A CERAMIC SEQUENCE FOR THE PIURA AND CHIRA COAST, NORTH PERU

BY

EDWARD P. LANNING

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PREFACE

THIS STUDY is based in small part on materials collected by me on the Bay of Piura in 1957, and in large part on collections made by Miss Ynez Haase in 1958 along the whole coast line of Peru from the Illescas Peninsula at the south of the Bay of Piura to Talara at the north of the Bay of Paita.

While serving as field assistant to Dr. Frédéric Engel, I had opportunity to spend a few days in the Piura area in June, 1957. On June 1, I visited two shore sites, Casita 1 and 2, just south of the Paita Peninsula. At each site, surface sherds were collected which represented a previously unknown or undefined ceramic style, free of paddle-stamped decoration. The style at Casita 1 is based on simple painted designs, at Casita 2 on incised designs.

At my suggestion, Miss Haase and Dr. David Kelley of Texas Technological College visited these two sites on May 14–15, 1958. From February to May, 1958, Kelley and Miss Haase surveyed the shore of the Bay of Piura from the Illescas Peninsula to the village of Tortuga, just north of the Casita sites, visiting some sites jointly and others independently. In June and July of 1958, Miss Haase surveyed the Paita Peninsula and the shore north to Talara, and visited a few inland sites in the Piura and Pariñas valleys, making valuable sherd collections at each stop.

Miss Haase has very generously allowed me to study her sherd collections and has provided me with copies of her excellent field notes and sketch maps, which chronicle both her own survey trips and those conducted jointly with Kelley. The present study is based on the analysis of her collections and of the sherds collected by me at the Casita sites. To her generosity, her skill in the selection of sherds to be collected, and her ability to write comprehensive and intelligent field notes, I owe the existence of this paper. In reality, though signed by a single author, it is a joint study; the silent partner did the field work.

My gratitude is also due to Dr. John H. Rowe, who freely offered valuable advice during the course of the analysis, read and corrected the draft of this report, and made the drawings of the sherds from Paita and Lagunitas. In his dual role as archaeological advisor and artist, he advanced the study and improved the final product.

Dr. Donald Collier, in a discussion by mail of the relationships between Piura and the Cañar Valley, contributed to my understanding of South Ecuadorean archaeology and tempered my desire to rewrite Cañar archaeology. Though we have not reached agreement on the latter subject, the hypotheses in Appendix I are presented with somewhat more confidence because of the modifications which he inspired in them.

Dr. Dorothy Menzel gave me valuable leads for cross-dating the phases of the Piura style with the Middle Horizon and Late Horizon styles of the north Peruvian coast. Sr. Félix Caycho of the Museo de la Universidad Nacional Mayor de San Marcos, Lima, made painstaking drawings of the sherds from the Casita sites. Finally, Miss Ruth Miller drew the reconstructed jars from the Negritos sites and inked most of the other drawings. To all these persons, my thanks for their aid and encouragement.

Sherds from forty-one archaeological sites have been analyzed during the course of this study. Of these sites, two were discovered by me, two by Ross T. Christensen in 1950, twenty-five by Miss Haase, and twelve jointly by Miss Haase and David Kelley. The last-named category comprises San Pedro North 1, ten sites in the series San Pedro North A-1 to A-22, and Tortuga. The decision to include in the study these twelve sites, in which Dr. Kelley has a half interest, was not easily reached. However, Miss Haase's collections from all twelve sites are small, and provide only supplementary information on a few phases which are defined more fully from other sites. Accordingly, I decided that they could be included in the analysis without detracting from any study to be published by Kelley on the basis of his much larger collections from the same sites. Furthermore, since Kelley has made full use of my collections from Casita 1 and 2 without citing me as the collector (Kelley MS., pp. 2, 4), I have concluded that it is not unreasonable for me to utilize Miss Haase's sherds from these twelve minor sites.

A preliminary paper read at the Semana de Arqueología Peruana in Lima in November 1959 (Lanning 1960*b*) dealt briefly with the period from Paita phase B to Sechura phase B. The present larger study deals with the entire ceramic sequence of the Piura and Chira coast. I have simplified the terminology of styles; the terminology of the two papers corresponds as follows:

Preliminary	*Final*
Colán	Sechura B
San Pedro	Sechura A (some sherds Paita D)
Paita	Paita C and D
Casita	Paita B

In addition I have reclassified a number of sherds, thanks to the realization that the collection from Lagunitas represents a later phase of the Paita style than does that from Paita.

E.M.L.

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INTRODUCTION

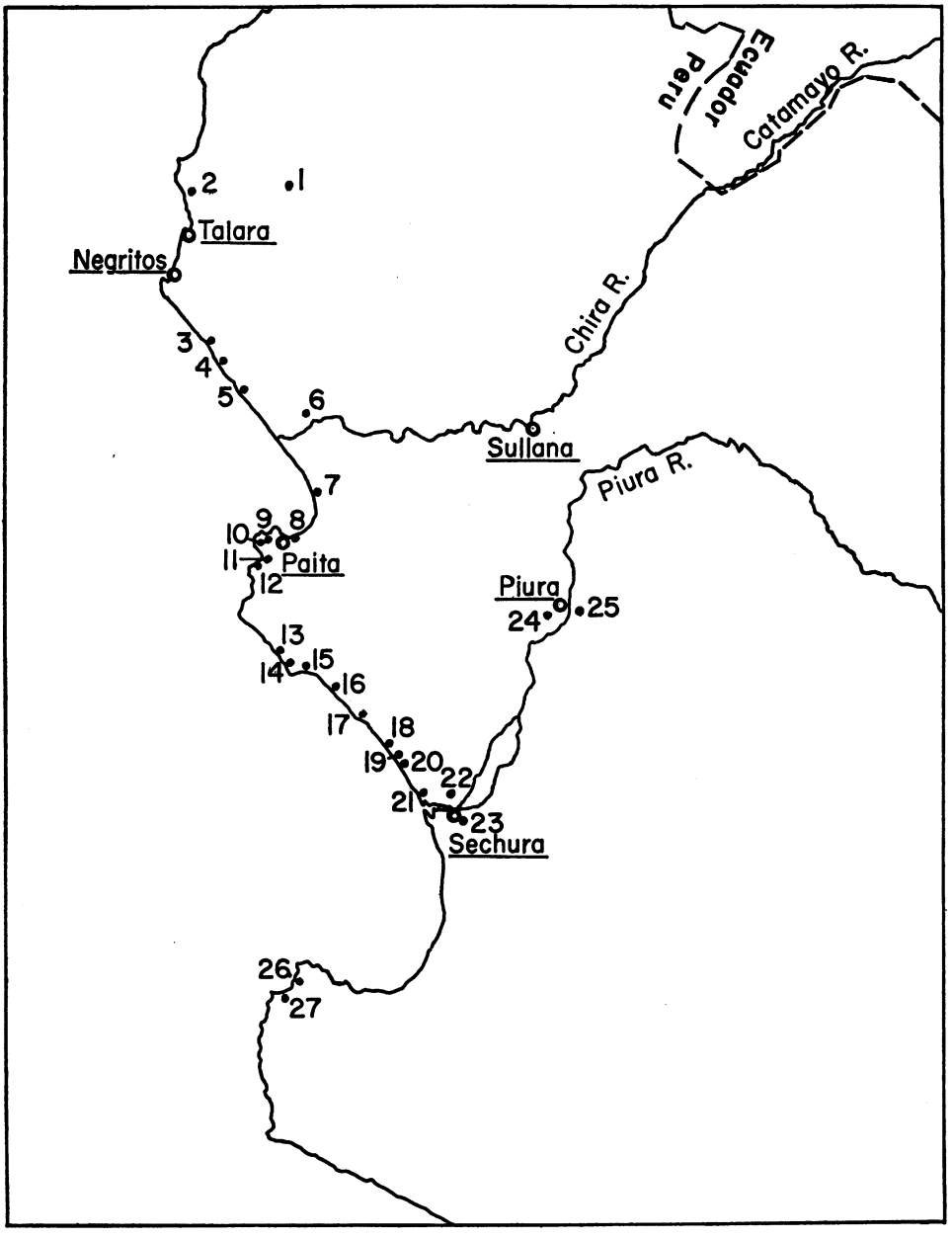
THIS STUDY deals with the archaeology of the Peruvian coast line along the mouths of the Piura and Chira rivers and the Quebrada Pariñas. The area studied includes, from south to north, the Illescas Peninsula, the Bay of Piura with the mouth of the Piura River, the Paita Peninsula, the Bay of Paita with the mouth of the Chira River, Punta Pariñas, and the mouth of the Quebrada Pariñas (map 1). In addition, the study includes collections from two sites in the Piura Valley proper near the city of Piura, and one in the upper Quebrada Pariñas.

This portion of the coast and its hinterland lie in the largest area of barren desert on the Peruvian coast, crossed by the three rivers mentioned above. Though the headwaters of the Piura River approach those of the Lambayeque system, the lower part of the river and the bay are cut off from the Lambayeque region to the south by an immense stretch of waterless territory, marked only by clumps of mesquite and, in occasional years when there is a little rain, by sere grass. The Illescas Peninsula, at the south of the Piura Bay, is rocky and inhospitable. Along the shore of the two bays innumerable sand dunes have accumulated, and nothing is to be seen but sea, sand, and archaeological sites. The only inhabitants, other than a few fishermen, are equally few hardy foxes and lizards. North from the Chira River, the desert is broken only by a few insignificant creeks, including the Pariñas, until one reaches the Tumbes River and the southern limit of the wet tropical coast.

Along the Piura Bay the narrow shore is backed by a high bluff edging the *tablazo,* a desert tableland which extends from the Chira to the Piura valleys and takes up again south of the Piura Valley. The shore, especially in its wider portions, is choked with sand dunes. Along the Paita Bay, the shore is somewhat wider, extending inland to the La Brea Hills, and is clogged with an immense number of sand dunes, many of which show signs of human occupation.

Of the three rivers, the Pariñas, to the north, is an intermittent creek which somehow supported an aboriginal population of fair size (Lothrop 1948, p. 53). The Chira and Piura rivers are permanent, and each supports a long, irrigated valley. The Chira River is the second largest of the Peruvian coastal rivers in the amount of water which it carries and the largest in the size of its valley (Kroeber 1930, p. 76).

Occasionally there is enough rain in this region to induce the growth of vegetation in the desert. I was fortunate enough to see this phenomenon in 1957. The eastern side of the Sechura Desert was covered with waist-high grass after the rains. Farm laborers from the mountains and the nearby coastal valleys had moved into the desert with their goats to raise small crops of maize and take advantage of the pasture. The situation did not last long, but I assume that they harvested the maize before the grass dried out too much to serve as goat pasture.



Map 1. Location of archaeological sites studied. Scale 1:1,000,000. 1, Quebrada Coyonitas; 2, Puerto Rico 1–4; 3, Negritos South 1; 4, Negritos South 2; 5, Lagunitas; 6, Vichayalito; 7, Colán; 8, Paita; 9, Tierra Colorada, Punta Nermete 1; 10, Punta Nermete 2; 11, Punta Nermete South 1–2; 12, Yasila 1–3; 13, Tortuga; 14, San Pedro North A 20, 22; 15, San Pedro North A 18; Casita 1–2; 16, San Pedro North A 16; 17, San Pedro North A 13–14; 18, San Pedro North A 9; 19, San Pedro North A 5; 20, San Pedro North A 1–3; 21, San Pedro North 1; 22, Chusís; 23, Sechura 1–2; 24, Coscomba; 25, Tacalá; 26, Nunura 2–4; 27, Nunura 1.

Other than farming in the irrigated valleys and this occasional small-scale farming of the desert, the principal economic activities in this region today are fishing and extracting petroleum. As always on the Peruvian coast, the sea is rich in fish, small edible sharks, rays, and shellfish, by their abundance compensating for the scarcity of arable land. The great number of archaeological sites lining the shore testify that the ocean's resources were used in the past as in the present, and the presence of sea-lion and shore-bird bones on these sites implies a fuller utilization of these resources than can now be found.

As to how man adapted to this environment, I can do no better than to cite Miss Haase's acute observations, made with reference to the shore of the Piura Bay:

> Travel on the *tablazo* was good and as soon as we were out of the sand dunes . . . we were on very firm ground. But on the beach shelf proper footing was bad. In most cases it was full of sand dunes and in spots very soft drift sand. . . . The wind along here blows continually, rising in velocity during the afternoon and evening hours and dying down somewhat during the early morning hours. . . .
>
> At present there is no evidence of fresh water along this coast. . . . I would guess that either the lagoons were fresh water lagoons or that water was hauled as it is done today for San Pedro, Sechura, Matacaballo and the rest of the fishing villages. . . . It is not uncommon in this area to haul water by burro from distances greater than ten miles. . . . the old people had no burros, but they may have had the llama. Walking distances to these people mean nothing. On my last trip to San Pedro . . . we were approached by an old man who wanted a ride to "Los Gringos" road. . . . when we came upon him again he was half way to the road. We gave him a lift. He got out at the road and took off across the desert for Piura 40 kms. away. I have seen women and girls carrying jugs and gourds of water on their heads for 3 to 4 miles. Fresh water used in the present fishing villages along the coast is only for making chicha and for cooking their thick soups. Washing, cleaning fish, bathing, etc. are done in the sea. I have never seen an Indian along here drink water. . . . I don't think water was a problem to [the] old people. It doesn't seem to be with the present [people]. These old people were shell-fish eaters, as the mounds show. . . . The pottery fragments . . . show . . . that they must have been carrying something that needed a "water-tight" container. There doesn't seem to be any agriculture among these people, so again one could cross out the problem of water.
>
> . . . the thing that might have really driven the people inland was the [moving] sand or . . . contact [with white man's] disease. . . . Sechura might be the last remnant of this very large community for it sits on a site as does San Pedro, and directly in back of the fishing villages south of Sechura [i.e., Matacaballo and Chulliyachi] lay shell mounds. . . .
>
> At present there is no habitation north of San Pedro, except one house on the beach opposite site no. NA-5 and one house (. . . La Casita) at the end of the beach shelf.
>
> . . . limestone . . . is the base rock around here and can be mined very easily at the edge of the *tablazo*. Although now the water line is dry, there is evidence that water could have been obtained just below the limestone layer on the *tablazo* [at site A-17]. At present a few bushes grow along here. So even now there is, apparently, some water seepage that can afford vegetation.
>
> [North of Tortuga] we stopped to watch 186 balsa rafts and seven boats. . . . I had never seen this many before in the water. Each balsa had only one man and his net. The use of the paddle was the old familiar way—used at the back of the balsa as a center board and paddle. All the balsas were going south, quite possibly to Tortuga. They were all very near the shore just beyond the breaker line.
>
> (Haase MS., pp. 8–9, 13–14.)

History of Research

The Peruvian coast north of Lambayeque is archaeologically one of the least-known areas of the Central Andes. Though several archaeologists have visited the Piura-Chira region, there has been little systematic survey or excavation, and most of

that little remains unpublished. Samuel Matthewson Scott visited the Chira Valley in 1893–1894 and excavated a number of graves (Scott 1895). Philip Ainsworth Means conducted a brief survey in the Piura and Chira valleys in 1917 and published illustrations of several vessels in local collections, of which the most interesting is a tall blackware stirrup spout vessel from Morropón with appliqué and incised decoration, related to the Cupisnique style of Chicama (Means 1931, pp. 179–181, Figs. 79, 110–121). Max Uhle, whose visit to the area took place in 1919, published a rather poor photograph of specimens that were included in a local collection (Uhle 1920).

C. Barrington Brown surveyed along the coast from Tumbes to the Paita Peninsula in 1924, discovering the first preceramic sites known in Peru. Most of his sites yielded only stone flakes with occasional rough retouch, but one site in the Máncora Valley, inland from Cabo Blanco, produced an assemblage of unusual stone axes, mortars and pestles, large numbers of retouched flakes, and a few other artifacts of stone and shell (Brown 1926).

In 1925 Alfred L. Kroeber published a page of photographs of Piura vessels in the Peabody Museum (Kroeber 1925*a*, Pl. 69), but no further systematic field work was done in the region until 1941. In May of that year, Samuel K. Lothrop surveyed sites from Cabo Blanco to Piura. Though his collections are undoubtedly of the greatest importance for the understanding of Piura-Chira archaeology, he has published only a preliminary paper which contains brief descriptions of several sites in the Pariñas and Chira valleys and comments on pottery in local collections (Lothrop 1948).

In their discussion of paddle-marked pottery in Lambayeque, Kroeber and Jorge C. Muelle made reference to the frequency of the technique in Piura (Kroeber and Muelle 1942, p. 23). Kroeber returned his attention to Piura in 1944, describing a group of eight vessels in the University of California Museum of Anthropology (now the Robert H. Lowie Museum) (Kroeber 1944, pp. 138–139, Pl. 41A).

Since Lothrop's survey, archaeological field work in the Piura-Chira region has proceeded at an increasing tempo, but has not yet resulted in the publication of more than brief preliminary reports. In 1950, Ross T. Christensen did some site surveying in the Piura Valley and on the Bay of Piura, and excavated at the site of Chusís near the mouth of the river (Christensen 1951, MS.). Though he considered the Chusís site to be contemporary with the assemblages of paddle-stamped pottery so common throughout the region (Christensen MS., pp. 324–331), his excavation was of great value exactly because it isolated a ceramic style of an earlier period, before the invention of paddle marking as a means of decorating pottery.

Some time during or before 1955, León Kostritsky discovered looted preceramic graves at Punta Aguja and Punta Nunura on the Illescas Peninsula. His illustrations of carved stone bowls, netting, and looped textiles provide valuable documentation of an obviously ancient and important preceramic culture (Kostritsky 1955).

The next archaeological field work in the region was my brief visit in June 1957, followed by David Kelley's survey of sites on the Illescas Peninsula and south of San Pedro late in the same year. From February to May of 1958, Kelley and Ynez Haase surveyed the shore of the Piura Bay; Miss Haase discovered new sites at Nunura on the Illescas Peninsula, and Kelley surveyed selected inland areas and visited a few shore sites in the neighborhood of Colán. Kelley has distributed a brief analysis of his collections (Kelley MS.). Miss Haase continued her work through July 1958, making collections of first-rate importance at sites on the Paita Peninsula and north to Talara. She also visited a few inland sites in the Piura and Pariñas valleys.

Most recently, in late 1958 and early 1959, Paul Tolstoy revisited Kelley's sites, making larger surface collections. Accompanied by James A. Ford, he also surveyed further in the Piura Valley.

Archaeological Sites Studied

In all, Miss Haase visited seventy-eight archaeological sites, collecting sherds at forty-six of them. To these is added Casita 2, which she did not visit. My collection from Casita 1 supplements hers from the same site. Sherds were thus available for study from forty-seven sites. Of these, six were rejected because the sherds could not be classified by ceramic style owing to their extreme erosion. The remaining forty-one sites are described below and shown on maps 1–9.

Sites of the Illescas Peninsula

(Map 2)

Nunura 1. A large area of sand and sherds. Beside a small rock outcrop was a pottery dump, a solid mass of potsherds two feet thick and about 15 by 7 feet in area. Phase E of the Piura style is isolated at this site.

Nunura 2. A small habitation zone with surface sherds, about 50 by 50 feet in area, on the *tablazo.* The small sherd collection belongs to the Piura style, but cannot be classified by phase.

Nunura 3. A small shallow cave, possibly a burial place, with a few sherds on the surface. Piura style, not classified by phase.

Nunura 4. A small area of surface sherds on the *tablazo.* The two sherds collected are Piura style, phase unclassified.

Sites around Piura

(Map 1)

Coscomba. A low sand mound about 5 meters high and an acre in area, on the grounds of the Hacienda Coscomba. The mound stands on the edge of the hacienda cotton fields, about three kilometers from the Paita-Piura road. The road from Piura to the Hacienda San Jacinto cuts through it. Sherds and snail shells are abundant. Miss Haase's collection belongs to Piura phase C.

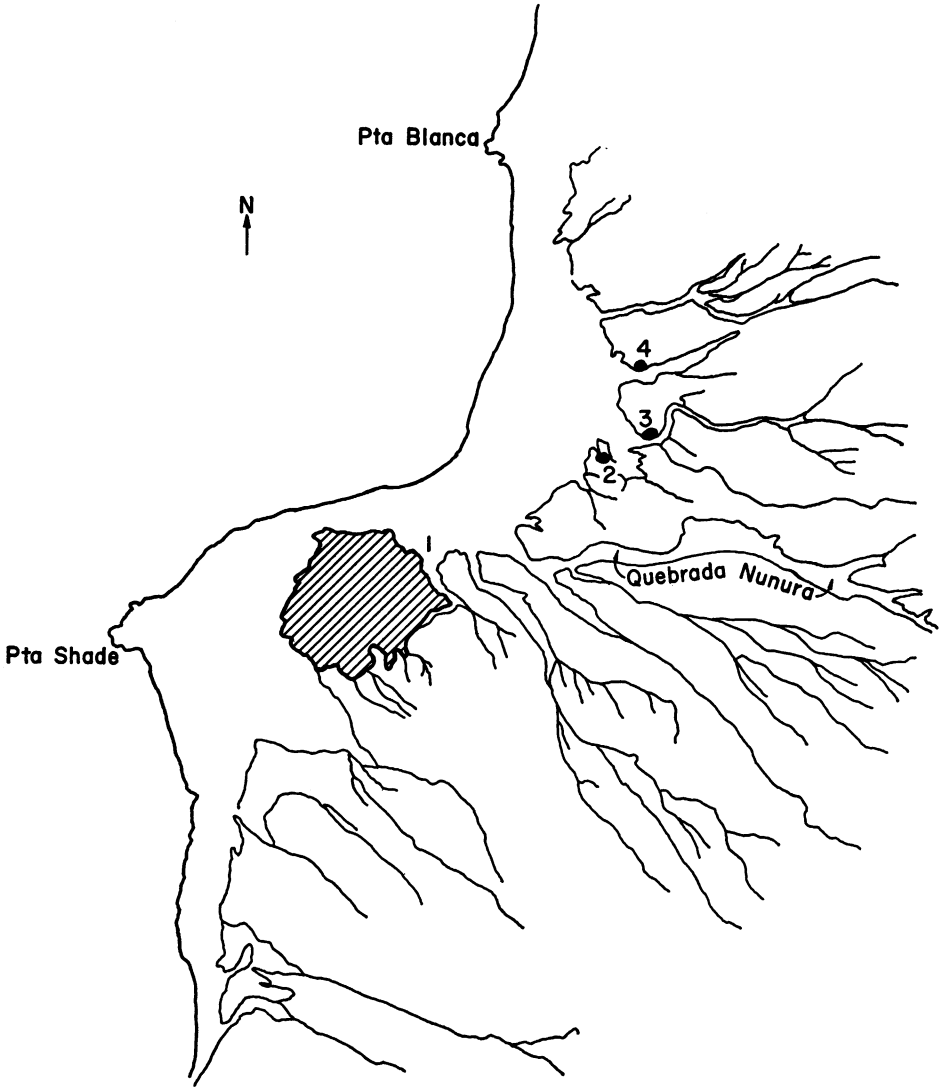
Tacalá. This site, on the grounds of the Hacienda Tacalá, is not described in Miss Haase's notes, but she located it on the map and made a sherd collection which includes twenty sherds of Piura phase B and 3 of Sechura phase E.

