of a dwelling was seldom a casual choice, often reflecting instead a long-lived tradition based on cosmological visions or other religious concepts of the builders. The small, rectangular El Bosque phase houses of eastern Costa Rica are very similar to the typical house pattern for Formative Mesoamerica, as described by Flannery (1976a: 13-14). Further, there is good evidence from Pavas phase (contemporary with El Bosque) sites in the Central Highlands of other features typical of the Mesoamerican "household cluster" as described by Winter (1976: 25). Several years ago, Carlos Aguilar excavated at the Pavas type site what he called bottle-shaped tombs, containing large ollas and other ceramic offerings along with poorly preserved human skeletal material. In the Pavas phase component at Barrial de Heredia, we recently excavated two of these bottle-shaped features which had been exposed in profile by a deep trench made for sewer pipes. They did not contain preserved human bone and yielded only fragmentary Pava ceramics, chunks of fired clay, and pieces of manos and metates, but were carpeted along the floor, which was 2 m in diameter, with 10 to 20 cm of carbonized plant remains, the largest such sample encountered to date and one of the very few for the Pavas phase. Although botanical analysis is still in progress, it is known that this feature contained thousands of maize kernels, many maize cob fragments similar to Swasey 1 and 2 types from Cuello, Belize, several pieces of unidentified nuts or hard-shelled seeds, and fruits which look "cherry-like" (Robert McK. Bird, personal communication). Also present in the feature were two varieties of Phaseolus vulgaris (common bean) that are "closer to Mesoamerican than Andean types", as well as seeds of Ipomoea nil (L.) Roth, and many larger seed fragments in the process of identification. Hymenaea seed pods and Bixa achiote seeds were recently identified from this feature (C. Earle Smith, personal communication). (Lawrence Kaplan and Daniel Austin, personal communication).

The majority of the maize kernels were found squeezed together in fist-sized bunches along with the "cherry-like" fruit and the Ipomoea seeds. During the excavation some of these bunches were thought to be very large maize ears because many of the kernel rows had been shaved off the cob whole and were still lined up; a closer examination revealed that there were no cobs within. All the soil from the features (well over a ton) was bagged

and brought to the lab for wet screening and flotation.

The bottle-shaped "tombs" were cut down into a clay subsoil to a depth of 1.5 - 2.5 m. A narrow neck or chimney of only 30-40 cm in diameter rose through the organic soil horizon; this had been plugged with a cap of fired clay or soil oxidized orange-red. Almost all carbonized floral remains were found in the bottom 40 cm. Two other such features were observed in later construction trenches at the site (unfortunately destroyed in great part) and suggest the following alternative hypothesis as to their function: since the bottle-shaped features appear to be up to 50-100 m apart, and since we know a fairly extensive Pavas phase occupation exists at the site, they might instead be "bell shaped" storage pits associated with the domestic activity zone surrounding a dwelling, much like the early Formative Mesoamerican pattern (Fig. 11). Winter notes their occurrence in highland Mesoamerica from the Valley of Mexico to Guatemala City and emphasizes their almost universal use as maize storage pits which, upon eventual abandonment, were often "...filled with household debris including burnt daub with pole impressions, ashes, carbonized corn cobs and fruit seeds, animal bones, cooking pots, and discarded manos and metates; some also had burials" (Winter 1976: 29, referring to pits in Las Charcas, Guatemala). This description fits the Pavas phase features very well, especially as many fired adobe fragments were found scattered over part of the surface at Barrial in association with only Pavas sherds. From two similar features exposed in a road cut near San José (site H-43-SE), C. Earle Smith recently identified maize kernels similar to the Palomero Toluguéño and Chapalote Nal Tel types; one feature yielded a C14 date of 180 AD \pm 85 (DIC-2668) on wood charcoal. Construction activities prevented us from searching for contiguous Pavas phase houses, but I predict that they will be rectangular, not circular, when found.

Linkage of the rectangular houses of Costa Rica to Mesoamerican Formative traditions finds support in another fact: the ubiquity of carved jade amulets in eastern, central and northern Costa Rica from c.300 BC to 500 AD. The symbolic importance of carved jade is a strong Mesoamerican tradition beginning in Middle Formative times. There is other evidence (Olmec and Maya jades, slate-backed pyrite mirrors, and Usulután pottery, for example) indicating Costa Rican participation in Mesoamerican trade routes before 500 AD.