SITES AROUND SECHURA

(Map 3)

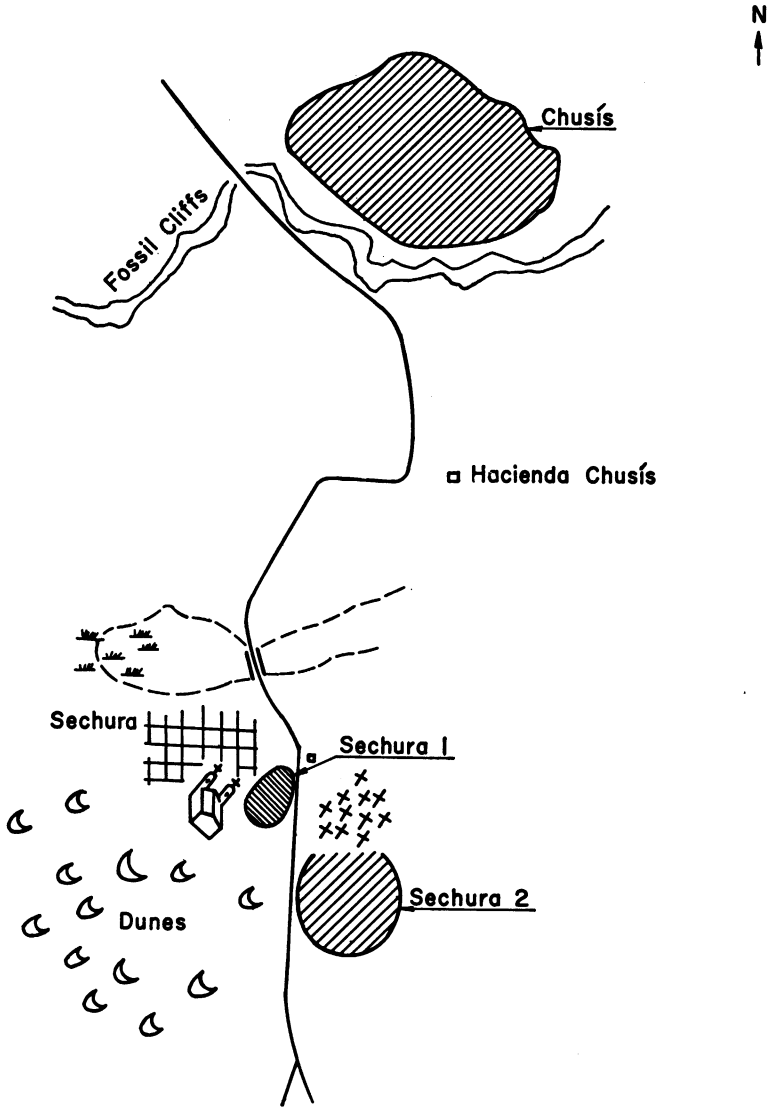
Sechura 1. The modern refuse dump of the town of Sechura, located on the southeast edge of the town. The deep midden contains abundant sherds of the modern Simbilá style, and at its base may go back to Piura F (colonial) or earlier times. Miss Haase collected four representative sherds here.

Sechura 2. A large area of refuse on the south side of the modern Sechura cemetery. Sherds belong to phase D of the Sechura style. This site was discovered and described by Christensen (MS., pp. 111–113) and subsequently visited by Kelley and Miss Haase.



Map 2. The Illescas Peninsula, showing sites Nunura 1–4.

Chusís. The site excavated by Christensen in 1950. It is located on the edge of the *tablazo* just north of and above the Hacienda Chusís headquarters. The site covers about two acres of ground and is made up mostly of sandy refuse and rectangular house foundations of field stones, adobes, and packed clay. A small modern chapel is built on top of a small ancient pyramid mound (Christensen 1951, pp. 46, 51; MS., pp. 176–178). Phase E of the Sechura style was isolated in Christensen's excavation, but there are a few slightly later stamped and molded sherds on the surface. Miss Haase's collection includes one of the latter and sixty-four Sechura E sherds.



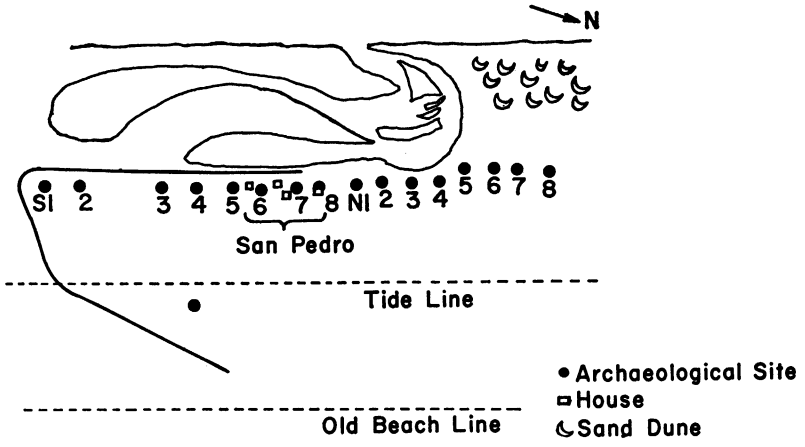
Map 3. Archaeological sites in the vicinity of Sechura.

SITES ON THE BAY OF PIURA

(Map 1)

Sites from the mouth of the river to the Paita Peninsula. The numbered sites on the beach (San Pedro North 1 to 8, San Pedro North A-1 to A-13) represent a selection of refuse areas within an almost continual double line of archaeological dune sites which run northwest-southeast along the edges of a dry lagoon bed.

San Pedro North 1. The village of San Pedro lies near the southern end of the lines of sites mentioned above. The sites to the south of the one large house in the village, where Miss Haase did no collecting, are Kelley's San Pedro 1 to 8 sites. Those immediately to the north of the large house are designated San Pedro North 1 to 8 by Miss Haase. San Pedro North 1 is the first site, just north of the house (map 4). All sixteen of the sites are sand dunes with shells and a few



Map 4. Archaeological sites in the vicinity of San Pedro.

sherds scattered through at least the upper portion. The collection from San Pedro North 1 consists of a number of badly eroded sherds, the better preserved of which can be identified as Piura phase B.

San Pedro North A-1. A dune site like San Pedro North 1, 6.6 kilometers northwest of San Pedro, in the landward row of sites. The site is small, about 30 feet in diameter and 10 feet high, and yielded a few Piura-style sherds which cannot be assigned to a specific phase.

San Pedro North A-2. Another dune site, west of San Pedro North A-1 and in the seaward line of sites. The sherds are Piura style, phase unclassified.

San Pedro North A-5. A dune site in the seaward line, three kilometers northwest of A-2. The sherds from this site, badly eroded, belong to Piura phase B.

San Pedro North A-9. A dune site in the seaward line, five kilometers northwest of A-5. The sherds are Piura style, phase unclassified.

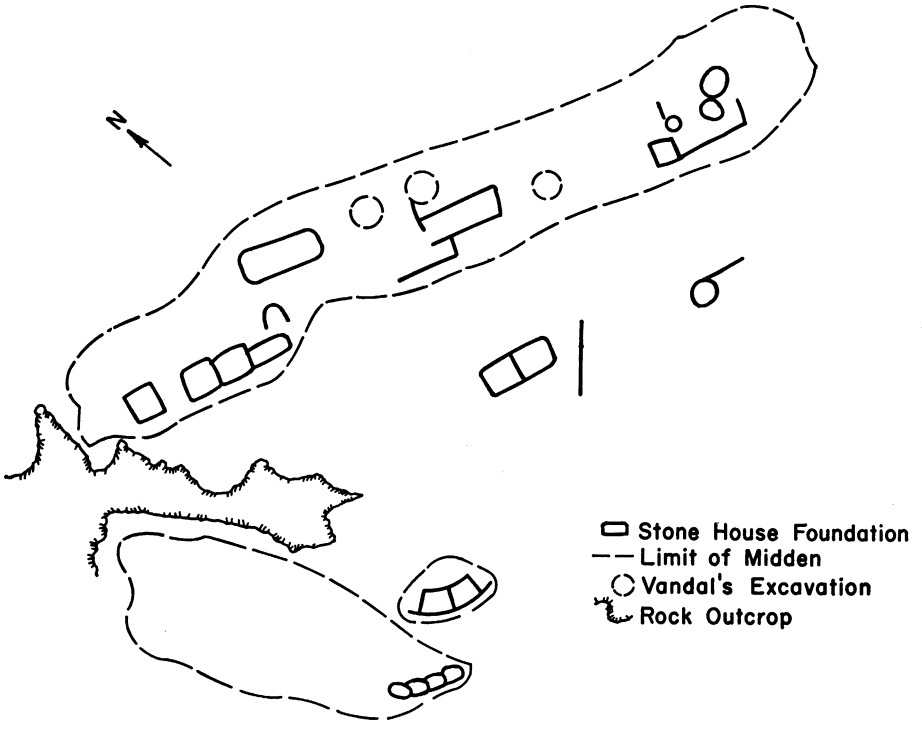
San Pedro North A-13. Approximately 19 kilometers northwest of San Pedro, A-13 is at the northern end of the dune sites on the beach. It consists of four dunes with the usual shells and sherds, and has been partly destroyed by the drilling of an oil well by the International Petroleum Company. The well is now

dry, and is the terminus of a dirt road which runs up onto the *tablazo*. The sherds from site A-13 are of the Piura style, phase unclassified.

San Pedro North A-14. Beginning with A-14, the Piura Bay sites are all up on the *tablazo,* which here drops off in a 15-to-20-meter bluff to the beach. The beach itself narrows down and pinches off opposite site A-16. Site A-14 is an area of refuse about one-fourth of a mile back from the edge of the *tablazo,* at the south end of a prominent sand hill. The sherds from the site, though not badly eroded, bear a particularly heavy glossy patina due to wind erosion. This patina, sometimes called "desert varnish," is typical of the sherds from most of the sites along the edge of the *tablazo*. The sherds from site A-14 belong to Piura phase C.

San Pedro North A-16. Nine kilometers northwest of site A-14, A-16 is a scattered refuse deposit about 100 feet from the edge of the *tablazo*. The two sherds collected here are of the Piura style, but cannot be attributed to a particular phase.

Casita 1 (San Pedro North A-17). This site is located about 7 kilometers northwest of site A-16, 32 kilometers northwest of San Pedro, 40 kilometers northwest of Sechura, and 4 kilometers southeast of the fishing village of Tortuga. The site consists of a series of small deposits near the edge of the *tablazo,* with a total area of about 200 by 100 meters. The surface is covered with broken shell, pieces of quartz, and large numbers of red and brown potsherds. There are the weathered remains of a series of rectangular houses, possibly semisubterranean, now represented by partially buried wall foundations of limestone blocks. Miss Haase's sketch plan of these house foundations is appended (map 5). A few small, re-



Map 5. Sketch map of Casita 1 (San Pedro North A 17), showing limestone house foundations. Not to scale.

cently excavated holes bear witness to a vandal's unsuccessful attempt to locate graves and give a view of a refuse deposit made up of densely packed clam shells and an enormous quantity of sea-lion bones. Our combined collections include a large sample of Sechura B sherds and a very few sherds of the Paita style. A piece of a redware stirrup spout—the only one seen by either of us in our collecting—was inadvertently left behind. A metal fishhook, three end-notched cobble sinkers or net weights, several plain and perforated sherd discs, and a number of cobble hammerstones and abrading stones were recorded.

Casita 2. Located about 200 meters north of Casita 1, this site is a small sand hill, about 10 meters high and from 75 to 100 meters in diameter, which stands out prominently in the flat landscape. The surface is covered with fragments of quartz, dark colored stones, and scattered sherds and shells. Decorated sherds are very abundant. Fifty-three Paita B sherds, four Paita C, and one in Piura style were collected, together with a fragment of a pressure-flaked projectile point of gray chert.

San Pedro North A-18. This site is an area of stones and sherds immediately to the west of Casita 2. Like Casita 2, it may have been a campsite. The sherds collected here belong to phase A of the Paita style.

San Pedro North A-20. Northwest of site A-18 the edge of the *tablazo* forms a series of three points jutting out to the west, on each of which there are one or two archaeological sites. Site A-20 is located on the second of these points. It is an area of shell refuse with a good deal of broken stone and pottery on the surface, on the edge of the *tablazo.* Miss Haase's small collection from this site (13 sherds) is the only sample of Sechura phase C in her entire collection.

San Pedro North A-22. This site is located on the edge of the *tablazo* on the north side of the third (northernmost) point, separated from Tortuga village by a deep quebrada. Like Casita 1, site A-22 is an area of shell refuse on which rectangular house foundations of limestone can be seen. The small sherd collection belongs to Sechura phase D.

SITES ON THE PAITA PENINSULA

(Map 6)

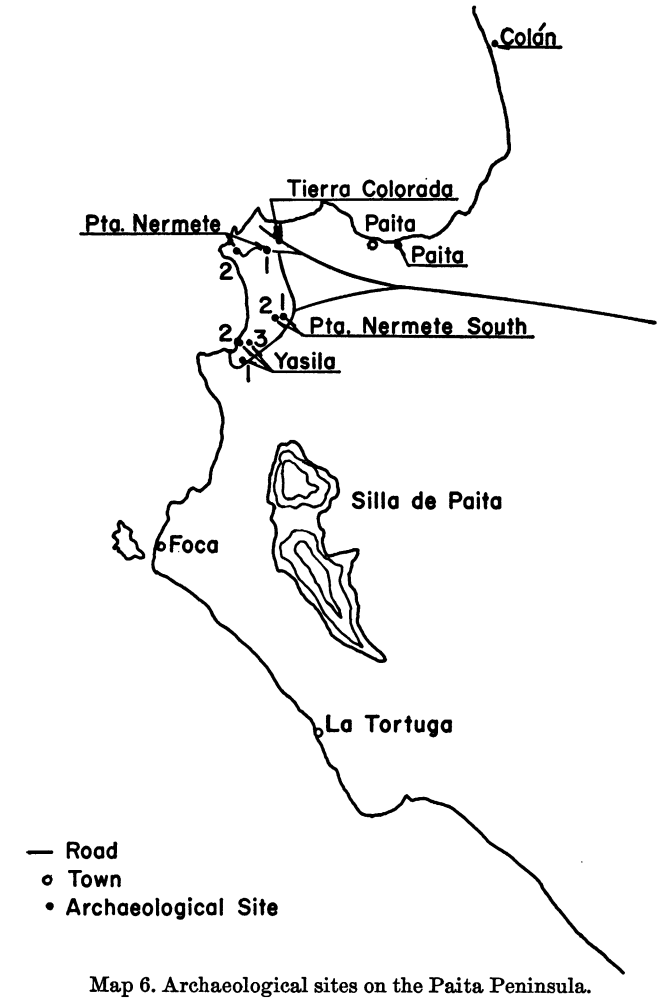
Tortuga. This is the largest site visited by Miss Haase, covering an area of about 2 by 1½ kilometers around the modern cemetery of Tortuga, just east of the village. It is a habitation site, again with rectangular limestone house foundations. White quartz is common on the surface. The small collection includes ten Sechura B and 3 unidentified sherds.

Yasila 1. This is a small area of surface sherds, measuring at most 20 by 30 yards, on the edge of the *tablazo* looking down on the village of Yasila. The few sherds belong to Paita phase A.

Yasila 2. A still smaller area of surface sherds, 30 feet in diameter, to the north of Yasila 1 on the edge of the *tablazo* overlooking Yasila. The sherds, of the Piura style, cannot be classified by phase.

Yasila 3. Another small surface site immediately east of Yasila 2. The stones on the surface of this site have been pushed together to form a small pattern of intersecting lines. The sherds are Piura A.

Punta Nermete South 1. This site lies some 6 kilometers southwest of the Port of Paita and nineteen kilometers north of Tortuga. It is on a shale outcrop on the edge of a short, shallow quebrada, just west of the Yasila-Nermete road but not visible from the road. A donkey trail to Paita passes directly south of the site, which is very small, about 12 meters in diameter and 3 meters high. The deposit is composed of shale, white quartz and sand, with a little animal bone and a few

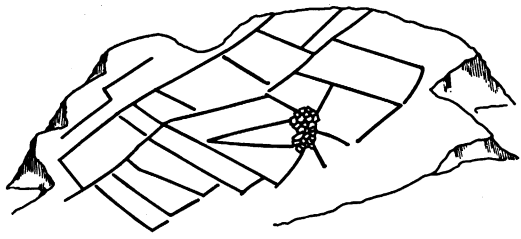


Map 6. Archaeological sites on the Paita Peninsula.

weathered sherds, but no shell. It has been disturbed by vandals. The small collection includes both Paita C and Sechura B sherds.

Punta Nermete South 2. In the quebrada just below the previous site, Punta Nermete South 2 lies on a small rise of land just above the quebrada floor. In an area of about 300 by 100 feet, the surface stones have been collected into low lines about six inches high, forming a pattern of enclosed areas (map 7). A few sherds occur on the surface but no shell. Ten Sechura B sherds and one Paita C sherd—the latter perhaps derived from Punta Nermete South 1—were collected by Miss Haase.

Punta Nermete 1. Six kilometers west of the Port of Paita, Punta Nermete 1 is an area of shale and slate outcrop crossed by the road which runs west to the rookery on Punta Nermete. The surface of the site, which is about half an acre in size, is sandy, and contains many sherds and sea-lion bones and a little shell. It has been thoroughly dug up by vandals. The site is remarkable because it shows evidence of a much longer occupation than any other studied. The sherds collected include one of the Negritos style, four Paita C, twenty-six Sechura A, nine Sechura



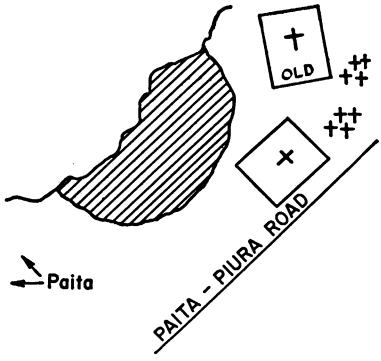
Map 7. Punta Nermete South 2, pattern of stone alignments.

B, forty-four Sechura D, eight Piura A, four postconquest glazed sherds, and four which cannot be identified.

Punta Nermete 2. This is a very small site to the west of the preceding one, at the junction of the same road with the trail which leads to the Punta Nermete rookery. The few sherds found by Miss Haase are of the Piura style, phase unclassified.

Tierra Colorada. On the north fork of the Punta Nermete road, this site lies on the edge of the *tablazo* just above the Tierra Colorada whaling factory. It has been largely destroyed by bulldozers. Among abundant white quartz fragments, a few Piura A sherds and a little shell were found.

Paita. This important site is located just northeast of the Port of Paita, on the edge of the *tablazo* immediately west of the modern Paita cemetery (map 8).



Map 8. Location of the Paita site relative to the modern Paita cemetery.

The deposit is made up of rock and sand, with some bone and very little shell. It has been looted, and the Peruvian army has dug defense ditches along the *tablazo* edge of the site. Sherds are abundant and exhibit a high frequency of decorated specimens. The phases represented are Paita B (15 sherds), Paita C (135 sherds), Paita D (2 sherds), and Sechura A (1 sherd).

SITES ON THE BAY OF PAITA

(Map 1)

Colán. The Colán site is bisected by the Paita-Colán road, just at the point where the road drops down from the *tablazo* to the village of Colán on the south edge of Paita Bay. The site is a large one, about an acre in area, spilling down the sides of the *tablazo.* It is made up mostly of sand and stones, with little shell and abundant potsherds. Phase A of the Piura style is isolated here.

Lagunitas.[1] North of the outlet of the Chira River lies an old shelf line some 15 kilometers long and 4–5 kilometers wide. On the southern portion of this line, sand dunes march north-south in three orderly lines, whereas in the northern portion they form an unorganized mass. Many of the dunes have traces of human occupation. The Lagunitas site, however, is a genuine refuse mound 13.5 meters high and 180 meters in diameter, described in Miss Haase's field notes as "the largest site in this part of the country" and "an honest to goodness site from top to bottom." It lies a few kilometers west of Miramar and south of Portachuelo. Well no. 4842 of the International Petroleum Company (hereafter cited as IPC) is located on the west edge of the site, part of which was bulldozed away during the drilling operation, exposing deep stratified midden. Miss Haase collected sherds from various strata in this cut face, acquiring a collection which should be of great value in establishing the time relations of the Paita and Sechura styles. Unfortunately, this collection was not available for study. The surface sherds include three Paita C, seventy Paita D, and five Sechura A, with several unidentified.