(B) The change from rectangular to circular houses in Costa Rica corresponds to a "southern influence" that is perceptible after 500 AD. Again, I suggest that the initial intromission may have been in the form of elite-oriented trade goods, in this case metals, especially cast gold ornaments from Colombia and Panama. The rupture, c.500 AD, of the old Mesoamerican trade routes (perhaps linked to the fall of Teotihuacán and other centers, and disastrous volcanism) was coeval with the first appearance of metallurgy in Costa Rica. Within a few hundred years, gold had replaced jade as the primary elite-associated symbolic material. Perhaps a southern commercial route evolved into a politico-religious hegemony, bringing with it other elements of southern material culture like circular houses, stone cist tombs and resist painted ceramics. More information is needed on the expansionary nature of Colombian chiefdoms c.300-700 AD, but there is little doubt that the aforementioned material culture traits are earlier to the south of Costa Rica.

This "southern influence" predominated in eastern and central Costa Rica during the last 6-8 centuries before the Spanish arrival, and is

manifest in sites like La Cabaña and Guayabo; it even affected Guanacaste-Nicoya, if we are to judge by the circular houses found there after 800 AD. By the 16th century, most of the indigenous population of Costa Rica (excepting the north-western quarter) spoke languages of the Macro-Chibcha family, of southern origin.

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I dedicate this paper to the memory of Carlos Enrique Herra, a National Museum colleague and friend greatly missed.

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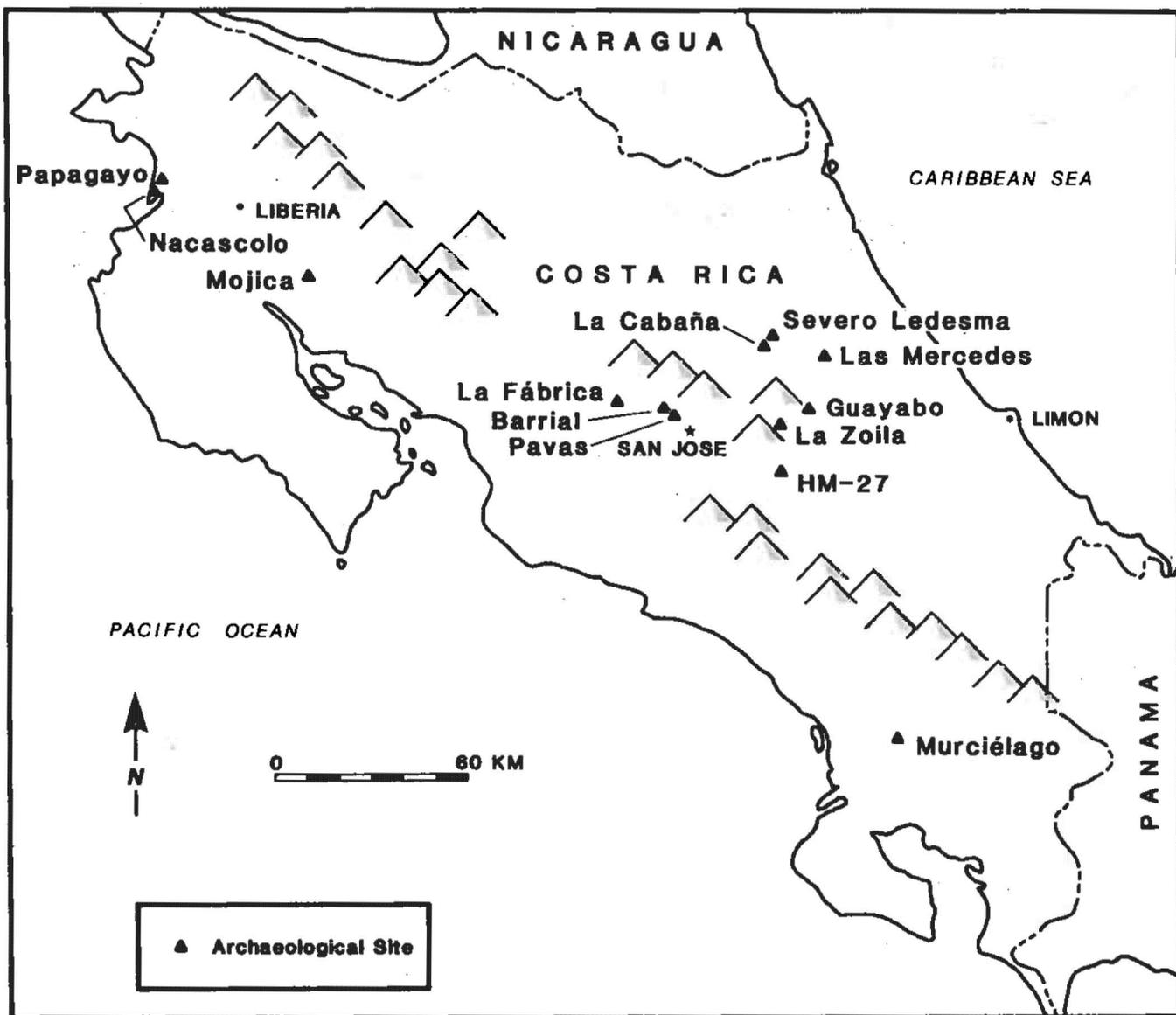


Fig. 1 Map of Costa Rica showing sites mentioned in text.



Fig. 2 Large (25x15 m) El Bosque phase rectangular structure, perhaps double, with shared central patio at Severo Ledesma site, note entrance at lower left; stadia rod (right center) is 2 m long. (Foto - M.J. Snarskis).

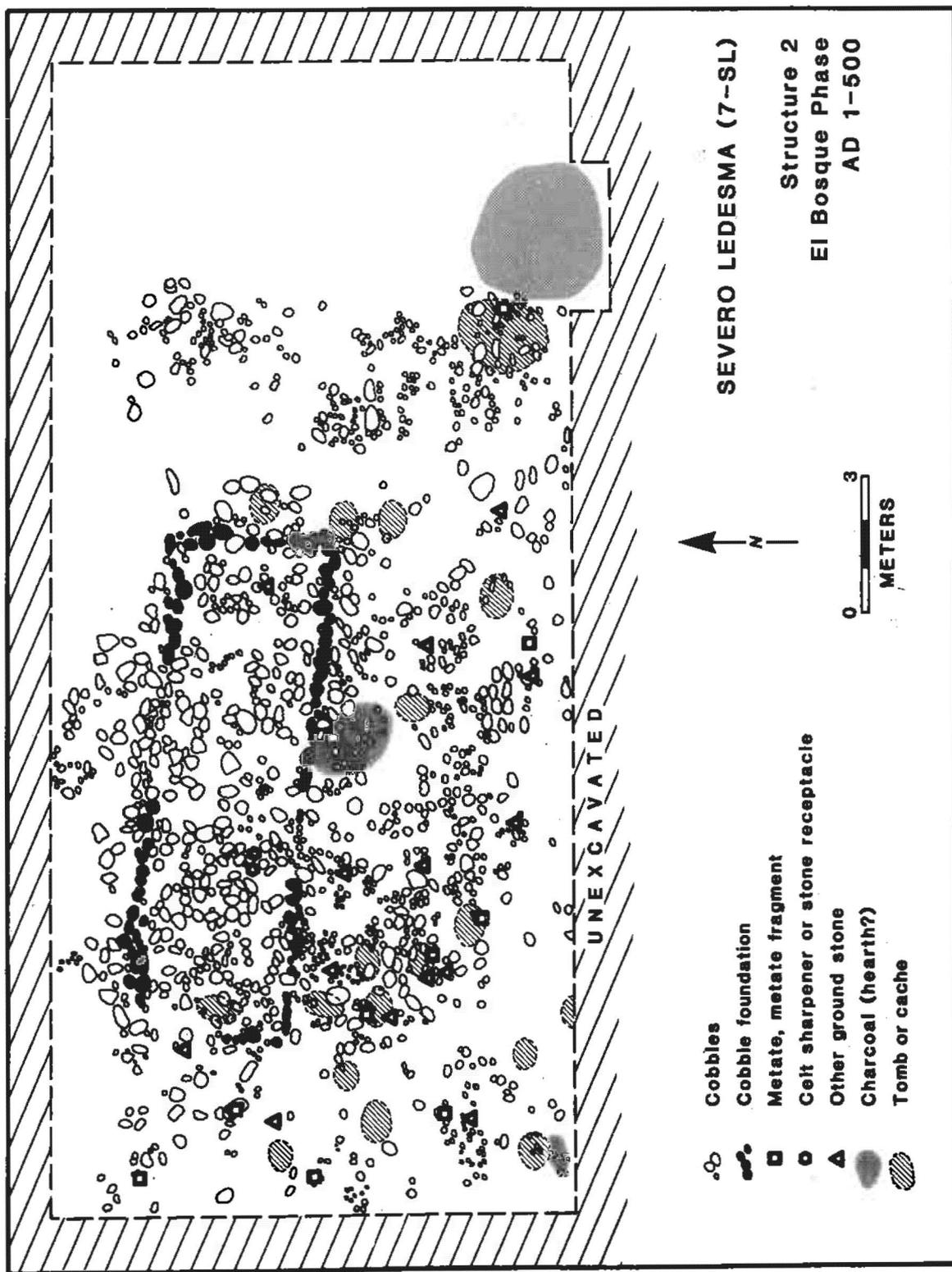


Fig. 3 Plan of small El Bosque phase structure, Severo Ledesma site (C.E. Herra).

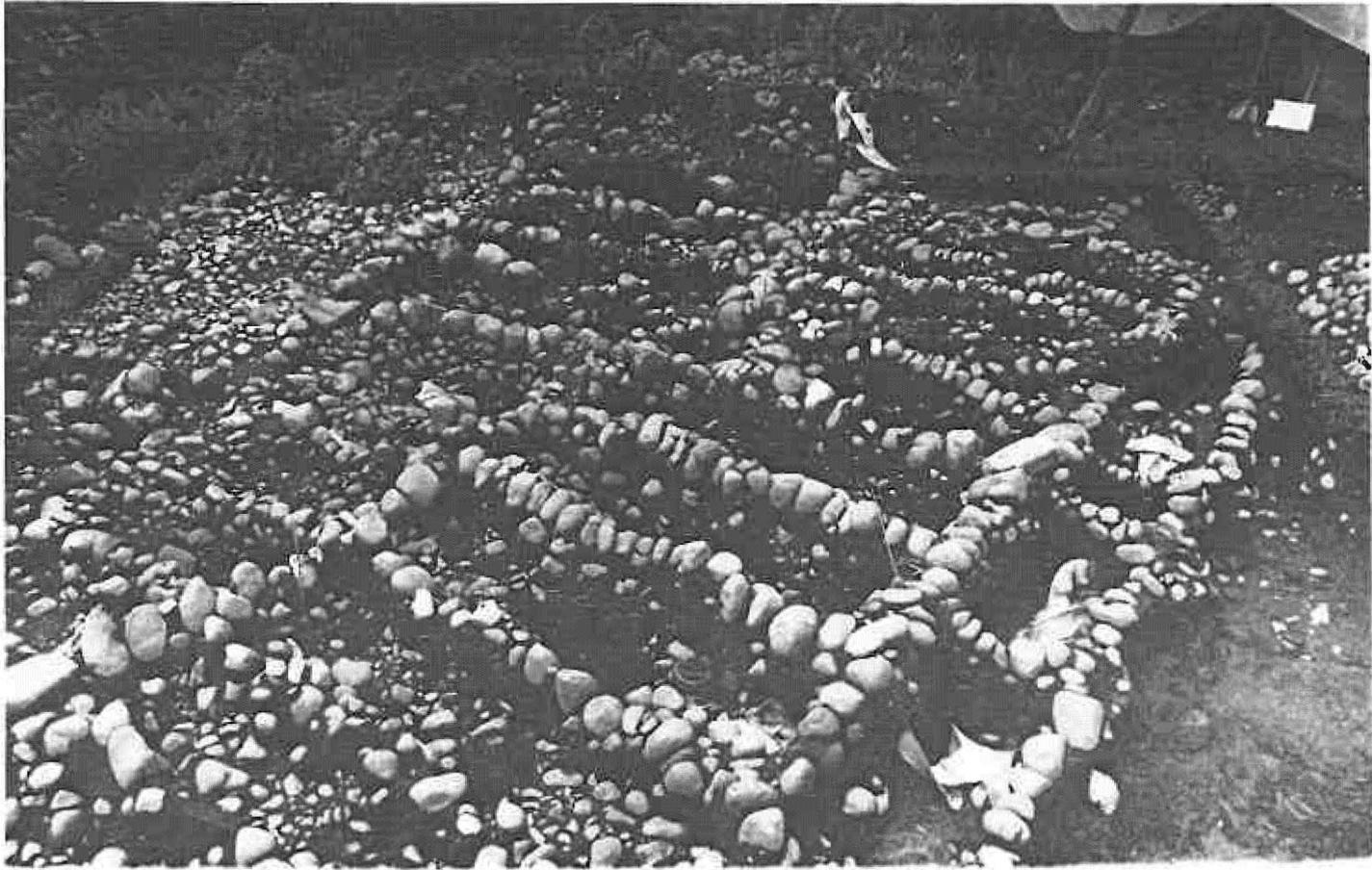


Fig. 4 Block of El Bosque phase corridor tombs, Severo Ledesma site
(Foto - M.J. Snarskis).