Negritos South 1. This is a series of six sand dunes surrounding IPC well no. 4090. The dunes are low, from two to six meters high, and show traces of human occupation in the form of shells, weathered potsherds, and occasional stones. The area has been looted, and the collections include a reconstructable Paita D jar as well as 32 Paita D sherds, one Paita C sherd, and a group of 12 sherds which define the Negritos style.

Negritos South 2. This is another dune site similar to Negritos South 1, and probably represents a looted cemetery area. Six dunes in the neighborhood of IPC well no. 4400 had potsherds on the surfaces, representing a mixed collection of Paita phases C and D. The collection includes one nearly complete Paita C jar and the upper half of a Paita D jar. Sherds from a single vessel were collected from as many as three different dunes, where they presumably had been scattered by vandals.

SITES IN THE LOWER QUEBRADA PARIÑAS

(Map 9)

These sites are all located in the vicinity of Puerto Rico Pool.

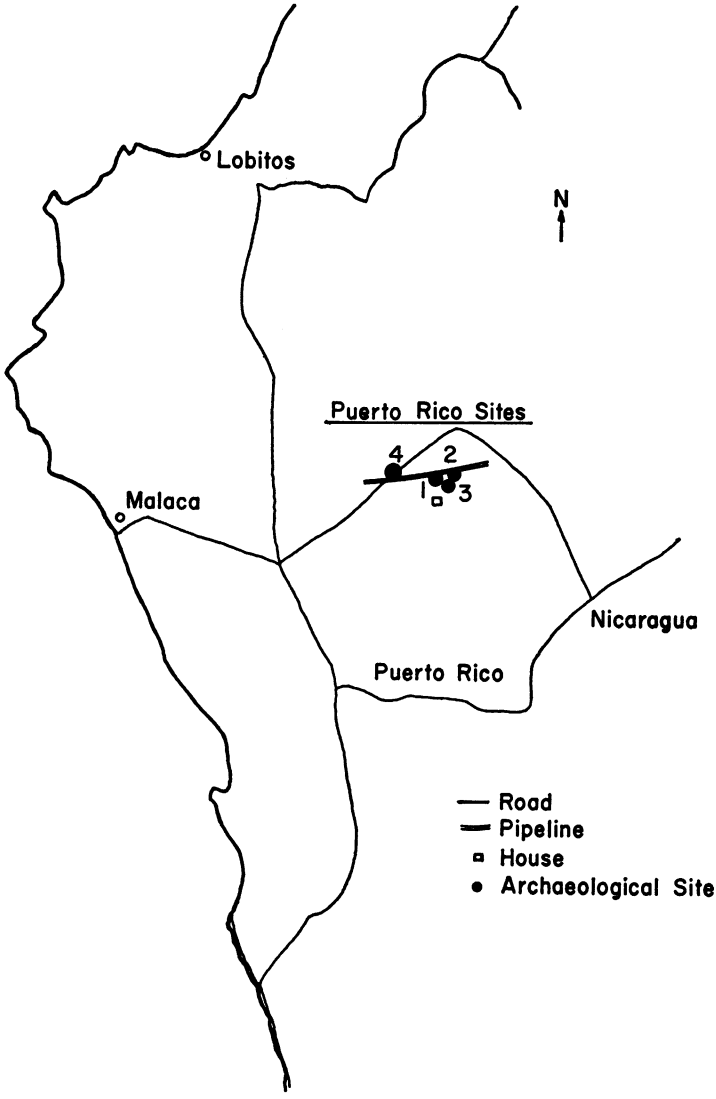
Puerto Rico 1. A dune site about ¼ mile east of the main water station for Puerto Rico Pool. The dune is about 50 feet in diameter and from 10 to 15 feet high, with sherds and a few stones on the surface. The pottery collected is late Piura B.

[1] This term, apparently referring to lagoons to the north of Portachuelo, has the improbable spelling "Lagunitos" on the Peruvian army map.

Puerto Rico 2. A dune site of the same size and nature, immediately east of Puerto Rico 1. Piura B sherds were collected here.

Puerto Rico 3. Another dune site of about the same size, just south of the other two. Piura B is again the phase represented in the collection.

Puerto Rico 4. A larger dune site to the east of the last three, largely destroyed by road building. This dune measures 200 by 50 feet and stands 5 feet high, with two feet of shell midden on top of it. The sherds collected here are early Piura B.



Map 9. Archaeological sites in the vicinity of Puerto Rico Pool.

SITE IN THE UPPER QUEBRADA PARIÑAS

(Map 1)

Quebrada Coyonitas. This last site is a small area of sherds and shells on an old beach line of the dry Coyonitas River, which once was a creek tributary to the

Pariñas. An oil company road ascends the quebrada, and the site is at fifteen minutes' walking distance beyond the end of the road. The small collection includes sherds of both Piura B and Piura C style.

Methods

In collecting sherds, Miss Haase and I followed the same principle of selection. We kept rim sherds and decorated sherds, left plain body sherds behind unless they showed some special feature, and intentionally avoided collecting "random" samples. These selected samples have been seriated according to the method outlined by Rowe and called by him similiary seriation by features and themes (Rowe 1961). When applied to selected surface collections, this method requires the following steps:

1) Determine, through comparison and degree of variation, which collections represent sites occupied only briefly (single-phase sites) and which represent longer occupation or discontinuous occupations (multiphase sites). For example, the sherds from Paita include many thin specimens with brushed surfaces and red-line designs. There are no such sherds at Casita 1, where instead we find somewhat thicker ware, white-painted designs and over-all slipping, and wiped or polished surfaces. When, at Punta Nermete 1, we find both kinds of sherds together with new variants of both of them, it is a fair assumption that the occupation at the latter site was much longer than those of the former sites.

2) By studying the collections from single-phase sites, define phases and determine what features of style occur only in each phase and what features may be found in two, three, or more specific phases.

3) Study the collections from multiphase sites, assigning the sherds individually to their respective phases, in order to amplify the definition of the phases.

4) Determine, by any means whatever, which phase is the oldest and which the most recent. In the case of Piura the most recent phase is represented by the pottery manufactured today at Simbilá. The Negritos style was placed as oldest partly by seriating back in time from a fixed intermediate point (Sechura C) and partly because of its similarity to the earliest ceramics of the south coast of Ecuador (Valdivia) and the north coast of Peru (Early Guañape).

5) Align the remaining phases in temporal order between the oldest and the most recent on the basis of their degree of similarity to one or the other. The degree of similarity may be assessed by studying the features shared by more than one phase, and by studying progressive changes in patterns whereby one style is converted into another. The former procedure is fully illustrated in Table 21. The latter technique may be shown by an example: in phase A of the Piura style we find a bulging jar neck with a short everted rim and strap handles connecting it to the jar body. In Piura B this form has a longer everted rim, while in Piura C it has the longer rim, is thickened at the bulge, and lacks the strap handles. These three variants of a single form are isolated at different sites, which indicates that they were not contemporary with each other. Since the Piura B form is stylistically intermediate between the equivalent forms in Piura A and C, it may be assumed that it is also temporally intermediate. This stylistic sequence does not in itself prove the temporal order of these three phases, but it is buttressed by several similar pattern progressions which also place Piura B as transitional between Piura A and

C. In addition, Piura B shares some traits only with Piura A and others only with Piura C.

Certain features of this method are to be noted. First, it rests on the assumption that stylistic change is gradual, yet sufficiently definite that a vessel belonging to one phase may be distinguished on sight from one of the next earlier or later phase. This assumption has been borne out repeatedly in controlled seriational studies of Peruvian pottery by John H. Rowe, Lawrence E. Dawson, Dorothy Menzel, and others. Second, the method works by tracing changes in features of style, not by classifying the pottery into types. Thus a single sherd may be used in analysis not just once as a member of a type, but repeatedly as a bearer of various stylistic features. In the tables accompanying this study, for example, some sherds are listed as many as four or five times, if they show that many of the features being tabulated.

Another important aspect of the method derives from its use of style features as the units of analysis. Because decorated sherds show more features than do plain sherds, style change is faster and more readily observed on decorated than on plain specimens. Accordingly, the value of a sherd sample for analytical purposes depends, not on the total number of sherds in the sample, but on the number of decorated specimens and on the degree to which they can be used to visualize decorated whole vessels. A sample of 50 decorated sherds of a single phase is far more useful than a sample of 1000 sherds, only 10 of which are decorated. In fact, 50 representative decorated sherds make an excellent sample for analysis because of another aspect of the method: phases are defined, not by the frequency of particular features at particular times, but by their presence or absence. Because it does not stress frequencies of occurrence, the method can operate without the large samples needed to make accurate estimates of frequency.

Because similiary seriation of this type is so different in approach and results from the "statistical" seriation in vogue among many Peruvianists, a brief comparison of the methods is in order. The latter method—similiary seriation by type frequencies—has been best defined and most fully utilized by James A. Ford in his seriation of surface collections from the Virú Valley (Ford 1949, especially pp. 34–52). In this method, a "random" sample is collected in the field and the investigator refrains insofar as possible from applying a principle of selection in his collecting. The collected sherds are sorted into ceramic types, and the frequency of each type in the collection from each site is determined as a percentage figure. The frequencies of the various sherd types from a single site are presumed to approximate their frequencies in the region at a particular point in time, the point being defined as the "mean cultural date" of the site. The sites are then arranged on a chart in such a way that the frequencies of the various types, when presented vertically on the chart, form the smoothest possible curves of increase and decrease. The order of the sites on such a chart is assumed to be the temporal order of the "mean cultural dates" of the sites. Like seriation by features and themes, the "statistical" method assumes gradual change of style, but it does not assume that individual vessels from different phases can be distinguished from each other by style.

Both Bennyhoff (1952) and Rowe (1961) have pointed out numerous weak-

nesses in the method of "statistical" seriation; the reader is referred to their papers. Similiary seriation by features and themes faces some of the same pitfalls, as Rowe has pointed out (Rowe 1961, pp. 328–329), but it avoids most of the weaknesses of the "statistical" method. Thus, in seriation by features and themes, very small samples can be used for analysis, because relative frequencies within the sample are not used as criteria for dating. In fact, sample size is a problem only because rare features may not appear in small samples, and this problem may be solved by relying on the more common features as time markers.

Similarly, in seriation by features and themes, the relative length of occupation of different sites is used as a key to the analysis, rather than hidden by a fictive "mean cultural date." Breaks in the succession can be detected and distinguished from foreign influence by the degree to which most of the features being studied are either interrrupted or continue with minor changes. Above all, the method results in a series of statements about the differences between vessels pertaining to relatively brief phases. When a large collection of pottery with archaeological associations is seriated by features and themes, the resultant definitions of phases may then be used to date single vessels or even single potsherds.

Styles, Phases, and Periods

The materials available for this study consist almost exclusively of potsherds. Accordingly, I make no pretense of writing a general treatise on Piura-Chira archaeology. Rather, the analysis is intended to elaborate a basic ceramic chronology for the region, insofar as it is possible with the materials in hand, and to propose a few hypotheses about cultural relations which can be inferred from potsherds with site associations.

Of the forty-one archaeological sites studied, twenty-two are single-phase sites, or produced at most one sherd of a different phase; six are two-phase sites; and three were occupied through three or more phases. Small collections from the remaining ten sites belong to the Piura style, but cannot be attributed to particular phases. In all, seventeen phases are recognized and grouped into five named ceramic styles according to the degree of similarity between them. Two of the phases are not represented in Miss Haase's or my collections, but are known to exist on other evidence. The proposed sequence, with its equivalents in Kelley's terminology (Kelley MS.), is as follows:

Phase	*Kelley Equivalent*	*Phase*	*Kelley Equivalent*
Simbilá		Sechura D, Sechura C	Sechura
Piura F	Matacaballo	Sechura B	Colán
Piura E		Sechura A	San Pedro
Piura D		Paita D	
Piura C, Piura B, Piura A	Chuchales (also Virrilá and Médanos?)	Paita C	
Sechura E	Chusís	Paita B	Casita
		Paita A	Martin
		Negritos	

The Negritos style, represented by only a handful of sherds, is characterized by a coarse tempered brown-to-purple ware, flat finger-pressed fillets, and incised decoration oriented in vertical bands. The Paita style is distinguished from others

by its thin, brush-smoothed, oxidized ware made by coiling; very short jar necks; rarity of bowls; incised decoration based on groups of parallel lines; small notched fillets; dented jar lips; and rows of hollow protuberances. In Paita phases A and B the incised decoration is most frequent and there is no definite evidence for the use of paint in any form. In Paita C and D, red slip-painted designs occur abundantly and the incised decoration is minor.

In the Sechura style, white design painting replaces red, fillets may be plain as well as notched, over-all slipping in various colors is common, and a number of new decorations are found, including negative painting and notched bowl rims. Sechura A and B form a distinctive group characterized by coiled manufacture of vessels, white painting on red slip, engraved decoration, small fillets, incurved bowls, and annular base bowls, while in phases D and E we find paddle and anvil manufacture, white painting on unpigmented surfaces, large fillets, jars with tall decorated collars, vessels with "market basket" handles, and ware without visible temper. Phase C is intermediate between these two groups in most respects.

The most characteristic decoration of Piura style pottery is paddle marking, made by carving geometric designs in the paddles with which the pottery was made. Press-molded decoration, fine burnished blackware, and crude white banding are also common features of the Piura style. Phases A and B share a number of distinctive features, including pedestal base bowls, incised handles, a variety of decorative lugs, large fillets of Sechura D–E type, relatively neat white band designs, and a distinctive style of press-molded decoration which features large human figures. Phase E, again, has a distinctive press-molded style in which small birds and fish are the outstanding designs.

Finally, the modern Simbilá style continues, in modified form, the Piura stylistic tradition. Simbilá vessels are made with plain paddles and decorated with clay stamps which bear flower designs and geometric designs derived from those on late Piura paddle-marked ware.

These five styles make up a long local tradition which shows occasional influence from south Ecuador and from the southern part of the north Peruvian coast. Negritos shows some generalized similarities to the earliest ceramics in both these regions. Both the Paita and Sechura styles are much more similar to early south Ecuadorian styles than to north Peruvian styles, but north Peruvian influence—for the first time specifically definable as such—enters in Sechura E, which is tentatively cross-dated to Moche III late in the Early Intermediate Period. By Piura A times, the stylistic affinities of the Piura-Chira region were entirely north Peruvian, and no further south Ecuadorian influence can be found. As a result, the Piura style phases can be set in the framework of the Peruvian culture periods. Piura A and B belong to the Middle Horizon, Piura C and D to the Late Intermediate Period, and Piura E to the Late Horizon, the time of the Inca conquest of the Central Andes. Piura F is Colonial, and Simbilá is modern Republican.

NEGRITOS STYLE

A scant dozen sherds from Negritos South 1, and one from Punte Nermete 1, are of a ware very different from all other sherds in the collection and show peculiarities of design and form which set them apart from the rest. They represent a style

which is so different from others found at the same sites that it may well date from a different period. This style, provisionally named Negritos, is placed at the beginning of the sequence because it will fit nowhere else, because it is similar to Early Guañape in the Virú Valley and Valdivia of the south Ecuadorian coast, and because some of its features seem antecedent to those of Paita A and B. This hypothesis is based on the weakest evidence imaginable, and urgently needs to be tested by a fuller documentation of the Negritos style.

All thirteen sherds are of a poorly fired, heavily tempered ware. Paste and surface colors of this ware are generally dark, but vary greatly in tone, from black and dark gray to dark brown, reddish brown, and dull red-orange. Many sherds have a distinctive purple cast on the interior surface. The outstanding feature of the ware is its temper: very large quantities of poorly sorted, angular quartz and limestone(?) particles, ranging up to 2.5 millimeters in diameter. In addition, all sherds contain a moderate quantity of mica particles, pyrites, or both.

The ware is quite soft, ranging from 2½ to 3½ on Mohs's scale of hardness. Body thickness ranges from 3 to 9.5 millimeters, with most sherds from 4 to 6 millimeters thick. Insofar as there is evidence of the manufacturing process, it consists of close-set, thumb-sized indentations on the interior of some specimens, evidently bonding marks where coils were pinched together. Of the thirteen sherds, six have smoothly wiped surfaces, whereas the surfaces of seven are scored by a stiff brush. Interior brush smoothing was with a circumferential movement, while exterior brush marks are vertical or horizontal. In no case were both smoothing techniques used on the same specimen.

The only rim sherd is a short tapered jar neck, 16 centimeters in rim diameter, with a strongly everted, ridged lip which is finished off in a very rough manner (fig. 1; pl. 1, *a*). Both wiped and brushed surfaces may be decorated. Decoration is exterior, and consists of hollow ridges, finger-pressed appliqué fillets, large, deep, angular punctations, and deeply incised lines. The very few decorated sherds show a systematic pattern in vertical bands running down from the base of the neck. Two sherds have vertical finger-pressed fillets associated with alternating vertical incised lines and rows of punctations (pl. 1, *b*). The sherd from Punta Nermete 1 has a row of punctations round the base of the neck, below which are vertical hollow ridges made by pushing out the soft clay with a finger. Each ridge bears two or three vertical rows of punctations (pl. 1, *c*). Two other sherds bear small portions of designs of the same types: one a section of vertical finger-pressed fillet, the other, two large punctations.

PAITA STYLE

The Paita style is represented by sherds from nine sites, at five of which it is essentially isolated. The best collections come from Casita 2, Paita, and Lagunitas, but collections from Yasila 1, San Pedro North A-18, and the Negritos South sites also contribute important information.

Four phases of the Paita style are recognized, on the basis of differences in the associations of features at different sites. Characteristic of all four phases are thin, fine-tempered, brush-smoothed red ware; jars with short flared or concave necks; extreme rarity of bowls, bottles, and other non-jar forms; decoration only on the

exterior of the vessel; incised decoration; and dented vessel lips. Rows and zones of small punctations, notched fillets, and rows of hollow protuberances are also typical Paita decorations. Phases A and B are dominated by incised decoration, phases C and D by red slip-painted designs. In contrast with later styles, decorated sherds are abundant at Paita sites.

A single basic ware, Thin Red, makes up 94 per cent of the sherds attributed to the Paita style. Though primarily oxidized, Thin Red sherds are rarely homogeneous red in color. The paste core varies in color from light red through dull reddish brown and dark brown to clear gray and—in phase D—dark muddy gray. Surface colors show the same range, and include also tan, reddish tan, and yellowish gray. With very few exceptions, the paste of any sherd shows two or more colors, usually in bands with clear-cut lines of separation between the colors. In most of the sherds, the color indicative of more oxidation is found on the exterior surface of the vessel; that is, the usual combinations are red on the exterior and gray or brown on the interior, or brown on the exterior and gray on the interior. Apparently, these pots were fired in a mouth-down position in a more-or-less reducing atmosphere, but were exposed to air briefly during the cooling period, to produce a reddening of the exterior surface. Sherds which do not show this firing pattern may be gray at the center of the core and red or brown on all surfaces; they may have gray exterior surfaces and gray or brown cores; or they may show homogeneous red or brown pastes.

The paste of Thin Red Ware is rather porous in appearance, but relatively hard, measuring from 4½ to 6½ on Mohs's scale of hardness in phases A to C, from 3½ to 6½ in phase D. Temper, predominantly white, is abundant but finely ground and sifted, the particles often being so fine as to be barely visible to the naked eye. Quartz and a soft white substance which may be either limestone or shell are the standard tempering materials, and may occur alone or in combination. A few sherds, with rounded quartz particles and a few darker particles, were tempered with very fine sand. Fine mica particles occur in many sherds, probably as a component of the clay. Small pyrites are found in some sherds of phase C and in many of phase D.

Interior surfaces of all vessels were smoothed with a fine brush, with a movement around the circumference of the vessel. Exterior surfaces were vertically or circumferentially brushed, but subsequent scraping or wiping has partially obscured the brush marks on many specimens. A number of sherds show smooth exterior surfaces without brush marks, but these also may have been brushed before scraping. The only instance of polishing is on a single pattern-burnished sherd from Negritos South 2. The interior surfaces of jar necks received the same treatment as exterior surfaces.

Large body sherds almost always show close-set bonding marks on the interior, suggesting that all the specimens were made by coiling.

Vessel wall thickness ranges from 2 to 7 centimeters, but the bases of jar necks may be slightly thicker. Most sherds are from 3 to 4.5 millimeters thick. In phases B and C, wall thickness does not exceed 6 millimeters, and in phase D most sherds are over 3.5 millimeters thick. Sherds thicker than 7 millimeters occur in both phases C and D, but have been classified with the variant wares, rather than with Thin Red Ware.

Thin Red Ware occurs almost exclusively in the form of short-necked jars, but does include a flared bowl belonging to phase A and a bottle spout from phase D.

Though most of the sherds from all four phases have been classified as Thin Red, the ware actually shows temporal change in color, temper, and surface finish. The changes, as reflected in the sherd assemblages assigned to the various phases, are gradual, and many undecorated body sherds from all four phases could not be distinguished from one another. In the phase A collection from San Pedro North A-18, the typical firing pattern (oxidized exterior surface, reduced interior surface) occurs only once. A few sherds of phase A have purplish gray interiors reminiscent of Negritos ware. Brown and red-brown surface colors predominate in phases A and B. In phase C, almost all the sherds have light red exterior surfaces, the remainder brown or red-brown. Gray exteriors are very rare in phases A–C, where they occur only as fire-clouded portions of red vessels. In phase D, gray sherds are much more common, making up some 20 per cent of the total, and grayish brown or tan sherds are also more frequent. There may be a genuine reduced ware in phase D, but it is impossible to distinguish between gray sherds from gray vessels and those from fire-clouded portions of red vessels.

Changes in tempering, like those in color, are gradual; they are reflected by differences of proportion within sherd assemblages, rather than by absolute differences from phase to phase. Quartz temper reaches its maximum frequency in phase B. Pyrites are found only in phases C and D, and tend to be larger in the latter. In phase D, many sherds contain very abundant calcitic temper (limestone or shell) and quite large pyrites. The darker sherds of this type are very similar to the typical ware of the succeeding Sechura A phase, differing from it only in surface finish. Another distinctive feature of phase D is a somewhat rougher finish found on some jar necks.