Fig. 5 Principal structure at La Fábrica de Grecia (diameter 15 m), showing one of two opposing entry ramps. (Foto - J.V. Guerrero).



Fig. 6 Small (8x8 m) square structure at Barrial de Heredia,
Curridabat-Cartago phases.
(Foto - M.J. Snarskis).

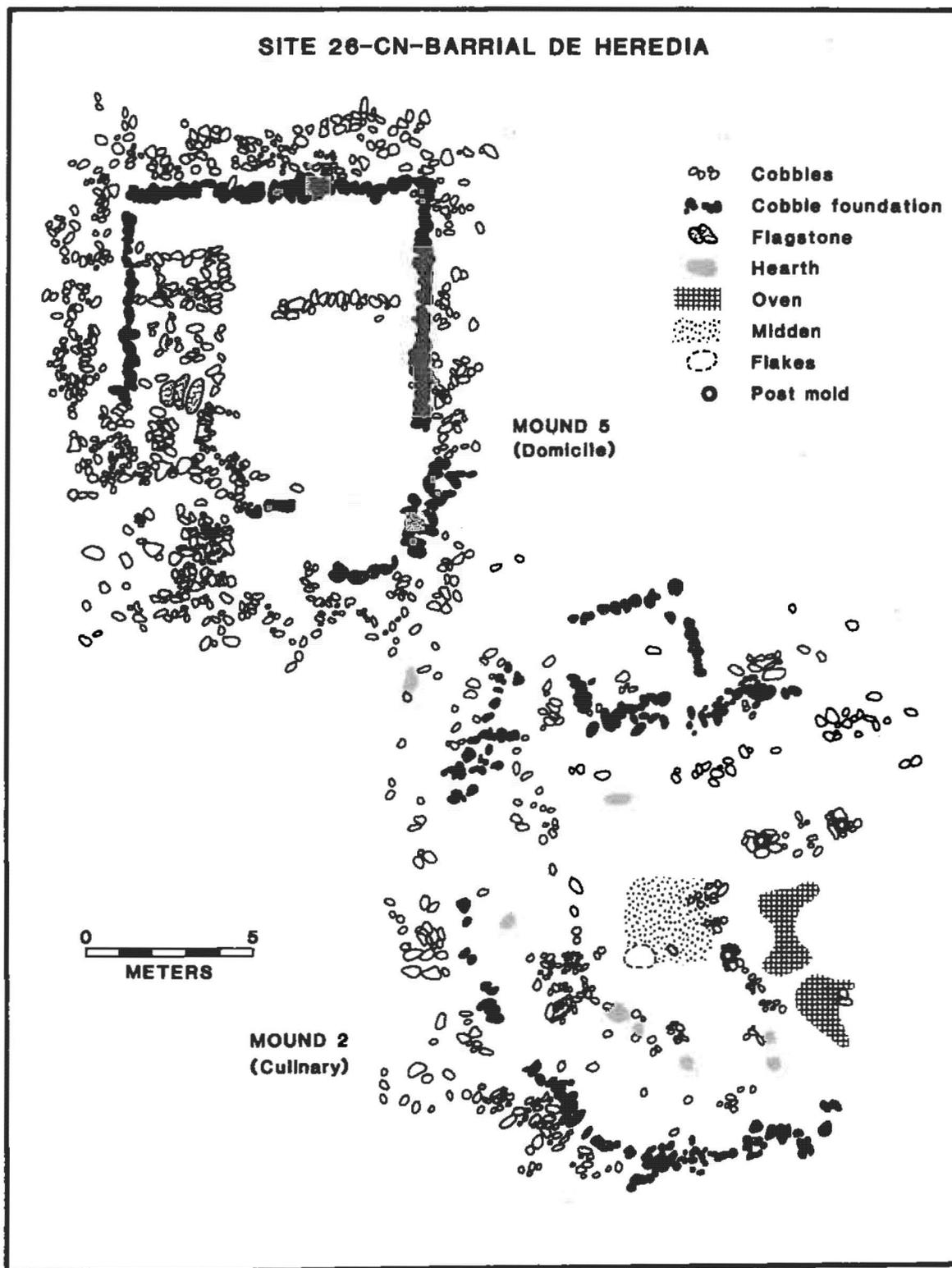


Fig. 7 Plan of main Barrial de Heredia rectangular structure (M. 5), and adjacent ellipsoidal structure (M. 2) with domestic features and refuse. (A. Blanco).