Other wares associated with the Paita style are variants of Thin Red. A sherd from Negritos South 2 and a reconstructed jar from Negritos South 1 differ from Thin Red Ware in having polished exterior surfaces. The sherd bears an over-all dark red slip, while the jar is the usual plain light red. Both specimens probably belong to phase D.

A group of eight sherds from Paita, attributed to phase C, are separated on the basis of their distinctive vessel forms, surface treatment, and decoration. Individually, the thinner sherds of this lot might be classified as Thin Red, but as a group they show some differences. They are therefore treated as a separate ware, called Paita Variant I. Their temper—fine calcitic particles, mica, and occasional pyrites—is typical of Paita ware. Paste colors, while within the range of Thin Red Ware, are systematically dark, with brown predominating. Three sherds of bowls have irregularly polished interiors, which were scraped smooth—rather than brushed—before polishing. A fourth sherd has a burnished zone as part of the decoration. The range of thickness is 4–8 millimeters, and five of the eight sherds are absolutely thicker than any Thin Red specimen from phase C. Vessel forms are bevel-lipped flared bowls (pl. 2, *d, e;* fig. 2, *g–i*), a unique thin-rimmed neckless olla (fig. 2, *p*), and a unique jar neck (fig. 2, *o*).

Finally, Paita Variant II comprises a group of fifteen sherds from phase D, entirely typical of that phase in their paste qualities and surface finish, but dis-

tinguished by their greater thickness and their vessel forms. The selection of this group as a separate ware was arbitrary: it includes all Paita sherds with body thickness over 7 millimeters, except those of the Variant I group. This distinction is meaningful for chronology, because these thicker sherds occur only at phase-D sites. In addition, Variant II vessel forms are distinctive: taller jar necks (figs. 1, *f;* 6, *d*), a unique thick-rimmed olla (fig. 6, *g*), and a unique flat-lipped flared bowl (fig. 4, *c*). Decoration, too, shows some differences, described below. The maximum thickness of Paita Variant II ware is 10.5 centimeters.

The occurrence of these wares in the collections from the nine sites with Paita-style pottery is shown in table 1.

TABLE 1

PAITA STYLE, DISTRIBUTION OF WARES BY SITE

Site	Thin Red	Polished Variant	Variant I	Variant II
Yasila 1	10	..	..	..
San Pedro North A–18	12	..	..	1
Casita 2	51	..	..	..
Paita	144	..	8	..
Punta Nermete 1	4	..	..	..
Punta Nermete South 1	11	..	..	..
Negritos South 2	41	1	..	4
Lagunitas	65	..	..	8
Negritos South 1	31	1	..	2

PHASE A

An early Paita phase is suggested by Miss Haase's small collections from Yasila 1 and San Pedro North A-18, and by Kelley's brief description of his collection from the latter site (Kelley MS., p. 2). Paita A corresponds to Kelley's "Martin Period." Except for a Paita Variant II sherd which is obviously out of place in the assemblage, Miss Haase's collections from the two sites include 22 sherds. Slight differences in thickness and in firing pattern at San Pedro North A-18 have been noted above, but the samples are so small that no suggestion of temporal difference between the two sites can be made.

Three short jar necks include one concave form (fig. 1, *b*) and two slightly flared necks with everted rims (fig. 1, *e*). A thin-walled flared bowl (fig. 1, *c*) is unique in the collection. Kelley reports "an unusual rim like a tea-pot rim, apparently designed to hold a lid" from San Pedro North A-18 (*ibid.*, p. 2).

Only five sherds are decorated. Three incised sherds (pl. 1, *e, f*) have simple designs delimited in a zone or band which is marked off by a deeper and broader incised line—a pattern which does not occur at all in the larger samples from later phases. The incisions were all made in softish clay by an instrument with a blunt rounded point. On two sherds, the designs consist of parallel lines, on the third of running arcs. The concave jar neck is decorated with small indentations around the lip (pl. 1, *g*). An angular jar shoulder bears a small notched fillet (pl. 1, *d*). Kelley reports "fairly frequent incision" at San Pedro North A-18.

Even though the sample is extremely small, phase A is obviously distinct from later Paita phases. It is most similar in ware and vessel form to phase B, the principal site of which is located only a few meters from San Pedro North A-18, but the distinctive phase-B incised style is absent, and all three phase-A incised sherds show a pattern not known from any other phase. The thin-walled flared bowl and "teapot" rims are also distinctive.

PHASE B

Paita B, equivalent to Kelley's "Casita Period" and my preliminary "Casita Phase" (Kelley MS., pp. 2–3; Lanning 1960*a*, pp. 57–58; 1960*b*, pp. 221–222) is represented by a rather larger collection, though it remains poorly documented in

TABLE 2

PAITA STYLE, COMPARISON OF DECORATED STYLES AND VESSEL FORMS AT CASITA 2 AND PAITA

Style	Casita 2	Paita
Phase B incised style	23	12
Short concave neck	2	2
Short neck, everted rim	2	1
Paita slip painted style	4	79
Phase C incised style	..	10
Short flared neck	..	30

many respects. The distinction between phases B and C depends in part on the assessment of trait frequencies at Casita 2 and Paita. Phase B is characterized by a distinctive incised style, phase C by a rather different incised style and above all by red-on-natural-red and black-on-natural-red slip-painted designs. Phase B jar necks are the same as those of phase A, while a short flared neck is typical of phase C. The distribution of these decorative styles and neck forms at Casita 2 and Paita is shown in table 2. The distributions may be interpreted in two ways: Either there is a small percentage of bichrome painted decoration in phase B, and of the phase B incised style in phase C; or the occupation of the two sites overlapped in time, there being a small phase C component at Casita 2 and a small phase B component at Paita. The choice does not affect the existence of the two phases, but does alter their definition. I prefer the latter interpretation, defining phase B by its distinctive incised style and jar necks from both sites, and including the four slip-painted sherds from Casita 2 in phase C.

The short concave and everted-rim necks do not differ significantly from those in phase A, except that one of the latter from Paita is larger, 22 centimeters in diameter (fig. 21, *c, d*). The only other rim forms known for phase B are unique: a tall jar neck with everted rim, 13 centimeters in diameter (fig. 1, *d*); a very short, strongly concave jar neck with an angular ridge round the exterior of the lip (fig. 21, *b*); and a narrow, cylindrical neck with everted rim, 4.5 centimeters in diameter (fig. 2, *a*). No bowls occur in the sample. Other features of form are two angular jar shoulders (fig. 21, *g–h*) and an indented base (fig. 21, *f*).

In the phase B incised style, incisions were made in soft paste, and the clay

which piled up on either side of the incised lines was not removed or smoothed over. The incisions are generally quite deep, though a few are shallow. The incised lines range from narrow to broad; some were made with a cutting implement, some with an implement with a broad, squared-off point, and a few with a blunt-rounded implement. All but two sherds are decorated with groups of parallel lines, some simple (fig. 21, *o, p, u–x, z, aa;* pl. 2, *k, m–o*), some turned (fig. 21, *i, j*) or set at angles to each other (fig. 21, *m, n, s;* pl. 2, *l, p*), some associated with crosshatching (fig. 21, *y;* pl. 3, *a*) or incised circles with central punctate dots (fig. 21, *k, l*). A common pattern involves groups of lines round the circumference of the upper part of a vessel, accompanied by another design on the central portion of the pot. Two necks bear incised designs, one a double row of punctations (fig. 21, *a, b*; pl. 2, *q*). Two sherds have rows of very fine punctations between incised lines; the punch was probably a thorn or a small needle (fig. 21, *r;* pl. 2, *n*). One sherd has, together with incised crosshatching, a row of large, scooped-out punctations made in slightly mounded-up clay (fig. 21, *t*). Stab-and-drag incision occurs on a sherd from Paita (pl. 2, *c*), and Kelley collected two sherds at Casita 2 which show this technique (Kelley MS., p. 3). All the features and designs above occur in the collections from both Casita 2 and Paita, except the incised circle-and-dot, scoop punctation, and punctate jar neck—features which occur only once or twice in the Casita 2 collection.

Other than the incised sherds, few decorated specimens can be associated with Paita B. Kelley reports notched fillets from Casita 2 (*ibid.*, p. 3), and my collection includes a sherd with a hollow protuberance pushed out with the finger. Both features occur in phase C context at Paita, but some of the specimens from the latter site might actually date to phase B. A concave jar neck from Paita has a dented lip similar to those of phase A. Finally, one sherd from Casita 2 which might belong to either phase B or C, is covered by a matte white slip, thinly applied and discolored.

PHASE C

Paita C is defined by 135 sherds from the Paita site, including 104 decorated specimens and 38 rim sherds. The small Paita collections from Punta Nermete 1 and Punta Nermete South 1 belong to phase C, as does a single sherd from Casita 1. The phase C component at Casita 2 has already been mentioned. A deviant version of the phase—perhaps a northern local variant—is found at Negritos South 2. Two sherds from Paita exactly match the style of phase D, as represented at Lagunitas, and will be described as part of that phase. In turn, the predominantly phase D collections from Lagunitas and Negritos South 1 contain a total of four sherds attributable to phase C.

Two rim forms are diagnostic of Paita C. A short flared jar neck with flat or rounded lip occurs in Thin Red Ware (figs. 2, *j–m;* 3); and a bowl with flared wall and thick, outer-bevelled lip is typical of Paita Variant I ware (fig. 2, *g–i*). Unique forms include five jar necks and a neckless olla with thinnish flat lip (fig. 2, *n–p*). A slight groove round the edge of the lip is a feature commonly found on phase C vessels. Angular jar shoulders continue from phase B, but sharply curved shoulders are more common. One sherd shows a constricted waist. The distribution of features of form by site is shown in table 3.

Decoration in phase C is predominantly slip painted, but includes also an incised style related to that of phase B, the incised and painted sherds of Paita Variant I, and a number of other plastic decorations. The distribution of these types of decoration by site is shown in table 4.

Paita C and D sites are easily identified by the distinctive red-on-natural-red painted style which occurs only in these phases. As always in the Paita style, decoration is limited to the exterior of the vessel. The red slip used for designs is

TABLE 3

PAITA C, DISTRIBUTION OF FEATURES OF VESSEL FORM BY SITE

Form	Paita	Punta Nermete 1	Punta Nermete South 1	Negritos South 2
Short flared neck	30	1	3	7
Bevel-lipped bowl	3	..	..	..
Unique jar neck	4	..	..	1
Neckless olla	1	..	..	..
Angular shoulder	2	..	..	..
Curved shoulder	9	..	..	4
Constricted waist	1	..	..	..

TABLE 4

PAITA C, DISTRIBUTION OF TYPES OF DECORATION BY SITE

Decoration	Paita	Punta Nermete 1	Punta Nermete South 1	Negritos South 2	Casita 2
Red slip painting	78	2	1	3	3
Black slip painting	1	..	..	..	1
Phase C incised style	10	..	..	..	..
Variant I incised	6	..	..	..	..
Hollow protuberances	8	..	1	2	..
Notched fillet	7	..	..	..	..
Dented rim	1	..	..	..	..
Pattern brushing	1	..	..	..	..

dark, tending to reddish brown, thinly applied, and completely matte. It is applied on the unpigmented light red or tan surfaces of the pottery. A few red-on-gray sherds obviously represent fire-clouded portions of otherwise red vessels. Though darker brown surface colors continue into phase C, they do not bear slip painted designs. On one sherd from Casita 2 and one from Paita, the red pigment is replaced by a thinly applied black, perhaps resulting from unintentional inclusion of organic material in the usual red slip.

In both phases C and D, slip painted designs are based on groups of parallel lines, which probably occur on all vessels. This composition is carried over from the incised style, which utilizes such groups of lines in all four Paita phases. There are systematic differences of design between the painted style of phase C, represented at Paita, and that of phase D, as at Lagunitas. These differences are sum-

marized in table 5. In addition, phase D designs are almost all painted on darker reddish tan surfaces than those of phase C, and usually show less contrast between design and background.

In phase C, designs fall into three general categories: narrow lines (1.5–5 mm. wide) circling the neck and upper body of the vessel (pl. 4, *b*, *c*); designs on the body of the vessel, done in narrow lines 1–4 mm. wide; and, very rarely, designs in broad bands over 10 mm. wide. A single sherd differs from these patterns, having parallel lines that are of varying widths, from 2 to 7.5 cm. (pl. 4, *j*). There are only two sherds in the broad band category, one with two parallel bands, the other with

TABLE 5

PAITA STYLE, COMPARISON OF PAINTED DESIGNS AT PAITA AND LAGUNITAS

Design	Phase			
	Paita		Lagunitas	
	D	C	D	C
Lines on neck	..	7	..	..
Lines on body, 1–4 mm. wide	..	67	2	1
Lines on body, 4–5 mm. wide	..	..	8	..
Bands, 8–17 mm. wide	1	2	11	..
Groups of intersecting straight lines	..	5	2	..
Groups of intersecting curved lines	..	7	..	1
Crosshatching	..	5	..	..
Hooks, scrolls, etc	..	24	..	..
Band pendent from base of neck or lip	..	..	6	..
Bands and dots	..	1	1	..
Bands and hollow protuberances	1	..	3	..

crossed bands associated with dots (pl. 4, *i*). The first category (lines on the neck) is diagnostic of phase C.

The vast majority of the slip painted sherds fall into the second category, which also contains various features diagnostic of phase C. The design apparently always involves parallel lines dependent vertically or diagonally from the base of the neck. These lines may be intersected by a second group set at an angle to them. Curved lines in this context are limited to phase C (fig. 5, *d;* pls. 4, *a;* 5, *a, d;* 6, *b;* 7, *e*), while straight lines (fig. 5, *e;* pl. 4, *d, l*) occur in both phases C and D, though in phase D the lines are slightly wider, 4–5 mm. in width. All other narrow line designs probably occurred on the same vessels with the usual groups of parallel lines, and none is shared with phase D. They include cross-hatching (pl. 4, *b, k*), hooks, scrolls and loops (pls. 4, *e;* 5, *c, e, g, h, j, k, m–o*), wavy lines (pl. 5, *i*), and portions of other curvilinear designs (pl. 5, *b, f, l*). On one sherd, the narrow line design is associated with a hollow protuberance.

It is impossible to reconstruct total designs from the small sherds available. However, it is likely that all phase C red slip painting was done on jars with short flared necks, that all designs include either lines pendent from the base of the neck or circumferential lines on the neck and upper body, and that most vessels combined more than one of the typical design elements. It should always be possible

to distinguish whole painted vessels of phase C from those of phase D, not only by the neck form but also by the decoration.

The phase C incised style shows some carry-over of features from the phase B style. The same variety of incising tools was used. Groups of parallel lines continue to be used in the designs, though there are sometimes only from 3 to 4 lines in the group. Small punctations also continue, now in single horizontal rows delimited by incision (pls. 2, *b;* 3, *f*). Crosshatching is very similar to its phase B counterpart, but is associated with notched fillets or hollow protuberances (fig. 2, *c*; pl. 2, *f, j*). New features are incised dashes, often enclosed in bands, and red slip used in conjunction with incised lines (fig. 2, *a, b;* pls. 2, *a, b, h;* 3, *b, i*). Though not strictly delimited in zones by the incised lines, the red slip nevertheless covers only part of the decorated area. It forms an active part of the design, rather than simply being a background color.

The most noteworthy feature of the phase C incised style is its tendency to combine different decorations on a single vessel. Red slip with incision, red slip with incision and punctation, incision with notched fillets, and incision with hollow protuberances are all combinations which occur. One specimen is a partly reconstructed small jar with the usual phase C short flared neck, which combines a dented lip, three rows of hollow protuberances, an incised design of groups of dashes enclosed within groups of lines, and short notched fillets. The design on this specimen is laid out in circumferential bands (pl. 6, *a*). A sherd from another vessel indicates a different arrangement of the design—groups of incised lines extending down diagonally from the base of the neck, as in the painted style, separated by a row of long incised dashes (fig. 2, *a*).

The decorated sherds of Paita Variant I represent a different incised style, characterized by postfired painting in zones or filling incised lines, more complex designs, and panelled arrangement of the decoration. Forms are unique: bevel-lip bowls and the neckless olla. Incisions are all broad lines, made with a tool with squared or blunt rounded end. One bowl sherd has a rectilinear design utilizing red crusted zones (fig. 2, *h*), another a design with alternating red and yellow crusted bands (fig. 2, *g*). A complex incised design, including punctation and a hooklike element, has postfired red pigment in the incisions, as does the incised and punctate-row design of the olla sherd (fig. 2, *f*; pl. 3, *d, f*). A sherd which may once have borne paint has a rectilinear incised design with alternating polished and brushed zones (fig. 2, *e;* pl. 3, *c*). One sherd has an arrangement of small panels, each containing a scribbled step-like incised design and a rough incised circle (fig. 2, *d*; pl. 3, *g*).

Other decorations in phase C include rows of hollow protuberances used alone, usually made with the finger but in one case with a narrow implement (fig. 3); notched fillets circling the curved or angular shoulders of jars, apparently without accompanying incised designs; and a single case of decorative crisscross brushing of an exterior surface.

The phase C sherds from Casita 2, Punta Nermete 1, and Punta Nermete South 1 are all entirely typical of the style as defined by the collection from Paita. Also typical of phase C are two short flared necks and a red-on-natural sherd with intersecting groups of curved lines, from Lagunitas, and a type C neck from Negritos

South 1. On the other hand, some specimens from Negritos South 2 deviate from the pattern found at Paita. The collection from this site contains a mixture of phases C and D, both aberrant in some respects. Of the sherds assignable to phase C, seven jar necks and one nearly complete little jar decorated with two rows of hollow protuberances (fig. 3) would not be out of place at Paita. On the other hand, three sherds with curved shoulders show less curvature than at Paita. Two sherds with narrow-line red designs are decorated only by carelessly made wide-spaced dots and dashes, and a third has an equally odd design, done with paint which is more orange in tone than any from Paita. One of the sherds painted with dots and dashes also has a hollow protuberance. Body sherds, some of which must belong to phase C, show an overwhelming tendency to gray paste cores and surface colors. Finally, one sherd, which might belong either to phase C or D, shows a simple design of burnished lines against a brushed background.

PHASE D

Paita D is defined by a group of seventy sherds from Lagunitas, 39 of them decorated and 33 rim sherds. Two sherds from Paita and one from San Pedro North A-18 are also in phase D style, and a deviant version is again found at the Negritos South sites.

Paste differences in phase D have already been described. Although many sherds are indistinguishable in paste features from those of phase C, there is a definite tendency toward thicker, darker ware with heavier calcitic temper and large pyrite inclusions. In its paste, Paita D ware is fully intermediate between Paita C and Sechura A, though it retains the typical Paita surface finish.

Jars continue as almost the only vessel form. There is now a greater variety of neck forms. The most frequent is a short concave flared neck, derived from the straight flared necks of phase C (figs. 6, *e;* 7, *a, b;* 8). Another type closely resembles the phase C neck in contour but tends to be a little taller and has a thicker rim which is usually flattened (fig. 6, *c*). Another is a very short vertical neck (figs. 4, *a*; 9), and a fourth is slightly flared and much larger than any other Paita style neck (figs. 1, *f;* 6, *d*). As in phase C, flat lips and even some rounded ones are often grooved. The only forms other than jars are a flared bowl with slightly concave sides and flat, grooved lip (fig. 4, *c*), a neckless olla rim (fig. 6, *g*), and a badly eroded sherd representing a spout-and-bridge arrangement from a bottle (fig. 6, *f*). The distribution of rim forms by site is shown in table 6.

Curved jar shoulders are scarce in phase D (fig. 8). Angular shoulders, placed high on the vessel wall, are more common, representing a tradition which goes back at least to phase B (figs. 5, *a;* 9).

Decoration shows much the same range of techniques as in phase C, and includes two new features: designs in organic black pigment probably applied after firing, and over-all red or white slipping. Table 7 shows the distribution of decorated specimens by site.

Red and rare black slip painting occur on somewhat darker red ground than in phase C, and more frequently on fire-clouded surfaces. The pigment has the same quality as in phase C, but the designs differ. As shown in table 5, band designs are much more frequent than in phase C, narrow lines (less than 4 mm.) very rare,

and lines varying from 4 to 5 mm. in width, common. Only one design—intersecting groups of straight lines—carries over from phase C (fig. 5, *e*), and this is done in the slightly wider lines characteristic of phase D. Portions of curvilinear designs (fig. 5, *c;* pl. 7, *a, f*) give no hint of the hooks, scrolls, and other designs of phase C, and the only complete curvilinear design is a chainlike one. Band designs, the most frequent, consist of parallel bands pendent from the base of jar necks or from

TABLE 6

PAITA D, DISTRIBUTION OF RIM FORMS BY SITE

Form	Lagunitas	San Pedro North A-18	Negritos South 1	Negritos South 2	Paita
Flared concave neck	18	..	4	1	1
Flared straight neck, thick lip	6	..	..	..	..
Short vertical neck	3	..	1	..	..
Tall slightly flared neck	1	1	..	..	..
Unique jar neck	2	..	..	..	..
Flat-lipped bowl	1	..	..	..	..
Spout and bridge	1	..	..	..	..
Neckless olla	1	..	..	..	..

TABLE 7

PAITA D, DISTRIBUTION OF TYPES OF DECORATION BY SITE

Decoration	Lagunitas	Paita	Negritos South 1	Negritos South 2
Red slip painting	22	1	4	..
Black slip painting	1	..	..	..
Incision	7	..	..	..
Hollow protuberances	8	..	1	2
Notched fillet	1	..	..	..
Dented rim	1	1	..	..
Pattern brushing	1	..	2	..
Over-all slipping	3	1	1	..
Organic black painting	1	..	..	1

the lip of the bowl sherd (figs. 4, *c;* 5, *b;* 7, *c;* pls. 7, *b–d;* 9, *d*). In one specimen, the pendent bands are separated by painted discs—a feature which anticipates the white-painted bands and discs of Sechura A. Another feature peculiar to Paita D is a tapered band, widest in its central portion (fig. 4, *c*). Band designs are frequently associated with hollow protuberances.

Four incised sherds from Lagunitas, bearing red paint, represent a continuation of the phase C incised style, though they differ in detail from those at Paita. One sherd combines a notched fillet with zoned punctate step designs and triangles, the nonpunctate zones above the fillet being slipped red (fig. 6, *b*). Another has an angular zone containing incised dashes, at the base of a neck, with the remainder of the sherd slipped red (fig. 5, *f*). The other two are slipped red over the entire surface, one with a zone of short incised dashes, the other with a group of four

parallel lines descending diagonally from the base of a neck (fig. 6, *c*; pl. 8, *b*, *c*). The distinctive features of this small lot are over-all red slipping; 1–2 incised lines round the base of jar necks; and punctations and dashes in zones rather than bands as in phase C.

One sherd with a very rough, blackened surface has three irregular incised lines and shows traces of postfired red paint (fig. 6, *a*). Rows of hollow protuberances occur either with red painting or alone. A partly reconstructed jar with flared concave neck from Negritos South 2 has two rows of protuberances, one round the curved shoulder, the other between shoulder and neck (fig. 8). A phase D jar neck from Lagunitas has a dented rim of the usual Paita type, and one from Paita combines a dented rim with over-all red slip. One sherd from Lagunitas and two from Negritos South 1 have decorative crisscross brushing of the exterior surface (pl. 6, *e*).

Paita Variant II is limited to phase D, as evidenced by its total absence from the Casita 2 and Paita collections. Decoration of the Variant II ware is varied, and largely different from the decorations of Thin Red Ware. The only overlap in decoration is on two Variant II sherds with typical red band designs—one of them the flat-lipped bowl sherd. One sherd from Lagunitas and one from Negritos South 2 bear designs in organic black against a muddy gray-brown ground. The sherd from Negritos South 2 may have been done in resist negative technique, but that from Lagunitas is definitely positive painted (pl. 9, *c*). Presumably the fired vessel was painted with a resinous substance and scorched over a fire.

Other Variant II decorations are all from Lagunitas. One sherd bears an over-all creamy white slip, thickly applied and completely matte. The thickened olla rim bears a design of triangles pendent from the lip, done with slashing incisions in soft paste (pl. 11, *a*). Finally, one large sherd has a flat appliqué tab, associated with two incised lines and with an appliqué fillet which bears deep punctations along one side, rather than notches (pl. 10, *a*).

Except for the Lagunitas collection, only the Negritos South sites have yielded more than one or two Paita D sherds. In most repects the sherds from Negritos are of exactly the same style as at Lagunitas, but there are some differences. The aberrant red-painted sherds from Negritos South 2 were attributed to phase C, but could conceivably belong to phase D. The possible negative painted sherd from the same site has already been mentioned. One sherd from Negritos South 2, with a hollow protuberance and clearly of the thicker, darker phase D ware, has a smooth, featureless interior surface. This is the only body sherd without interior brushing which can definitely be attributed to the Paita style, but six similar plain sherds from Negritos South 1 could also belong to Paita D.

Finally, two specimens typical of phase D in other respects differ in having well-polished surfaces. One of these is a large, partly reconstructed jar from Negritos South 1. It has a short vertical neck and an angular shoulder set high on the body (fig. 9). The ware is polished plain reddish orange. The other specimen, from Negritos South 2, is a sherd with a polished, thickly applied red slip.

Two fragments of solid clay figurines from Lagunitas are also attributed to Paita D. One of them is a section of flattened torso, subrectangular in cross section and almost featureless on the surface. At one end of the fragment there is a de-

pression suggesting the separation of the legs. It bears traces of red slip. The other fragment is a short leg, stout and bowed. The ball-like foot bears two deep incisions to suggest the toes (pl. 10, *b*, *c*).

SECHURA STYLE

The five identified phases of the Sechura style represent a long period during which there was marked change in features of paste and vessel form, while decoration remained fairly constant, with relatively minor changes from one phase to the next. Throughout the Sechura sequence, decoration consists primarily of white-on-red slip painting, rare two-color and three-color negative painting, plain and notched appliqué fillets, and over-all white and red slipping. Also typical are jars

TABLE 8

SECHURA STYLE, DISTRIBUTION OF WARES BY PHASE

Ware	Phase				
	A	B	C	D	E
Granular Ware					
Coiled Variety	×	×	×	..	..
Paddle-and-anvil Variety	..	..	×	×	×
Fine Red Ware					
Line Luster Variety	..	..	..	×	..
Plain Variety	..	..	..	×	×
Coarse Ware	..	..	..	×	×

with taller necks than in the Paita style, and a much greater frequency of bowls than is found in Paita. Beginning with an assemblage which is very similar to Paita D in features of paste, the style comes to an end with the introduction of paddle stamping, press molding, and unit stamping at the end of the fifth phase.

Altogether, Sechura sherds were collected from eleven sites, at seven of which the style is isolated. Unlike the Paita style, which so far is known only from beach sites, Sechura definitely occurs in sites of the lower Piura Valley proper.

There is no single ware which occurs throughout the Sechura sequence, but rather a progression of wares, with a great deal of change in paste and surface qualities through the course of the five phases. Three basic wares are recognized, two of them with multiple variants which have chronological significance. The temporal distribution of the wares is shown in table 8, and their distribution by site in table 9.

Granular Ware is a soft, relatively thick, predominantly red pottery, smooth-surfaced but granular and porous when viewed in cross section. It is tempered with crushed sherds, quartz, and calcitic material (perhaps crushed limestone or crushed shell), and contains both mica and pyrites. These ingredients occur in constantly varying quantities, and any of them may be missing from some sherds. Sherd temper is rare or absent in phase A. A few sherds are heavily tempered with large particles; the remainder show relatively little temper, with small particles. Though the dominant color is red, varicolored pastes—red, brown, gray, and black, in laminated or patchy combinations—are very common in the earlier Sechura

phases, and large black fire clouds are usual throughout the style. Unclouded surfaces range from dark brown to tan or light red, and a very few sherds have smoked black surfaces.

The ware is much softer than Thin Red Ware, measuring 2½ to 4½ on Mohs's scale. It is also thicker than Thin Red Ware, 2.8–15.2 mm. normal body thickness, with a definite tendency toward increasing thickness through the course of time.

There are two major varieties of Granular Ware: coiled and paddle-and-anvil manufactured. The coiled variety, found in phases A–C, shows bonding marks and brush-smoothing on the interior of jars, as in Thin Red Ware. Jar interiors of the paddled variety show the large shallow indentations of the anvil, and are other-

TABLE 9

SECHURA STYLE, DISTRIBUTION OF WARES BY SITE

Site	Granular		Fine Red		Coarse	Unclassified Line Luster
	Coiled	Paddled	Plain	Line Luster		
Lagunitas	5	..	..	..	..	..
Casita 1	103	..	..	..	..	..
Tortuga	10	..	..	..	..	..
Punta Nermete South 1	4	..	..	..	..	..
Punta Nermete South 2	11	..	..	..	..	..
San Pedro North A 20	8	5	..	..	..	..
Punta Nermete 1	35	12	19	7	5	1
San Pedro North A 22	..	..	..	..	3	..
Sechura 2	..	3	3	..	3	..
Chusís	..	6	54	..	4	..
Tacalá	..	1	2	..	..	..

wise smooth and featureless or show a few wiping striations. It is possible that specimens of this variety were made by coiling and that the paddle and anvil were used only for thinning the vessel wall. However, today's potters at Simbilá manufacture their vessels entirely with the paddle and anvil and are unacquainted with the coiling technique. Since the Simbilá techniques represent a continuation of the ancient tradition, there is no reason to assume that a different method was used on the archaeological paddled pottery.

Jar exteriors in both varieties of Granular Ware are usually wiped smooth, but may bear a polished slip. Jar necks were probably made by coiling. When not slipped and polished, they are wiped smooth. Occasionally in phases B–C, normally in phases D–E, jar necks show regular circumferential striations, perhaps due to wiping with a coarse cloth. Bowls are usually polished with a narrow implement. In the early phases they are more frequently burnished, in the later phases more often lightly polished with little or no luster. Exterior brush smoothing never occurs in Granular Ware. Bowls do not show evidence of the manufacturing technique, but those forms associated with coiled ware are assumed to have been made by coiling, and those associated with paddle-made jars are classified with the paddle-and-anvil ware.

There is change through time in Granular Ware, especially in color, thickness,

and tempering. The changes are gradual and sherds of one color or thickness often come from the same vessel as those of another color or thickness. In phase A, the color range is largely brown or brownish red; temper is mostly calcitic with a little quartz and, possibly, rare sherds; pyrites occur abundantly; and body thickness ranges from 2.8 to 9.2 mm. Coiled sherds from phases B–C tend to greater thickness (3 to 12 mm.), less emphasis on one particular tempering material, fewer pyrites, abundant sherd temper, and more frequent red colors. The paddle-and-anvil variety of phases C–E is systematically red, ranging from reddish brown to purple-red, with the lightest colors in phase E. It shows more emphasis on sherd temper, has a good deal of mica inclusion, often excludes pyrites altogether, and is 4.1–15.2 mm. thick.

The other two wares of the Sechura style—Fine Red Ware and Coarse Ware—are limited to phases D and E. In both wares, jars were made exclusively with the paddle-and-anvil technique and bowls show no evidence of manufacturing method. Both wares are basically red, but in each there is a small percentage of deliberately produced blackware. In both wares, the interior surfaces of jars may be smooth and featureless except for the anvil indentations, or may show fine striations from wiping with the hand or with a rough cloth. The exterior body surfaces of jars may be wiped or lightly polished, and occasionally show considerable luster, though they are not well burnished.

There is some tendency toward color differences between the two wares, but the primary difference is in texture and temper. Fine Red Ware has a compact, non-friable paste, 2½ to 4½ on Mohs's scale of hardness. Most specimens have no temper visible to the naked eye except a scattering of extremely fine mica particles; the remainder have a few soft white particles of varying size scattered through the compact clay. The color range of unpigmented surfaces is light brown or tan to light brownish red, with occasional gray fire clouds. The majority of sherds show a light gray core with red surfaces; the remainder are red throughout. Fine Red Ware averages quite thick, ranging from 3.0 to 13.5 mm., with most sherds over 6 mm. thick. Peculiar to Fine Red Ware are nonlustrous, extremely smooth surfaces.

A pattern burnished variant of Fine Red Ware occurs only in the collection from Punta Nermete 1. Whether it is peculiar to this site, or generally characteristic of Sechura D, I do not know. It differs from the usual Fine Red Ware in that the exterior surfaces show widely separated polished lines, which stand out red and glossy against the usual matte surface. There is no apparent pattern to the lines, which are laid out more or less at random. Collier and Murra's term, "line luster," is well suited to this sort of pattern burnishing (Collier and Murra 1943, p. 48).

Coarse Ware derives its name from its temper, which is coarse unsorted sand in large quantity. The large sand grains are not only prominently visible in the core but usually also appear on the surface of the vessel. Surfaces are wiped or lightly polished, and are never as smooth as in Fine Red Ware. Coarse Ware is also less well oxidized, showing darker colors in the red-brown and purple-red range, sometimes discolored to gray. Gray and muddy brown cores occur with red surfaces on some sherds. On others, the paste is a homogeneous red-brown. Rare black sherds were probably deliberately smudged, as in Fine Red Ware. Coarse Ware measures 4.2–13.5 mm. in body thickness, 2½ to 5½ in hardness on Mohs's scale.

PHASE A

Sechura A is Kelley's San Pedro "Period" (Kelley MS., pp. 1–2). The sample of this phase in Miss Haase's collection is very small and is not isolated from other phases and styles. Kelley, however, found Sechura A isolated—or perhaps associated with a few Paita D sherds—at San Pedro 8. Though Sechura A is most similar to Paita D in some features of paste, and to Sechura B in form and decoration, it occurs unassociated with the former at Punta Nermete 1 and unassociated with the latter at Lagunitas. There is no doubt that it represents a real archaeological unit. Miss Haase's collection contains 21 decorated and 5 plain sherds from Punta Nermete 1, 5 decorated sherds from Lagunitas, and one decorated sherd from Paita.

The only ware in Miss Haase's small collection is Granular Coiled. As indicated above, there is a tendency in phase A to dark colors, dominant calcitic temper, and abundant large pyrite inclusions. Many sherds are distinguished from Paita D specimens only by the neater surface finish. In Sechura A, all bowls are either burnished brown or slipped red and well polished or burnished. Jars have smoothly wiped surfaces, or bear a polished red slip.

The common vessel forms are low incurved bowls (fig. 10, *h, i*), jars with small, short, slightly flared necks and thin rounded lips (fig. 10, *a, b*); and thin-lipped jars with tall flared concave collars (fig. 10, *c, g*). Unique forms are a deep, concave-sided bowl (?) and a broad, shallow plate with thickened rim and flat lip (fig. 10, *d, f*). An annular base from a bowl is 8–9 cm. in diameter, and probably stood not much higher than 1 cm. (fig. 10, *e*).

Decoration in Sechura A is partly new, partly a continuation of Paita D decorations. Over-all red slip, which first appeared in Paita D, is now very frequent, and is distinguished from Paita D red slip by its smooth polished surfaces, which occasionally have a very high gloss. Both bowls and jars are slipped red, though on the former the slip is sometimes limited to the interior. Small notched fillets also continue from Paita D, but are now accompanied by plain fillets (pl. 11, *b, e*). Both forms probably occur between shoulder and neck on jars, as in Paita D and the later Sechura phases.

The most important new decorations are the diagnostics of the Sechura style: white-on-red slip painting and resist negative painting with organic black pigment. Each type is represented by only one sherd in Miss Haase's collection. The white-on-red sherd has a broad white line and white discs on the usual polished red slip (pl. 11, *d*). Kelley reports white step designs combined with dots, on polished red slip, from San Pedro North 8. The negative painted sherd, from Lagunitas, has two broad lines of grayish white slip, between which is a reserved natural orange disc (perhaps part of a row of discs) against a lightly smoked, brownish black background (pl. 9, *a*). From San Pedro North 8, Kelley reports a sherd with two-color resist negative design of a row of dots between parallel lines (Kelley MS., pp. 1–2).

One of the most characteristic of Sechura A decorative techniques is engraving—incision in hard paste, which produces lines with a scratchy, light-colored quality. Three sherds of this type in Miss Haase's collection include one from Paita with

a band of diagonal lines around a bowl rim, interrupted by a hatched triangle topped by a scroll (fig. 10, *h;* pl. 11, *f*); one from Lagunitas with a broad band of crosshatching (pl. 11, *g*); and one from Punta Nermete 1 with a crudely made step design (pl. 11, *h*). Kelley reports engraved pendent triangles from San Pedro North 8, and zoned punctation done with the engraving technique (*ibid.,* p. 1). All Sechura A engraving is done on burnished brown bowls.

The only other decorated sherd in Miss Haase's collection is a tall jar rim with narrow red- and black-slipped lines on the lip. In addition, Kelley's collection from San Pedro North 8 included one sherd with broad line incision, and one with comb-impressed dentations (*ibid.,* p. 1).

PHASE B

Sechura B is known from five sites: Casita 1, Tortuga, Punta Nermete 1, and Punta Nermete South 1 and 2. Casita 1, the first site discovered, yielded a large collection of sherds of this phase, together with four sherds with Paita-like pastes. Of the latter, only one—a Paita C bevelled-lip bowl—could definitely be assigned to one phase of the Paita style. At Tortuga, Sechura B is isolated from all except two unclassified sherds; at Punta Nermete South 2 it is accompanied by a single body sherd of Paita Thin Red Ware; at Punta Nermete South 1 it is mixed with a Paita C component; and at Punta Nermete 1 it occurs with various phases of the Paita, Sechura, and Piura styles.

Granular Coiled continues as the only ware. As indicated above, there is a tendency to lighter surface colors, fewer pyrites, and less calcitic temper in the ware of phase B, and sherd temper occurs with considerable frequency. The typical phase A surfaces—burnished brown, smooth red to brown, polished red slip—continue, and others are added: solid white and orange slips, fugitive pink slip, streaky black organic pigment used to cover large zones, and mottled surfaces resulting from double slipping or from overlaying a slip with a layer of organic black paint.

Jars with short flared necks no longer occur in the style. The taller concave flared neck continues from the previous phase and is accompanied by a similar flared collar with straight rather than concave profile. The latter form sometimes has the thin lip of the former, and sometimes has a thicker lip curved up from the exterior (fig. 23, *a–c, f, g, t*). Other new jar necks are a vertical or tapered form with flaring rim and thin lip (figs. 23, *d, e;* 11, *a*); a very tall collar with a long flared rim marked by a broad groove on the interior (fig. 23, *j, r*); a shorter vertical neck, bulging in the lower part, with a short flared rim and thin rounded lip (figs. 23, *b;* 11, *b*); and a small concave sided neck form (fig. 11, *c, d*).

The incurved bowl form continues from phase A, now slightly more open at the mouth (fig. 11, *e, f*). There are two new bowl forms: one with high flared convex walls and thin lip (fig. 23, *h, i*) and one with deep rounded bottom and short flared walls (fig. 23, *m, n, s*). Ring bases from bowls are found, as in phase A (fig. 23, *p, q*). Unique forms are a thickened base, probably from a jar (fig. 23, *o*); a fragment of a red stirrup spout, inadvertently left behind at the site; and a thin-rimmed neckless olla (fig. 11, *g*).

The distribution of the various vessel forms, by site, is shown in table 10.

Decorative traits carried over from phase A are polished red slip, white-on-red painting in bands and discs, rare resist negative painting, rare engraving, rare incision, and small applied fillets both plain and notched. New decorations are overall white and pink slipping, contrasting slipped zones often separated by fillets,

TABLE 10

SECHURA B, DISTRIBUTION OF FEATURES OF VESSEL FORM BY SITE

Form	Casita 1	Tortuga	Punta Nermete 1
Concave flared neck	9	1	..
Straight flared neck	9	..	..
Vertical neck, everted rim	5	1	1
Tall collar, flared grooved rim	4	..	..
Bulging neck, everted rim	2	..	..
Small concave sided neck	2	..	..
Incurved bowl	3	..	..
High sided flared bowl	3	1	..
Short sided, round bottom bowl	4	..	1
Ring base from bowl	2	..	..

TABLE 11

SECHURA B, DISTRIBUTION OF TYPES OF DECORATION BY SITE

Decoration	Casita 1	Tortuga	Punta Nermete 1	Punta Nermete South 1
Red slip	13	2	1	..
White slip	1	1	..	..
Pink slip	3	..	..	..
Contrasting color zones	8	1	..	3
Double slip	2	..	..	..
White dots on red or pink slip	5	..	..	..
White bands on natural surface	5	..	..	..
Resist negative	1	..	..	..
Plain fillet	8	..	1	1
Notched fillet	5	..	..	..
Indentations on neck	1	1	..	..
Incised or punctate	3	..	..	..
Engraved	1	..	..	..
Other decoration	3	2	..	..

double slipping, zones of organic black paint over slipped or plain surfaces, finger indentations on jar necks, and a few unique plastic-decorated specimens. The distribution of these decorations by site is shown in table 11.

At Casita 1, the vessel forms inherited from phase A receive exactly the same surface treatment as in that phase. Thus, the concave flared neck and its phase B derivative, the straight flared neck, are plain red to brown, and the incurved bowls are burnished brown or slipped red. Other red-slipped forms are the straight neck with everted rim, the bulged neck with everted rim, and the small concave sided neck, the latter, curiously, slipped only on the inside. One bulging neck has an

unslipped rim band about an inch wide, roughened with a brush, with the slip below. From Tortuga, a straight flared neck and a bowl of the high-walled flared type are slipped red, the latter only on the interior. The slip, on all specimens, has the same qualities as in phase A, ranging from brownish red to purple-red, and from lightly polished to well burnished, but it is never as glossy as the finest phase A specimens.

The white slip is usually thinly applied, and may be matte or polished. It discolors easily to cream or gray, and is often fugitive. As an over-all coat, it is found only on jar exteriors. On the other hand, a very fugitive matte pink slip occurs only on the interior of bowls. Red, white, and pink slips may be used either alone or in various combinations. A fourth slip, bright orange, is used only in contrasting zones or as the base in double slipping. It is always solid, thickly applied, smooth and well polished.

White discs are painted on pink- or red-slipped surfaces, or on black surfaces which probably represent a discolored red slip. Discs occur in groups of four, or at random in fields, usually on bowl interiors, once on a jar exterior (figs. 22, *a–d;* 23, *m*). This is the only instance of interior decoration other than over-all slipping in any of the native Piura-Chira styles. White bands, used alone, are painted on unslipped surfaces, on the inner rims of the tall collars with grooved rims, on the outer rim of a bulging neck form, on a jar body, and across the mouth of a modelled face (figs. 22, *e, o;* 23, *j, l*).

Contrasting zones of color utilize the red, white, and orange slips, unslipped red-to-brown surfaces, and streaky black organic paint. The latter must have been scorched on after the vessel was fired, and is definitely not a slip. With the streaky black paint, and with occasional incomplete overpainting of a slip, the surfaces of these zoned specimens often have a mottled appearance (pl. 12, *a, d, e*). The color combinations present in the collection include red and white, red and natural, red over orange, white and natural, black over orange, black over white, and black and natural. In some sherds the color zones definitely represent the upper and lower parts of the vessel, and in several of these the colors are separated by a plain fillet which evidently circled the vessel between neck and maximum diameter. All sherds with contrasting color zones are from jars.