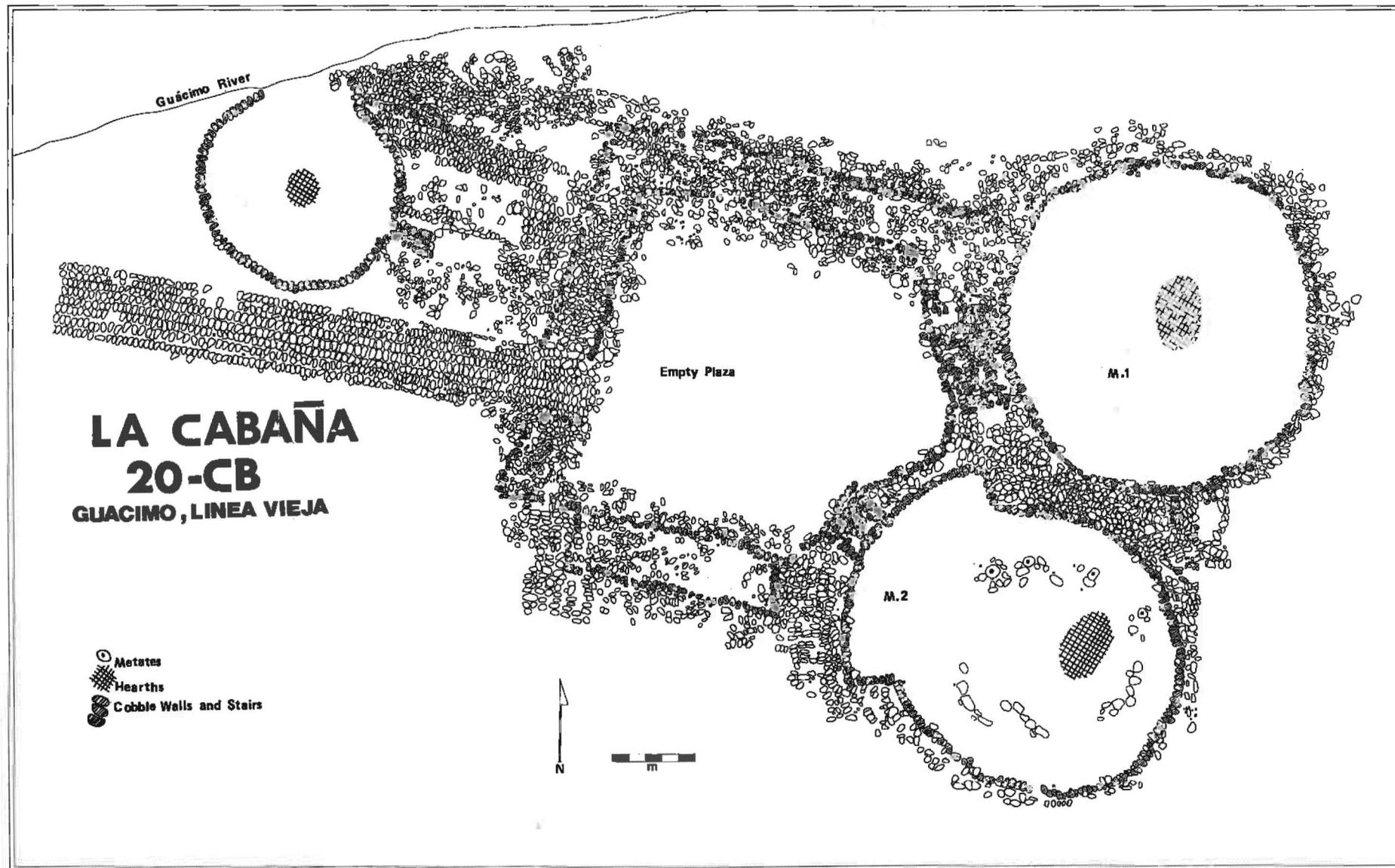


Fig. 8 Plan of La Cabaña site, main structures and features.
 (C.E. Herra).