A different sort of color combination occurs on two of the round-bottomed bowls with short sides. This is double slipping, in which the second slip is applied in thin and streaky fashion so that the underslip shows through. One bowl has this decoration on the interior, with orange underslip and white overslip. The other bowl is decorated on the exterior, with red underslip and white overslip.

Only two other types of decoration are represented by more than one sherd. These are applied fillets without paint, and small finger indentations on jar necks. The fillets usually circle the upper part of the vessel, but one sherd from Casita 1 has a vertical notched fillet on a jar neck, associated with a row of punctations, and a sherd from Punta Nermete 1 has two fillets arranged in a pattern (fig. 22, *i–m;* pl. 12, *b, g*). The neck indentations (pl. 12, *f*) evidently formed circumferential rows.

All other decorations are unique. A sherd from Casita 1 has a whitish band against a smoked black ground, evidently done in resist negative technique (fig.

22, *f*). A sherd from Tortuga has a purplish black (slipped?) band round the exterior rim of a unique variant of the tall collar with grooved rim. One sherd from Casita 1, already mentioned, has a row of deep punctations on a jar neck, with a notched fillet (pl. 12, *g*). A body sherd has two such punctations (fig. 22, *p*), and another body sherd has a row of short incised dashes, covered by an over-all white slip (fig. 22, *n*). A high-sided flared bowl sherd from Casita 1 has an engraved design of a head with interlocking ears, but no other features (fig. 23, *h*).[2] A jar neck of the tall, grooved-rim type from Casita 1, with an eye marked by grooving and two deep gouge marks, could be part of a face neck jar (fig. 23, *r*). A round-bottomed, short-sided bowl from Casita 1 has a row of shallow notches cut in the lip, anticipating the notched bowl rims of phase D (fig. 23, *s*). A sherd from Tortuga has a row of applied pellets (pl. 12, *h*). Finally, a modelled face from Casita 1 has a low conical nose with deep punctate nostrils, a mouth incised in a mound of clay, and a broad band of white paint across the mouth and chin (fig. 23, *o*).

A common trait in Sechura B is the sherd disc, roughly chipped to shape. These discs measure 3.5 to 5.2 cm. in diameter. They are usually unperforated, but one fragment shows a biconical central hole. An oblong form, ground to shape from a potsherd, measures 4.1 by 2.2 cm., and has two biconical perforations (fig. 23, *g, h;* pl. 12, *c*).

Rectangular limestone house foundations are associated with Sechura B at Casita 1 and Tortuga. Cobble hammerstones, abraded cobbles, and end-notched cobble net weights are abundant on the surface at Casita 1. Kelley reports the same range of rough stone tools at San Pedro North 8 (Sechura A) and Colán North 1 (Sechura B), associated with percussion-flaked core tools at both sites (Kelley MS., pp. 2, 4).

A metal fishhook was collected at Casita 1. Its green oxidation indicates that it is probably of copper or a copper alloy. No great faith should be placed in its association, however, because fishermen walk over the site today, and probably have done so ever since it was abandoned. Since a fishhook—in contrast to a stone tool, a potsherd, or a house foundation—is a normal thing for a fisherman to drop and lose, the specimen might be of any age.

PHASE C

Between phases B and D there is a considerable stylistic gap which is filled only by a lot of thirteen sherds from San Pedro North A-20. These sherds show features typical of both phases B and D, sometimes on the same sherd, which indicates that they do indeed represent a separate transitional phase, rather than a mechanical mixture of sherds of the two phases.

All thirteen sherds are of Granular Ware. Four are of the interior-brushed coiled variety, and three are definitely paddle-and-anvil made. The remaining sherds are attributed to one variety or another in Table 9, according to their similarity in form or design to the coiled pottery of phase B or the paddled pottery

[2] Kelley assigns this sherd to phase A (his San Pedro "Period"), but the bowl form, together with its mottled red surface and the fact that the paste contains mica, rather than pyrites, all contradict this attribution, and make it a typical phase B (Kelley's Colán "Period") specimen (Kelley MS., p. 2).

of phase D. Vessel forms attributed to the coiled variety are one each of a straight flared jar neck, a tapered neck with flared rim (fig. 11, *j*), and a high-sided and a short-sided flared bowl (fig. 11, *h*). The bowls are larger and cruder than their phase B counterparts, whereas the jar neck sherds are exactly like those of phase B. Two decorated sherds in the coiled ware are one with contrasting white-slipped and plain brown zones separated by a small plain fillet, and one plain brownish gray with a large notched fillet (pl. 13, *c, e*). The latter fillet type is typical of Sechura phases D and E, the former of phase B.

The only rim sherd attributed to the paddle-and-anvil variety is of a convex-sided flared bowl with a thickened rim made by adding a band of clay round the inside. The rim of this specimen is bevelled on the interior, the lip thinned (fig. 11, *i*). Bowls of this type, derived from the short-sided bowl form of phase B, are common in phase D, where they are decorated with notched lips. The phase C specimen lacks this decoration. One sherd of the paddle-and-anvil variety has a small plain fillet round the upper part of a jar body, which bears mottled orange slip over the entire exterior surface and on the interior of the neck (pl. 13, *a*). Though the decorative traits are strictly of phase B, the combination is unusual, since orange slip in phase B is used only in conjunction with other slips, not alone. The other decorated sherds of the paddled ware are one with a very broad-line curvilinear white-on-red design (pl. 13, *b*) and one with a zig-zag design incised in soft clay (pl. 13, *d*). Both are typical of phase D.

Thus, in spite of the minute size of the sample from San Pedro North A-20, it is to be considered as representing a separate phase, since phase D traits occur on the coiled ware of phase B, and phase B traits on the paddled ware of phase D. It is unfortunate that this period should be so poorly represented, because the entire transition from coiling to paddle-and-anvil manufacture took place at this time and was completed by the beginning of phase D.

PHASE D

Sechura C and D make up Kelley's Sechura "Period" (Kelley MS., p. 3). Phase D is distinguished from phase C by the presence of Fine Red and Coarse Wares, including the line luster variant of the former (pl. 15, *d, e*), paddle-and-anvil manufacture of all jars (and probably all other forms also), and lack of such earlier traits as small fillets and contrasting color zones. Phase D is isolated at Sechura 2 and San Pedro North A-22, but the best sample in Miss Haase's collection consists of 44 sherds from Punta Nermete 1.

Of the ceramic style at Sechura 2, Kelley says:

> The Sechura site shares with Chusís [phase E] a distinctive type of wavy-line incised, and a very broad-line curvilinear white-painted ware, but the very distinctive specialized feature which has guided me in setting it up as a separate period ... is the presence of several very specialized cut and modelled elaborated rims on bowls and flattened coil handles for bowls ... (Kelley MS., p. 3).

The "cut and modelled elaborated rims" are present in quantity in the small collections from all three phase D sites. Bowls are wide flared and relatively shallow, including a short-sided form with thickened inner bevelled rim and notched lip (fig. 12, *a–c*), and a form with an S-curve side and flat outer-bevelled lip which

may bear incisions (fig. 12, *d, e*). Both forms are probably derived from the phase B short-sided, round-bottomed bowl. Straight flared jar necks are similar to those of phases B–C (fig. 12, *f*) and are accompanied by a more nearly vertical neck form with slightly flared thick rim and rounded lip (fig. 12, *g*). In addition, there are a number of sherds from large urn-like vessels with bulging, thickened rims (fig. 12, *h*). Of several unique and unclassified rims, the most interesting are one from a neckless olla with thin, slightly upturned rim (fig. 12, *l*), one from a large tall collar like those of phase E but with a thinner everted lip (fig. 12, *j*), and one from a jar with short bulging neck and a strap handle attached to the lip (fig. 12, *i*).

TABLE 12

SECHURA D, DISTRIBUTION OF VESSEL FORMS BY SITE

Form	Punta Nermete 1	Sechura 2	San Pedro North A 22
Bowl, inner bevelled rim	4	2	1
Bowl, S-curve sides	4	..	1
Straight flared neck	5	..	..
Slightly flared neck, thick rim	2	..	..
Urn with thickened rim	6	..	..
Unique vessel form	3	2	1

Another sherd is from a large thick handle, apparently arched from rim to rim of a vessel, like a market basket handle (fig. 12, *k*). Uhle illustrates two jars from Piura with this type of handle (Uhle 1920, Lám. XLVII, near bottom of photo). The distribution of Sechura D vessel forms by site is shown in table 12.

The small sample of Sechura D decorated sherds obviously does not show the entire range of decoration in the phase. There are none of the broad line white-on-red curvilinear designs reported by Kelley, for example, but one bowl sherd has a design of pendent white lines on natural purple on the inside of the rim (pl. 14, *a*); two sherds bear a polished red slip; and one has a possible white slip. Of these painted sherds, one has a large curved plain fillet (pl. 15, *c*) and the others have notched lips.

Notched lips, all on the thickened and inner bevelled bowl rim form, are the most common decoration in the collection (pl. 14, *a, b, d*). Large conical lugs occur, one on the tall jar collar, another bearing punctations and associated with a curved plain fillet to suggest a snake (pl. 15, *a, b*). Two rims of the flared S-curve bowl have incised dashes on the lip, one made before firing, the other after. One sherd has a zig-zag incised design, rather more elaborate than the one known for phase C (pl. 14, *c*), and two sherds bear single broad incised lines which do not seem to have been part of larger designs. The distribution of these decorations by site is shown in table 13.

Certain features present in earlier and later Sechura phases are missing from the phase D collection, presumably because of the small size of the sample. These are the bulging neck form with short everted rim, finger indentations on jar necks, negative painting, and orange slip.

PHASE E

Sechura E is Kelley's Chusís "Period," discovered by Ross T. Christensen in his excavations at Chusís in 1950 (Kelley MS., pp. 3–4; Christensen 1951, MS.). Miss Haase's collection includes 64 sherds from Chusís, where the phase is practically isolated, and 3 phase E sherds from Tacalá, with a total of 15 rims and 30 decorated sherds.

Though Christensen conducted extensive stratigraphic excavations at Chusís, his analysis by ceramic types produced no significant information about chrono-

TABLE 13

SECHURA D, DISTRIBUTION OF TYPES OF DECORATION BY SITE

Decoration	Punta Nermete 1	Sechura 2	San Pedro North A 22
Notched bowl lip	4	2	1
Incised bowl lip	1	..	1
Incised design on body	2	1	..
Plain fillet	..	2	..
Large conical lug	..	2	..
White slip	..	1	..
Red slip	..	2	..
White on natural purple	1	..	..

logical changes within the excavated material. The most common vessel forms, as indicated by his descriptions and illustrations, are large globular to elongate jars with tall concave-sided collars and somewhat everted thick rims, usually decorated; jars with flared necks; neckless ollas with small mouths and very thin lips; and deep incurved, hemispherical, and concave-sided flared bowls. A variety of bulging and composite-profile necks include two forms resembling Piura A necks: a low bulging neck with flared rim, which in Piura A would have an incised handle to the jar body; and a taller straight collar with flared rim and flat lip. Small strap handles resemble those found in Sechura D, as do thick rims from urnlike vessels.

Decoration at Chusís, according to Christensen, consists of white slip painting on plain red ground, rare design painting in other colors, over-all slipping in various colors, rare negative painting, and a variety of incision, punctation, notching, grooving, appliqué, and modelling. Painted designs, regardless of technique or color, include discs, dots, bands, and alternating straight and wavy bands or lines. In all, Christensen refers to 12 slip colors: two reds, white, black, purple, two browns, tan, orange, salmon, pink, and buff. This is probably a purely descriptive differentiation of color rather than an analytical list of the number of different pigments used. Rare combinations are red-on-white, purple-and-red-on-white, and purple-on-orange. Incised designs are wavy lines, diamonds, and triangles. Rare incised dashes on bowl lips represent a continuation of a Sechura D type. Large fillets commonly have large finger indentations, but may be notched as in other Sechura phases. Tall collars are decorated with fillets, finger indentations, modelled grooving, hollow protuberances, and incised and punctate faces. There is one pierced lug at the base of a neck, as in Piura A. (Christensen MS., pp. 195–244).

Christensen reports four very important sherds from the surface at Chusís. Two are press molded, one with raised dots and rounded eminences, the other with part of a bird motif in sunken lines. One is paddle marked with sunken straight and wavy lines. The fourth is medallion stamped with a flower design "almost identical with that observed on a pottery stamp at the modern village of Simbilá" (*ibid.*, pp. 234–236). All four sherds are of red ware without visible temper, hence must be attributed to the Sechura style (Fine Red Ware) rather than to the later Piura or Simbilá styles. Since these types occurred only on the surface and not in excavation, they should represent either a very late innovation in Sechura E, or else a sixth Sechura phase which is barely represented at Chusís. Since there is a marked stylistic and temporal break after Sechura E and before the next known phase (Piura A), the latter explanation is perhaps most plausible.

Miss Haase's collection contains several sherds from tall collars, but only one rim sherd of this form (fig. 13, *f*). Other identifiable forms, represented by 1–3 sherds each, are moderately flared straight jar necks and slightly concave necks with thick lips, both carried over from phase D (fig. 13, *a–c*); thin lipped neckless ollas (fig. 13, *g, h*); a straight vertical collar with everted rim and flat lip like those of Piura A (fig. 13, *d*); and a "market basket" handle like the Sechura D example (fig. 13, *i*).

Decorated sherds show chalky white and orange slips, dark red slip, a white-slipped zone on natural red background (pl. 17, *b*), and red-slipped lines and rings on a clouded, apparently unslipped ground (pl. 17, *a*). The latter decoration, on a thin-lipped olla sherd, is unique. Decoration of the tall collars includes large finger-indented fillets (pl. 16, *c, e*), a hollow protuberance surrounded by punctations (pl. 16, *a*), part of a face with two rows of large round punctations under the eye (pl. 16, *b*), and an appliqué ring set in a finger-pressed circular depression (pl. 16, *d*). Other decorated sherds show a notched fillet (pl. 17, *f*), a punctate fillet (pl. 17, *i*), double rows of irregular, angular large punctations on jar bodies and along the inner lip of a rim sherd (pl. 17, *d, e*), an appliqué arm (pl. 17, *c*), and a single incised line.

Christensen's discovery of stamped sherds on the surface is confirmed by a sherd of Fine Red Ware with a flower-like design obviously made with a stamp, and definitely not incised, press molded, or paddle made (pl. 17, *g*). This occurrence of medallion stamping in the Sechura style is curious, since the technique does not appear again until modern times.

One specimen from Chusís is a portion of a sherd disc, ground to shape from a piece of Fine Red Ware, with an incipient perforation in one side (pl. 17, *h*).

Christensen excavated a limited number of artifacts of stone, bone, shell, and metal, and a few textile and basketry fragments at Chusís (Christensen MS., pp. 264–277). The metal objects are small tubes and pins of hammered copper and a gilded copper disc (*ibid.*, pp. 264–265).

PIURA STYLE

The Piura style is represented by a larger sherd sample than any other, derived from 25 sites. At 23 sites, both along the shore and in the Piura and Pariñas valleys, the style is isolated from those already described. The principal collections

come from Colán, Coscomba, Nunura 1, and the four Puerto Rico sites, but a number of other sites give useful information on the distribution of phases and on local differences of style. Nine sites were rejected for analysis because of extreme erosion of the sherds or because the collection was small and nondistinctive. A tenth, Nunura 2, shows several phases mixed in a very small collection. Sherd totals from these sites are listed in Table 14 but they are not further analyzed. Similarly, the sherds from San Pedro North 1 and San Pedro North A-5—both Piura phase B sites—have not been classified by ware because of extensive erosion.

Unlike previous styles, the Piura style has been recognized repeatedly in the literature, though few specimens have been illustrated. Its dominant characteristic—the manufacture of vessels with decorated paddles—has been observed by Kroeber (1925*a*, p. 228), Kroeber and Muelle (1942, p. 23), Lothrop (1948, p. 60), and others. Other distinctive features of the style are press-molded decoration, simple white-slipped band designs on unslipped surfaces, and a general crudeness of workmanship as compared to earlier styles. The earlier phases are distinguished by the frequent use of incised handles, lugs, large fillets, and pedestal bowls. Negative painting no longer occurs, and red slip is limited to phase A.

In spite of the large sample, in some respects the Piura style is less well documented than either Sechura or Paita, partly because there are at least two major breaks in the sequence, partly because of the severe erosion of the sherds from several sites, and partly because the dominant paddle-marked ware shows little change of design from phase to phase and hence is not a very useful chronological indicator. Once a paddle-marked design is introduced, it is retained unchanged through subsequent phases of the style.

Piura ware is uniform throughout the style in colors, surface finish, and manufacture, but varies greatly in texture, tempering, and thickness. Because of the relatively weak documentation of the sequence, a simple arbitrary classification has been chosen, and ware variations not covered by the classification will be handled textually. A more complex classification would be desirable but should be based on a much larger sample of well-preserved sherds with archaeological associations. In all, four wares are recognized: Coarse Ware, Granular Paddle Ware, Compact Ware, and Burnished Black Ware. Coarse and Granular Paddle wares are carried over from Sechura D–E with little change. Compact Ware is a new local variety. Burnished Black Ware is rare in the collection and undoubtedly represents a foreign element in the Piura-Chira tradition. The three abundant wares of native tradition are each subdivided into three color groups: red, gray, and interior black.

Coarse Ware, Granular Paddle Ware, and Compact Ware all show the same techniques, colors, vessel forms, and decorations. Most were made by paddle-and-anvil technique, but a few decorated specimens of each were pressed in multipart molds. Except for a few burnished red-slipped sherds belonging to phase A, surfaces of all vessels were left unmodified after the paddling process, not being polished or further smoothed. Specimens made with a plain paddle have smooth, nonlustrous exterior surfaces; those made with a decorated paddle have overlapping geometric designs covering the exterior surfaces. Jar necks and collars were probably always made by coiling and usually show wiping striations on their interior and exterior surfaces.

In color these three wares range from purple or purple-red to medium brown to gray and grayish tan. An arbitrary distinction between red (purple to brown) and gray wares is useful for chronology but is not an absolute distinction in the style. Some "red" and "gray" sherds may come from the same vessels. A third color class, clearly distinguishable, consists of bowls with deeply smudged black interiors and gray or red exteriors. Though paste cores of homogenous color occur with some frequency, the red and gray wares are by no means uniformly well oxidized or reduced. Most sherds show both red to brown and gray colors in the core. Purple colors, very common in the Piura style, appear only on the surface of the vessels but are not produced with a pigmented slip.

Granular Paddle Ware is tempered with small calcitic particles, finely ground sherds, and sometimes fine sand, all in moderate quantities. Fine flecks of mica are a universal component of the clay. Texture is usually quite granular, as in the Sechura style, but ranges to nearly as fine as the texture of the Fine Red Ware of Sechura D–E. The two features which distinguish Granular Paddled from Compact Ware are the presence of sherd temper and of a visible grain to the clay. Compact Ware, when seen in cross section by the naked eye, appears as a solid nongranular mass interrupted only by temper particles. Temper is limited to moderate quantities of small calcitic particles, rare large calcitic particles, occasional small quantities of fine sand, and mica inclusions.

Coarse Ware, a catch-all category which deserves further study and subdivision when a better sample is available, covers the whole range of texture of the two wares named above, and is distinguished from them by its abundance of large temper particles. The temper may be coarse quartz sand, fine gravel composed mostly of dark-colored rounded particles, or chunks of calcitic material. Sherd temper also occurs. One, two, three, or all four of these tempering materials may appear in any one sherd. While certain sites show some tendency to favor one or two tempering materials, the distinction is not absolute.

Table 14 shows the distribution of these three wares by site and region. Both regional and temporal differences in frequency are evident, with different sequences of ware frequencies at the sites from Nunura to Paita and those in the Pariñas region to the north. In the southern group—effectively, the Piura-Chira shore—Granular Paddled Ware dominates in phase A (Colán, Tierra Colorada, Punta Nermete 1, Yasila 3), Compact Ware is dominant in phase C (Coscomba, San Pedro North A-14), and Coarse Ware makes up the vast majority of the phase E collection (Nunura 1). Of three phase B sites, the sherds from two are too eroded for classification, and the third (Tacalá) produced only a small sample. In the rare Coarse Ware of Phases A–C, sand is the principal temper, and the texture is fairly granular, while calcitic temper and massive texture are found most frequently in phase E.

In the large phase B sample from the Puerto Rico sites at the mouth of the Pariñas River, Coarse Ware is by far the most frequent, but Granular Paddled Ware occurs in fair quantity. The small phase C sample from Quebrada Coyonitas is inadequate for comparison but does suggest an increased frequency of both fine wares at the expense of Coarse Ware. The Coarse Ware at all these Pariñas sites contains about equal quantities of sand and calcitic temper.

Table 15 shows the distribution of the three color varieties by phase and site. No regional differences are apparent. The interior black variety, always scarce, is limited to phases A and B. Red Ware dominates in phases A–C, gray ware in Phase E.

TABLE 14

PIURA STYLE, DISTRIBUTION OF WARES BY SITE

Site	Granular	Compact	Coarse	Burnished Black	Unclassified Gray
	WARES CLASSIFIED				
Piura-Chira sites					
Colán	58	2	9	1	1
Tierra Colorada	10	..	..	..	..
Punta Nermete 1	3	2	3	..	..
Yasila 3	1	2	4	..	..
Tacalá	6	9	5	..	..
Coscomba	20	51	7	..	..
San Pedro North A 14	4	10	1	..	..
Nunura 1	9	2	118	1	..
Pariñas sites					
Puerto Rico 4	16	1	43	..	..
Puerto Rico 3	8	2	17	..	..
Puerto Rico 2	8	3	30	..	..
Puerto Rico 1	23	4	48	1	1
Quebrada Coyonitas	8	4	4	..	..

Site	Total Sherds
WARES NOT CLASSIFIED	
Piura-Chira sites	
San Pedro North 1	37
San Pedro North A 5	11
San Pedro North A 1	10
San Pedro North A 9	8
San Pedro North A 13	6
San Pedro North A 16	2
Nunura 2	10
Nunura 3	5
Nunura 4	2
Punta Nermete 2	5
Yasila 2	15
San Pedro North A 2	20

Some temporal differences of hardness and thickness are also apparent in the three wares under discussion. Altogether, they range in body thickness from 2 to 13 mm., and in hardness from 2½ to 6½, on Mohs's scale. In phase A, hardness ranges from 3½ to 6½, in phase B from 2½ to 6½, in phases C–E from 2½ to 5½. Body thickness in phases A–C is from 2.8 to 13 mm., in phase E from 1.8 to 8 mm. A single sherd from Coscomba, 22 mm. thick, is exceptional.

The fourth ware, Burnished Black, is the only ware other than Sechura A red

slipped ware to show a genuine high-luster burnish. It is thin (2.8–5.8 mm), hard (5½ to 7½ Mohs's), and excellently made. The fine-textured paste bears small quantities of very fine sand and flecks of mica, and was fired in a reducing atmosphere to an even pearl gray. The exterior surfaces are smudged black, perfectly smoothed, and burnished to a high gloss. This ware, though perhaps locally

TABLE 15

PIURA STYLE, DISTRIBUTION OF WARE COLORS BY SITE

Site	Interior Black	Red	Gray
Phase A			
Colán	1	63	5
Tierra Colorada	..	10	..
Punta Nermete 1	..	8	..
Yasila 3	..	7	..
Phase B			
Puerto Rico 4	..	48	12
Puerto Rico 3	..	22	5
Puerto Rico 2	1	34	6
Puerto Rico 1	5	59	11
Tacalá	3	13	4
Phase C			
Quebrada Coyonitas	..	14	2
Coscomba	..	70	8
San Pedro North A 14	..	12	3
Phase E			
Nunura 1	..	69	59

made, is clearly foreign to the native tradition and derived from the fine blackwares of the southern part of the north Peruvian coast.

Two sherds have not been classified above. They show the characteristics of the three standard wares, but have roughly burnished gray exterior surfaces. These sherds belong to phases A and B.

PHASE A

Piura A is known only from the vicinity of the Paita Peninsula. The phase is defined by Miss Haase's collection from Colán. The small collections from Yasila 3 and Tierra Colorada are identified as Piura A by their rim forms, and there is a component of the phase at Punta Nermete 1—the most recent of the pre-Spanish phases found at that site. In all, of a total of 96 sherds of phase A, 36 are decorated and 37 are rims or sherds otherwise indicative of form.

As in all previous styles, jars are more common than bowls. The most frequent form is a jar with a broad vertical or slightly flared straight collar, everted rim, and flat lip (fig. 14, *a–c*). Another form is a similar collar with a ridge of clay round the exterior of the rounded lip, replacing the everted rim (fig. 14, *d, e*). Slightly flared tall jar necks with thinned rims include convex profile necks of large diameter and concave profile necks of smaller diameter (figs. 14, *e–g;* 15, *b*). Another jar neck of fairly small diameter has a modelled bulge round the lower portion and a short everted rim (fig. 15, *c, d*). This form apparently always has

two small strap handles from body to neck. Bowls with markedly flared, slightly convex sides and thin rounded lips stand on short pedestals (fig. 15, *e, f*). Table 16 shows the distribution of these forms by site. Unique forms include a rim from a large urnlike vessel, like those of Sechura D and E (fig. 15, *h*).

As described above, the dominant ware in Piura A is Granular Paddled. Diagnostic of this phase is the red slipped variant of Granular Paddled and Coarse

TABLE 16

PIURA A, DISTRIBUTION OF VESSEL FORMS BY SITE

Form	Colán	Punta Nermete 1	Yasila 3	Tierra Colorada
Straight collar, everted rim	12	..	2	..
Straight collar, ridged rim	3	1	..	2
Flared convex neck, thin rim	2	..	..	..
Flared concave neck, thin rim	2	..	..	..
Bulging neck, everted rim	3	2	..	..
Convex flared bowl, thin rim	3	..	..	..
Pedestal base of bowl	3	..	..	..

TABLE 17

PIURA A, DISTRIBUTION OF TYPES OF DECORATION BY SITE

Decoration	Colán	Punta Nermete 1	Yasila 3
Handle, 3 incised lines	3	..	..
Perforated lug	5	1	1
Button lug	1	..	..
Plain flattened lug	2	..	..
Fillet	6	..	..
White band decoration	5	..	..
Over-all red slip	4	2	..
Modelled	3	..	..
Press molded	1	1	..
Geometric stamped	3	1	..

Wares, which continues from Sechura E. The sample also includes one sherd each of the rare interior black and Burnished Black wares and of the burnished gray variant of Granular Paddled Ware.

Decoration in phase A is simple but varied, as shown in table 17. The small strap handles on bulging profile jar necks bear three incised lines and suggest little four-fingered hands grasping the neck (pl. 18, *a*). Small lugs are placed at the base of necks of this form and of the straight collars with flared rims. In phase A, these lugs are usually flattened, either plain or pierced. The pierced lugs may bear two incised lines, giving the suggestion of a little animal head. One sherd has a little button lug which bears a deep incised line. The latter specimen also has a white painted design (fig. 14, *c;* pl. 18, *b–e*). Large plain or notched fillets carry on from the late Sechura phases. They are located round the upper part of jar bodies just below the base of the neck. Double fillets may occur (pl. 18, *a–c*).

Painted decoration is limited to over-all burnished red slip and to white band

designs applied on unslipped red surfaces. As in the late Sechura phases, the white bands are usually curvilinear, but straight bands also are found. The white pigment is thin and matte, tending to an ivory tone (pls. 18, *c;* 20, *a, b*).

Paddle-marked and press-molded decoration is rare in Piura A. Throughout the Piura style, geometric designs covering the whole vessel are usually applied by means of decorated paddles but are also found on molded vessels, with the design carved in the mold. Since it is not always possible to determine whether a specimen was made and decorated with a mold or a paddle, this type of decoration will be treated as a unit under the name "geometric stamping." As shown in table 18,

TABLE 18

PIURA STYLE, DISTRIBUTION OF GEOMETRIC STAMPED DESIGNS BY SITE

Design	Colán	Punta Nermete 1	Tacalá	Puerto Rico 3	Puerto Rico 2	Puerto Rico 1	Quebrada Coyonitas	San Pedro North A 14	Coscomba	Nunura 1
Small squares	2	..	1	1	3	7	4	5	11	19
Diamonds with dots	1	1	2	1	..	2	1	..	3	..
Squares with dots	..	..	3	1	5	1	1	..	4	4
Small diamonds	..	..	..	1	..	3	..	3	10	8
Zig-zags	..	..	..	1	2	..	..	..	..	6
Wavy lines and dots	..	..	..	1	..	2	..	..	..	1
Straight lines and dots	..	..	..	..	..	2	3	3	8	1
Groups of lines	..	..	..	..	..	1	..	..	3	8
Combs	..	..	..	..	..	..	..	..	1	5
Large diamonds	..	..	1	..	..	..	..	..	..	2
Frets	..	..	..	..	..	..	..	..	..	5
Lines of triangles	..	..	..	..	..	..	..	..	..	12
Lines of semicircles	..	..	..	..	..	..	..	..	..	3
Scrolls	..	..	..	..	..	..	..	..	..	9
Checkerboard squares	..	..	..	..	..	..	..	..	..	8
Checkerboard diamonds	..	..	..	..	..	..	..	..	..	3
Checkerboard triangles	..	..	..	..	..	..	..	..	..	1
Steps	..	..	..	..	..	..	..	..	..	1
"Cogwheel"	..	..	..	..	..	..	..	..	..	1
Textilelike	..	..	..	..	..	..	..	..	..	1

the few sherds of this type in Piura A have only two designs: small squares and diamonds with central dots (pl. 20, *d, e*). In Kroeber and Muelle's classification of paddle-marked designs, these are types 2 and 6 (Kroeber and Muelle 1942, Fig. V).

Another type of decoration occurs only on press-molded specimens and is never made with paddles. The designs are representational or consist of wavy lines or fields of small bumps (the well-known "goose flesh" decoration), the latter often used as background for the figures. There are only two sherds of this type in the Piura A sample: one from Colán showing the leg of a human figure with a "goose flesh" background (pl. 20, *c*), and one from Punta Nermete 1 with a wavy line design. The latter sherd is probably from a pedestal bowl, the former from a jar.

The only other decorated sherds are a few showing simple modelling. Two sherds from the base of jar collars show circular indentations which may have been evenly

spaced round the collar. One red-slipped sherd with a modelled ridge may be part of an anthropomorphic or zoomorphic modelled vessel (pl. 19, *d*).

PHASE B

Piura B is the phase best represented in Miss Haase's collection. The four Puerto Rico sites at the mouth of the Pariñas River, San Pedro North 1 and North A-5 at the mouth of the Piura River, and Tacalá in the Piura Valley, provide a total of 99 decorated sherds and 133 sherds of rims or pedestal bases.

Most of the useful information about phase B comes from the Puerto Rico sites. We have already seen that there is considerable regional difference in paste features at these sites. However, the few diagnostic sherds from the phase B sites in the Piura region indicate that the sequence of rims and decorations in the two regions was not significantly different.

Of the Puerto Rico sites, numbers 2 and 3 are considered typical of phase B. The sherds from Puerto Rico 4 retain a few features of phase A and those from Puerto Rico 1 show some features in phase C.

Most features of form and decoration in Piura B are derived from phase A with relatively minor modifications. Jars with straight vertical or slightly flared collars, everted rims, and flat lips continued to be made. Most of the collars are now rather larger and the lips thicker than in phase A, but a number of specimens of this type cannot be distinguished from their antecedents in phase A (fig. 16, *a–c*). Jars with short bulging necks and everted rims also continue, now with somewhat taller rims above the bulge (fig. 16, *e–g*). A few sherds from Puerto Rico 4 show the shorter rims of phase A (fig. 16, *d*) and a few from Puerto Rico 1 are thickened at the bulge, as in phase C. Concave flared jar necks are now larger and more flared than their phase A equivalents (fig. 16, *h, i*).

Bowls are more varied than in phase A. Except for one specimen from Puerto Rico 4, bowl pedestals are more flared than previously (fig. 17, *a, b, e*). Thin-rimmed flared bowls continue, now with nearly straight sides in contrast to the convex sides of phase A bowls (fig. 17, *a, f*). A variant form, probably also with pedestal base, has a somewhat thicker upturned rim (fig. 17, *c, d*). A new kind of vessel is a very large, thick-walled bowl with flared concave or, rarely, convex sides (fig. 18, *a–c, f*). The concave-sided form in this strain is limited to phase B, while the convex sided form continues into phase C. These large bowls are never decorated.

The distribution of the vessel forms by site is shown in table 19. Of the various unique and unclassified rim sherds, a few deserve special mention. The odd shape shown in figure 18, *e* seems to be a jar neck with a hanging mantle around it. A burnished black sherd from Puerto Rico 3 is from a bottle spout which had a flat bridge attached (fig. 18, *d*). A sherd of a straight collar with a ridge of clay round the outside of the rim, from Puerto Rico 4, is the only sherd of this type in the phase B collection and is probably a phase A piece.

Decoration in Piura B is derived from that of Piura A. The small strap handles which are placed from the neck to upper body of jars are incised in two patterns: one or two rows of incised dashes, with from four to six incisions in each row; and two diverging incised lines (pl. 21, *e, f*). Rare plain handles also occur. Perforated,

plain flattened, and incised button lugs continue from phase A, but not incised perforated lugs (pl. 21, *a–c, h*). New lug forms, placed as always at the base of jar necks, are oval with from 2 to 4 incised lines, plain conical, and plain or perforated bilobed (pl. 21, *a, g*). Plain and notched fillets continue and are accompanied by fillets incised in a rope-like pattern (pl. 22, *a–c*).

White painted bands on unslipped surfaces also continue from phase A. The curvilinear style is no longer found. Rather, there are broad white bands on the vessel body or neck (pl. 22, *d–f*). One sherd from Puerto Rico 1 has a phase C feature: a white-banded jar neck with the lip also painted white. Unique sherds are one from Puerto Rico 3 with an irregular white zone (pl. 22, *b*) and one from San Pedro North A-5 with an over-all white slip. The white slip is always matte and thinly applied, tending to ivory or grayish white in color. Red slip is never used after Piura A.

Geometric stamping, done largely with paddles but sometimes definitely by molding, is now more abundant and varied. There are six common designs: small

TABLE 19

PIURA B, DISTRIBUTION OF VESSEL FORMS BY SITE

Form	Puerto Rico 4	Puerto Rico 3	Puerto Rico 2	San Pedro North 1	San Pedro North A 5	Tacalá	Puerto Rico 1
Straight collar, everted rim, thin lip	8	1	..	..	1	..	3
Straight collar, everted rim, thick lip	16	1	5	6	1	..	11
Bulged neck, short everted rim	4	..	..	..	..	..	..
Bulged neck, tall everted rim	3	..	1	..	1	..	8
Bulged neck, tall everted rim (thick bulge)	..	..	..	..	..	..	2
Concave flared neck	2	..	2	..	..	..	2
Straight flared bowl, thin rim	..	..	1	..	..	1	3
Flared bowl, upturned rim	..	1	2	..	..	1	1
Large bowl, concave sides	2	..	2	..	..	..	2
Large bowl, convex sides	..	..	1	..	..	..	2
Pedestal of bowl	6	2	3	..	..	..	1

squares (Kroeber and Muelle design 2), small diamonds (K–M design 3), squares with central dots (K–M design 5), diamonds with dots (K–M designs 6 and 8), zig-zag lines (K–M design 11), and wavy lines with dots (resembles K–M design 15) (pl. 23, *a, c, d, f, g*). Two rare designs at Puerto Rico 1 are probably part of the group of phase C features found at that site. They are straight lines and dots (no Kroeber-Muelle equivalent) and sets of simple lines (pl. 23, *e;* K–M design 1) (Kroeber and Muelle 1942, Fig. V). A design of large diamonds, otherwise known only on two phase E sherds from Nunura 1, is found on one sherd at Tacalá (pl. 23, *b*). Since geometric stamping is rare in phase A and abundant in phase C, it may be that the three sites where no geometric stamped sherds were found by Miss Haase (Puerto Rico 4, San Pedro North 1, and San Pedro North A-5) fall early in phase B, while Tacalá and Puerto Rico 1–3 represent the later part of the phase.

Press-molded decoration, other than geometric stamping, also continues from phase A. The decoration is found on the exterior walls of pedestal bowls and jars, and is often delimited in panels. "Goose flesh" occurs alone or as background to figures, which include one human (pl. 24, *c*) and one which looks like a bird leg (pl. 24, *a*). A fragment of a mold from Tacalá has the reverse imprint of "goose flesh," together with ridges which would appear as depressed lines on the molded vessel (pl. 25, *c*).

A new type of incised decoration is represented by three sherds. It consists of large broad line designs, concentric triangles or triangular zones filled with diagonal hatching (pl. 24, *d, e*). The only other decorated sherds are two modelled fragments from Puerto Rico 1, neither of which is complete enough to indicate its original form.

The distribution of phase B decorations by site is shown in table 20.

Other artifacts attributed to Piura B include two sherd discs from Puerto Rico 1 and a spindle whorl from Puerto Rico 3. The discs include one thick one of Coarse Ware, roughly chipped to shape, and a thin one of Granular Paddled Ware ground to an oval form (pl. 25, *b, d*). The spindle whorl is large and heavy, with an irregularly smoothed surface. It is elongate with a ridged enlargement at one end which may have been intended to suggest a phallos (pl. 25, *a*).

QUEBRADA COYONITAS

The Quebrada Coyonitas collection shows a combination of features which merits separate treatment. Vessel forms at this site include one each of the phase B straight collar with thick flared lip, concave neck, bulged neck with a tall rim, and large concave-sided thick-walled bowl (fig. 18, *c*), and one of the phase C straight flared neck. Decorated sherds show some features common to phases B and C (geometric stamped small squares, squares with dots, and diamonds with dots), one phase B feature (white bands on plain body), and some which begin in phase C (white painted lip on white banded jar neck, white painted bands over geometric stamped designs, geometric stamped design of straight lines and dots). Because this site is so far from the other sites under consideration, it would be unwise to assume that the collection spans phases B and C or that it is transitional between B and C. It could also represent a local variant of phase C with retention of phase B features.

PHASE C

Piura C is defined by the collections from Coscomba and San Pedro North A-14. The one difference between these sites which does not seem to be due to sample size is the presence at San Pedro North A-14 of tall flaring jar collars. It is possible that the absence of this form at Coscomba is due to a slight chronological difference between the two sites, but the evidence is insufficient to demonstrate such a difference, and the two sites will be treated as a stylistic unit.

In the Piura-Chira region, the dominant ware in phase C is Compact Ware. As in phases A–B, red surfaces are much more common than gray surfaces. Interior black bowls no longer occur, nor does the rare burnished gray variant of the usual paddle-made pottery. The common vessel forms are bulged jar necks with long

everted rims, like the phase B form but thickened at the bulge (fig. 19, *a, b, e*), straight, moderately flared necks with flat lips (fig. 19, *c, d*), and large flared bowls with convex sides (fig. 19, *f, g*). The latter form is continued from phase B. The tall flared collars from San Pedro North A-14 (fig. 19, *k*) have already been mentioned. There is a single sherd of a bowl pedestal and a corresponding rim

TABLE 20

PIURA B, DISTRIBUTION OF TYPES OF DECORATION BY SITE

Decoration	Puerto Rico 4	Puerto Rico 3	Puerto Rico 2	Puerto Rico 1	Tacalá	San Pedro North A 5
Incised handle	2	..	..	3	..	..
Perforated lug	4	3	1	..	..	..
Button lug	2	..	1	..	..	..
Incised oval lug	1	1	1	1	..	1
Plain flat lug	1	2	..	2	..	..
Plain conical lug	..	..	..	3	..	..
Bilobed lug	..	1	1	..	..	..
Fillet, phase A type	..	..	3	3	..	..
Ropelike fillet	1	1	..	..	..	..
Incised design	1	1	1	..	..	..
Modelling	..	..	..	2	..	..
White band decoration	1	3	2	2	..	..
Over-all white slip	..	..	..	..	..	1
Press-molded	1	2	2	2	1	..
Geometric stamped	..	7	10	18	7	..

sherd of the phase B type thin-rimmed bowl, both from Coscomba (fig. 19, *h*). A unique rim sherd from Coscomba is a short angular jar neck, perhaps antecedent to the carinated necks of phase E (fig. 19, *i*). Handles do not occur in the sample after phase B.

The principal differences in decoration from phase B are the lack of incised handles, lugs, fillets, and incised triangle designs, an increased variety of geometric stamped designs, and a somewhat different use of white paint. The lack of burnished black ware and of press-molded decoration other than geometric stamping may be due to the small size of the sample, but, as we shall see, there is some reason to believe that these features were genuinely absent from phase C and were reintroduced in phase D.

With the disappearance of many forms of decoration there remain only white painting, geometric stamping, and rare modelling. The latter is confined to rows of large irregular protuberances pushed out with the finger, giving a wavy appearance to the vessel wall. Sherds of this type from Coscomba are from the bodies of thick-walled vessels. The one sherd from San Pedro North A-14 is from a tall collar which also bears two broad, deep incisions (pl. 26, *a*).

White bands on plain jar bodies no longer occur. The usual use of white paint is in the form of a band round the lower half of jar necks, accompanied by white-painted lips (pl. 26, *c*). One sherd has the white lip without the band. Broad white bands over geometric stamping on jar bodies occur rarely (pl. 26, *b*).

In the geometric stamped type of decoration, small squares and diamonds, with

or without central dots, continue from phase B (pls. 26, *b;* 27, *a–d, f*). The absence of zig-zag lines and wavy lines with dots may be a function of sample size, since both occur in phases B and E. New designs, not present at the typical phase B sites, are straight lines and dots, groups of lines (Kroeber and Muelle design 1), and a single example of a comblike element (pl. 27, *e, g*). One of the tall-collar jars has a body design of squares with dots, made by press molding, in which the lines and dots are sunken rather than raised (fig. 19, *k*).

There is no evidence that bowls were ever decorated after phase B.

PHASE D

In the provisional designation of phases presented here, the letter D is reserved for material not identifiable in Miss Haase's collection. The jar necks of phase E are so different from those of phase C and the repertory of geometric stamped designs so greatly expanded that there is obviously a break in the sequence at this point. Though one phase letter is reserved for the ceramics of this time, they may prove to constitute two or more phases. Since phase E can be dated to the Late Horizon, contemporary with the Inca occupation of the area, many of the Chimú and Chimú-derived vessels illustrated in the literature should be contemporary with the missing phase D of the native Piura style.

One archaeological site which may belong to Piura D was visited by Frédéric Engel and me in 1957, though we did not collect sherds. The site is called Vichayalito. It lies on the east edge of the village of San Felipe de Vichayal in the Chira Valley, and may be the site which Lothrop (1948, p. 59) calls Vichayal. The Piura style was well represented on the surface in the form of paddle-marked and occasional press-molded sherds, but there was also a good deal of fine burnished black ware of Chimú type as well as fine burnished red ware which probably also came from Chimú-type vessels. The site includes a looted cemetery and two flat-topped pyramid mounds about 40 meters in diameter and from 7 to 8 meters high. The latter are built of short, broad, round-topped adobes of the type described by Kroeber for the Chimú culture further south (Kroeber 1930, pp. 58–59).

Piura D specimens illustrated in the literature on Piura and Chira—almost all of them of the Chimú or Chimú-derived prestige ware—are noteworthy for the high frequency of Chimú forms done in red ware and painted with white or organic black pigments, rather than in the typical Chimú burnished black ware. Kroeber distinguishes a North Chimú province, including both Lambayeque and Piura, primarily on the basis of this high frequency of red ware (Kroeber 1930, pp. 97–98). The distinctive fine red ware may be entirely limited to Piura D, since there was none of it in Miss Haase's collections. It presumably represents an adaptation of the Chimú burnished ware to the prevailing red ware tradition of Piura and Chira.