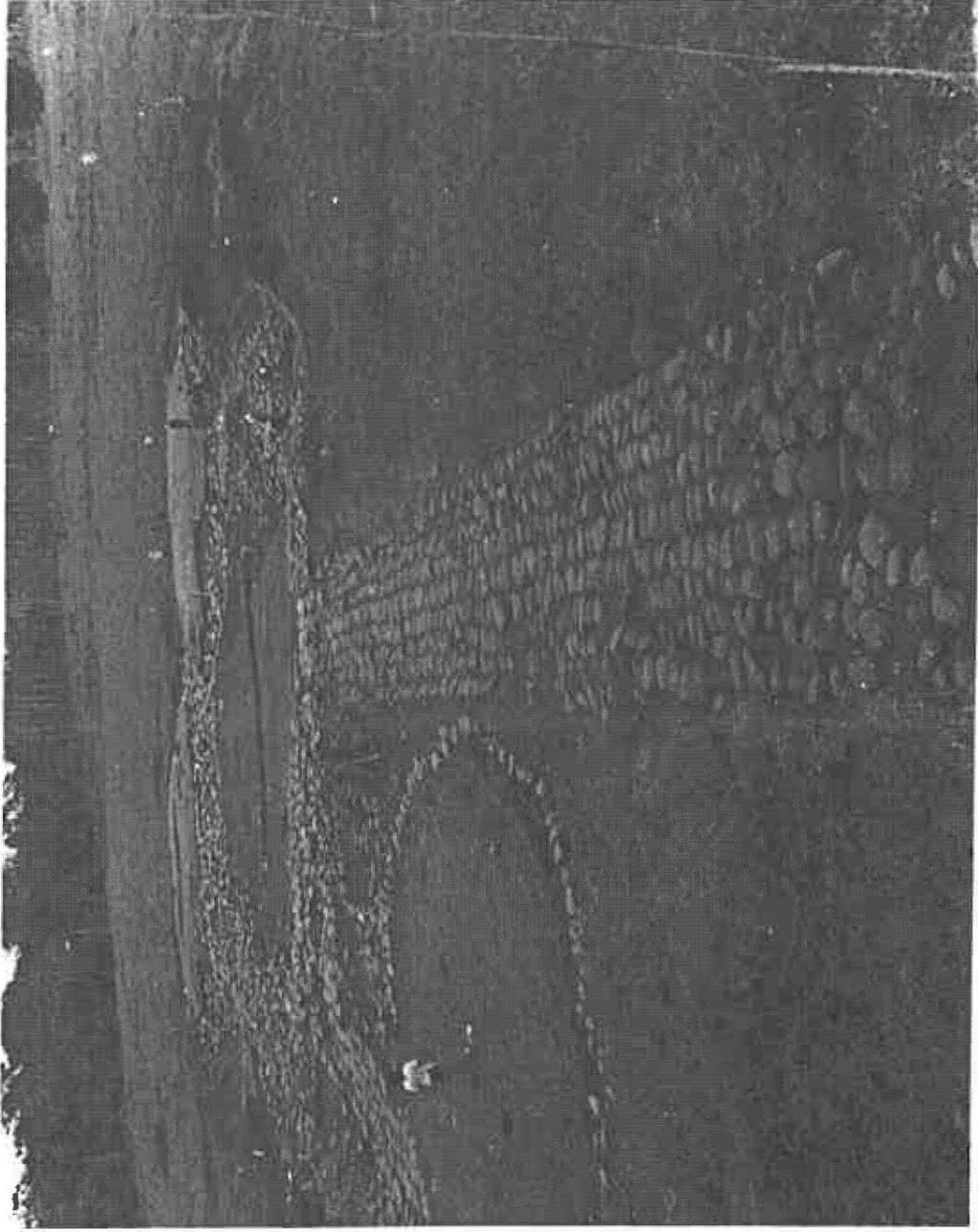


Fig. 9 La Cabaña site, looking down causeway toward square plaza and main mounds.
(Foto - M.J. Snarskis).



Fig. 10 Circular house foundation at Nacascolo, 9 m in diameter entrance in foreground, c. 1000 AD.
(Foto - M. Gutiérrez).



Fig. 11 Bell-shaped storage pit, Barrial de Heredia, Pavas phase.
(Foto - M. Gutiérrez).

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