PHASE E

Piura E is well represented by a sample of 117 decorated sherds and 16 rim sherds, all from Nunura 1. Unfortunately, since this site is located at the southern end of the area studied, it is possible that some of its peculiarities of style indicate local rather than temporal differences. The presence of Piura B–C sherds in the

small mixed collection from Nunura 2, however, indicates that these earlier phases do occur at Nunura, and that phase E cannot be contemporary with them.

Two noteworthy features of phase E are the dominance of Coarse Ware and the increase of gray surfaces to frequencies equal to red surfaces. This is the only time in the entire Piura-Chira sequence when oxidized ware does not dominate the style, and the first time since Negritos times that a really coarse tempered ware is dominant in the Piura region proper.

All the phase E rim sherds represent a single form: a short jar neck carinated at mid-height, with a simple rounded lip (fig. 20, *a–e*). Other vessel forms presumably existed, but must have been relatively rare.

Decoration in Piura E includes white painting, press molding, simple modelling, and above all geometric stamping. The latter, now done exclusively or almost exclusively with decorated paddles, involves a much wider range of designs than in previous phases. All previous designs except diamonds with central dots continue to be made, together with fret designs (Kroeber and Muelle designs 33 and 35); large diamonds (K–M design 4); lines with attached triangles (K–M design 23) or semicircles; scrolls, including a figure "9" (K–M designs 28 and 31); checkerboard squares, diamonds and triangles, in which alternate units are raised or depressed; a simple step design; a "cogwheel" (resembles K–M design 43); and a textilelike patterning (pls. 29–31; Kroeber and Muelle 1942, Figs. VI–VII).

White slipping on jar necks continues from phase C, now in a somewhat different form. Most or all of the exterior of the neck is painted white and sometimes the interior as well, and the paint extends to cover a band round the upper part of the body (pl. 28, *a–c*). One sherd of this type also has an irregular white zone on the plain red body of the jar (pl. 28, *a*). White bands and zones over geometric stamping are now very common, occurring on 14.7 per cent of the geometric stamped sherds (pls. 29, *d;* 30, *a, f*). Another type of decoration associated with geometric stamping consists of rows of hollow protuberances pushed out with the finger, smaller than the modelled protuberances of phase C and differing from them in that the latter are not associated with geometric stamping. This feature in Piura E recalls the rows of protuberances in the Paita style.

Press molded decoration other than geometric stamping is quite common in Piura E (7 per cent of the selected sherds from Nunura 1). The designs differ considerably from those in phases A–B. "Goose flesh"—fields of small separated bumps—is still used as background for some representational designs. When used alone, however, the bumps are much larger and set closer together (pl. 32, *e*). Representational designs include small birds and fish and a large lizardlike animal (pl. 32, *a, b, d*). One geometric design looks like a copy of an architectural fresco (pl. 32, *c*).

PHASE F

The letter "F" is reserved for the continuation of the Piura style into the Colonial period. Kelley divides the Piura style into two "periods": Chuchales (Piura A–C) and Matacaballo (at least in part Piura F). Of the Matacaballo "Period," Kelley says:

> The characteristics ... are a considerable increase in the use of paddle-marking [i.e., over Piura A–C] and the virtual abandonment of all other forms of decoration, accompanied by a great diminution in the types of paddle-marking, which become virtually restricted to different varieties of cross-hatching (pseudo-fiber-impressed). A considerable number of Matacaballo sites show broken bottle glass, goat dung, iron nails, and other indications of persistence to the colonial period or later. (Kelley MS., p. 6.)

The paddle-marked designs indicated would be those here called small squares and checkerboard squares, presumably also small diamonds and checkerboard diamonds, and perhaps also squares with central dots.

Miss Haase's collection does not contain any sherd assemblage attributable to Piura F. Her small collection from Matacaballo, Kelley's type site, consists of only a few badly eroded body sherds.

SIMBILÁ STYLE

The name "Simbilá" is here given to the pottery of the native Piura tradition manufactured today in the Piura Valley. Christensen has described the manufacture of this pottery at the village of Simbilá (Christensen 1955). The dominant ware, Brick Red Ware, is well fired in an oxidizing atmosphere, homogenous red in color, tempered with large quantities of sand. Manufacture is entirely by undecorated wooden paddles and cobble anvils, except for jar necks, which are shaped with the hands from a single large coil of clay. Interior surfaces are left unretouched. Exterior body surfaces are smoothed with the wet hand, and necks with a wet cloth. The entire vessel is coated with a wash of red ocher just before firing. Firing is in an open fire, with the vessels surrounded by large potsherds and dung but not cut off from the circulation of air (Christensen 1955, pp. 11–13).

Vessel forms, as illustrated by Christensen, include pitchers and cups in European tradition, short-necked cooking pots (*ollas de comida*), flat-bottomed bowls, and large storage jars (*cántaros, tinajas,* and *tinajones*). The *tinaja* neck is tall and straight with an everted rim, like jar necks found in several Sechura and Piura phases (*ibid.,* fig. 6). Christensen reports decoration impressed with clay stamps, occasional incision and punctation, and one specimen with a red painted design. The stamped designs are flowers, spirals, and "massed diamonds of two varieties" (*ibid.,* p. 12).

The only Simbilá specimens available for study are four sherds collected by Miss Haase at Sechura 1, the modern refuse dump of the town of Sechura, and an *olla de comida* purchased by me in the Sechura market. All five are definitely medallion stamped, rather than paddle marked, the designs being separated from each other rather than continuous and overlapping. The designs on the sherds are all of types which occur paddle marked in Piura E (and presumably F): checkerboard squares, checkerboard diamonds, plain squares, and spirals (pl. 33, *a–d*). On the cooking pot, a flower design associated with checkerboard squares is repeated round the upper portion, as described by Christensen (pl. 33, *e*). The ocher, though presumably applied to all these specimens, does not show as an identifiable red paint. Without Christensen's information I would have described the surfaces as unpigmented.

Christensen mentions another type of vessel made by the same Simbilá potters. These are press molded, gray- or black-fired copies of Chimú vessels, made for sale to tourists in Piura. I have seen these vessels on sale in Lima. The Museo de la Universidad Nacional Mayor de San Marcos has a good collection of them. They represent a revival of Piura D–E forms, inspired by the tourist trade. They differ from Chimú vessels in surface color, which tends to be a patchy gray, and in burnishing, which is more carelessly done and leaves broader tracks, nearly a centimeter wide.

As Christensen points out (*ibid.*, pp. 18–19), the Simbilá style represents an indigenous tradition, slightly modified by European concepts of form and design. It differs from the older Piura style primarily in its pitcher and cup shapes and flower designs, and in the use of plain paddles and clay medallion stamps rather than decorated paddles. Noteworthy is the total absence of features traceable to the Chimú or Inca styles, except in the tourist ware. This suggests that these foreign styles did not significantly affect the native pottery tradition—a conclusion borne out by the lack of Inca influence on the Piura E pottery from Nunura 1 and by the scarcity of Chimú-like sherds at that site.

EVIDENCE FOR THE SERIATION

In the preceding section, the recognized phases have been presented in presumed chronological order, without a demonstration of the validity of the sequence. The evidence for the sequence is presented in summary form in table 21, which is a listing by phase of the principal distinctive features of ceramic style. The table speaks for itself: if the seriation were grossly incorrect, many or most of the features listed should show split distributions on the chart, rather than the continuous distributions actually seen there. It is to be noted that, in the few cases where a feature is lacking from a particular phase, but present in earlier and later phases, the phase from which it is lacking is represented in the collection by a very small sample, and the absence can justifiably be attributed to statistical bad luck.

In general terms, the styles and phases described here fall into natural groups which may be seriated as wholes. Thus, there is a grand division between coiled pottery (Negritos, Paita, Sechura A–B) and paddle-made pottery (Sechura D–E, Piura, Simbilá). Since the paddled pottery is made today, the whole group of paddle-made phases should be more recent than the phases of coiled pottery. Sechura C, which uses both techniques, is firmly placed in time between the two groups, in spite of the small size of the Sechura C sample.

Within the group of paddle-and-anvil phases, Simbilá is made today; Piura F is associated with artifacts of European tradition, and is therefore either Colonial or early Republican in time; and Piura E shares the important geometric stamped checkerboard and scroll designs with Piura F and Simbilá. The remaining paddle-and-anvil phases break down into two groups: a later one (Piura A–C) made with decorated paddles and sharing features with Piura E–F, and an earlier one (Sechura D–E) made with plain paddles and sharing features with Sechura C. Piura C should be the most recent of these phases, since it shares with Piura E several features of its geometric stamped style, while Piura A has a few features—most notably red slip and curvilinear white band designs—charac-

teristic of the earlier plain-paddle phases. Within the latter group, the time order is not definite on the basis of present evidence, but the suggested sequence (Sechura D earlier, Sechura E later) is probably correct, partly because of the presence of zig-zag incision and bowls with inner bevelled rims in Sechura D and pierced lugs in Sechura E, partly because of the few paddle-marked and press-molded sherds from the surface at Chusís.

In the large group of early phases with coiled pottery, there is a sequence of incised (Negritos, Paita A–B), red painted (Paita C–D), and white-on-red and negative painted styles (Sechura A–B). The time order of these three groups is readily demonstrable, the third group (white-on-red and negative) sharing many features with the paddle-and-anvil phases, and the second group (red painted) being intermediate in many ways between the first and third, as shown in table 21.

Within the white-on-red group, Sechura B should be the more recent phase, because it shares several features of vessel form with Sechura C, while Sechura A, the earlier, resembles the red-painted assemblage from Lagunitas in the presence of band and disc designs, zoned punctations, and dark paste with abundant pyrites. Since these similarities are specifically with Paita D, the latter phase should be the more recent of those in the red-painted group. Paita C, in turn, shows a few specific similarities to the earliest group of phases, those characterized by incised decoration. These similarities include those listed in table 21 (incised crosshatching, fillets on jar shoulders, and lines of punctations enclosed in bands), and also the extreme thinness of the ware and the total lack of any jar necks taller than about 2 cm.

The relative age of the three incised phases is doubtful, primarily because two of them are represented by only a handful of sherds. The three phases are clearly distinct from each other, despite the small size of the samples, because of the systematic stylistic differences from site to site. The suggested order is based on the few Paita B–C and Paita A–B–C similarities shown in table 21, and on the fact that Negritos is so different from all other known styles that it cannot be placed anywhere but at the beginning of the sequence.

Some of the phases, as defined, may overlap in time. This is particularly true of Paita B–C, Piura A–B, and Piura B–C. However, it is doubtful that any of the phases might be entirely contemporary with each other. All of them are isolated or nearly isolated from each other at one or more sites. All of the phases from Paita A to Sechura D are known from sites in the immediate vicinity of the Paita Peninsula, from Casita to Lagunitas. In such a small region, stylistic differences between sites should indicate temporal changes rather than local differences.

Sechura E is known only from the mouth of the Piura River, but its type site, Chusís, is only a few miles from a Sechura D site, again indicating temporal difference between the two phases. Piura A, known only from the Paita Peninsula, should not be contemporary with Sechura E because, as we shall see, the latter shows some affinity to Moche III in the Early Intermediate Period, whereas Piura A belongs to the Middle Horizon. In fact, there is a considerable stylistic and temporal gap between Sechura E and Piura A. Piura B and C are known from both north and south of the Paita Peninsula, implying that the phases

TABLE 21

SERIATION OF FEATURES IN THE CERAMIC STYLES OF THE PIURA-CHIRA REGION

×, feature present in sample; (×), feature absent from sample, but presumed to occur in phase; ?, feature doubtfully associated with phase; No symbol, feature absent from sample.

Features	Negritos	Paita				Sechura					Piura				Simbilá
		A	B	C	D	A	B	C	D	E	A	B	C	E	
Negritos coarse ware	×	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Finger-pressed flat fillets	×	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Large punctations	×	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Vertical band designs	×	.	.	.	.	.	.		.	.	.	.	.	.	.
Purple fired brushed interiors	×	×	.	.	.	.	.	.	.	.	.	.	.	.	.
Plastic decoration only	×	×	×	.	.	.	.	.	.	.	.	.	.	.	.
Brushed exteriors	×	×	×	×	×	.	.	.	.	.	.	.	.	.	.
Coiled ware only	×	×	×	×	×	×	×	.	.	.	.	.	.	.	.
Small bowl, straight flared sides	.	×	.	.	.	.	.	.	.	.	.	.	.	.	.
Outlined zones of incising	.	×	.	.	.	.	.	.	.	.	.	.	.	.	.
"Teapot" rim	.	×	.	.	.	.	.	.	.	.	.	.	.	.	.
Short neck, everted rim	.	×	×	.	.	.	.	.	.	.	.	.	.	.	.
Short concave neck	.	×	×	.	.	.	.	.	.	.	.	.	.	.	.
Fillet on jar shoulder	.	×	(×)	×	.	.	.	.	.	.	.	.	.	.	.
Thin Red Ware	.	×	×	×	×	.	.	.	.	.	.	.	.	.	.
Groups of parallel incised lines	.	×	×	×	×	.	.	.	.	.	.	.	.	.	.
Dented lip on jar	.	×	×	×	×	.	.	.	.	.	.	.	.	.	.
Angular jar shoulder	.	×	×	×	×	.	.	.	.	.	.	.	.	.	.
Small notched fillet	.	×	×	×	×	×	×	.	.	.	.	.	.	.	.
Incised circle and dot	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Incised jar neck	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Stab-and-drag incision	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Incised design layout: circumferential lines at top of jar, separate design below	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Incised crosshatching	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Punctate lines enclosed in bands	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Small punctations	.	.	×	×	×	.	.	.	.	.	.	.	.	.	.
Rows of hollow protuberances	.	.	×	×	×	.	.	.	.	.	.	.	.	.	.

Short straight flared neck	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Bevelled lip bowl	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Panelled designs	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Incised crosshatching with fillet or hollow protuberances	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Lines of incised dashes	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Zoned post-fired painting	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Red lines on jar neck	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Red crosshatching	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Red hooks, scrolls, etc.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Intersecting groups of curved red lines	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Post-fired paint in incisions	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Paita Variant I ware	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.	.
Red-on-natural red painting	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Black-on-natural red painting	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Red zones with incised outline	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Curved jar shoulder	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Pattern brushing	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Post-fired paint (any context)	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Grooved lip of jar or bowl common	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Intersecting groups of red straight lines	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.	.
Neckless olla	.	.	.	×	×	(×)	×	(×)	×	×	.	.	.	.	.	.
White slip	.	.	.	?	×	(×)	×	(×)	×	×	.	?	.	.	.	.
Short concave flared neck	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Very short vertical neck	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Short straight flared neck, thick lip	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Straight vertical neck, medium height	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Paita Variant II ware	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
1–2 incised lines at base of neck	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Organic black paint, positive design	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Red bands pendent from base of jar neck or bowl lip	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Red bands over hollow protuberances	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Tapered red bands	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Outlined zones of incised dashes	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Red lines 4–5 mm. wide	.	.	.	.	×	.	.	.	.	.	.	.	.	.	.	.
Painted bands and discs together (any color)	.	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.
Zoned punctation	.	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.
Abundant pyrites in paste	.	.	.	.	×	×	.	.	.	.	.	.	.	.	.	.

TABLE 21—*Continued*

Features	Negritos	Paita				Sechura					Piura				Simbilá
		A	B	C	D	A	B	C	D	E	A	B	C	E	
Negative painting	.	.	.	.	?	×	×	(×)	(×)	×	.	.	.	.	.
Over-all red slip	.	.	.	.	×	×	×	×	×	×	×	.	.	.	.
Fillet above jar shoulder	.	.	.	.	×	×	×	×	×	×	×	×	.	.	.
Design in band round exterior of rim	.	.	.	.	.	×	.	.	.	.	.	.	.	.	.
Engraved hatched triangles	.	.	.	.	.	×	.	.	.	.	.	.	.	.	.
White discs and bands together	.	.	.	.	.	×	.	.	.	.	.	.	.	.	.
Negative discs and bands	.	.	.	.	.	×	.	.	.	.	.	.	.	.	.
White step design	.	.	.	.	.	×	.	.	.	.	.	.	.	.	.
Short slightly flared neck	.	.	.	.	.	×	.	.	.	.	.	.	.	.	.
Medium concave flared neck	.	.	.	.	.	×	×	.	.	.	.	.	.	.	.
Incurved bowl	.	.	.	.	.	×	×	.	.	.	.	.	.	.	.
Well-burnished brown ware	.	.	.	.	.	×	×	.	.	.	.	.	.	.	.
Annular base bowl	.	.	.	.	.	×	×	.	.	.	.	.	.	.	.
White-on-red slip	.	.	.	.	.	×	×	.	.	.	.	.	.	.	.
Engraving	.	.	.	.	.	×	×	.	.	.	.	.	.	.	.
Granular Coiled Ware	.	.	.	.	.	×	×	.	.	.	.	.	.	.	.
Small plain fillet	.	.	.	.	.	×	×	×	.	.	.	.	.	.	.
Sherd temper	.	.	.	.	.	?	×	×	×	×	×	×	?	?	.
Pink slip	.	.	.	.	.	.	×	.	.	.	.	.	.	.	.
Streaky black paint	.	.	.	.	.	.	×	.	.	.	.	.	.	.	.
Double slipping	.	.	.	.	.	.	×	.	.	.	.	.	.	.	.
Vertical concave neck, small diameter	.	.	.	.	.	.	×	.	.	.	.	.	.	.	.
Interior painted designs	.	.	.	.	.	.	×	.	.	.	.	.	.	.	.
Groups of random white discs	.	.	.	.	.	.	×	.	.	.	.	.	.	.	.
Tall collar, flared grooved rim	.	.	.	.	.	.	×	.	.	.	.	.	.	.	.
Straight neck, everted rim, thin rounded lip	.	.	.	.	.	.	×	.	.	.	.	.	.	.	.
Bowl, high convex sides	.	.	.	.	.	.	×	×	.	.	.	.	.	.	.
Bowl, short convex sides	.	.	.	.	.	.	×	×	.	.	.	.	.	.	.
Contrasting slipped zones	.	.	.	.	.	.	×	×	.	.	.	.	.	.	.
Orange slip	.	.	.	.	.	.	×	×	(×)	×	.	.	.	.	.
Medium straight flared neck, rounded lip	.	.	.	.	.	.	×	×	×	×	.	.	.	.	.

Notched bowl lip	.	.	.	.	.	.	×	(×)	×	.	.	.	.	.	.
Finger indentations on neck	.	.	.	.	.	.	×	(×)	(×)	×	×	.	.	.	.
Bulged neck, short everted rim	.	.	.	.	.	.	×	(×)	(×)	×	×	.	.	.	.
White-on-natural red bands	.	.	.	.	.	.	×	×	×	×	×	×	×	×	.
Bowl, inner-bevelled rim, plain lip	.	.	.	.	.	.	.	×	.	.	.	.	.	.	.
Both coiled and paddled ware	.	.	.	.	.	.	.	×	.	.	.	.	.	.	.
Zig-zag incision	.	.	.	.	.	.	.	×	×	.	.	.	.	.	.
Curvilinear white-on-natural red designs	.	.	.	.	.	.	.	×	×	×	×	.	.	.	.
Large notched fillet	.	.	.	.	.	.	.	×	×	×	×	×	.	.	.
Granular Paddled Ware	.	.	.	.	.	.	.	×	×	×	×	×	×	×	.
Bowl, inner-bevelled rim, notched lip	.	.	.	.	.	.	.	.	×	.	.	.	.	.	.
Flared bowl, S-curve sides	.	.	.	.	.	.	.	.	×	.	.	.	.	.	.
Large conical lug	.	.	.	.	.	.	.	.	×	.	.	.	.	.	.
Irregular line luster	.	.	.	.	.	.	.	.	×	.	.	.	.	.	.
"Market basket" handle	.	.	.	.	.	.	.	.	×	×	.	.	.	.	.
Large curved fillet	.	.	.	.	.	.	.	.	×	×	.	.	.	.	.
Incised bowl lip	.	.	.	.	.	.	.	.	×	×	.	.	.	.	.
Large slightly concave neck, thick lip	.	.	.	.	.	.	.	.	×	×	.	.	.	.	.
Fine Red Ware	.	.	.	.	.	.	.	.	×	×	.	.	.	.	.
Tall decorated jar collar	.	.	.	.	.	.	.	.	×	×	.	.	.	.	.
Large urn-like vessel with thickened rim	.	.	.	.	.	.	.	.	×	×	×	.	.	.	.
Large plain fillet	.	.	.	.	.	.	.	.	×	×	×	×	.	.	.
Small handle, neck to body	.	.	.	.	.	.	.	.	×	×	×	×	.	.	.
Coarse Ware	.	.	.	.	.	.	.	.	×	×	×	×	×	×	.
Paddled ware only	.	.	.	.	.	.	.	.	×	×	×	×	×	×	×
Purple slip	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Wavy line incision	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Large finger-pressed fillet on collar	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Hollow protuberance on collar	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Finger grooving of collar	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Face with punctate cheek ornament	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Rows ot irregular large punctations	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Deep hemispherical bowl	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Alternating straight and wavy lines, white or negative painted	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Incised diamonds	.	.	.	.	.	.	.	.	.	×	.	.	.	.	.
Pierced lug at base of neck	.	.	.	.	.	.	.	.	.	×	×	×	.	.	.
Straight neck, everted rim, flat lip	.	.	.	.	.	.	.	.	.	×	×	×	.	.	.

TABLE 21—*Concluded*

Features	Negritos	Paita				Sechura					Piura				Simbilá
		A	B	C	D	A	B	C	D	E	A	B	C	E	
Bulged neck, short everted rim, handle to body	.	.	.	.	.	.	.	.	.	.	×	.	.	.	.
Slightly flared convex neck	.	.	.	.	.	.	.	.	.	.	×	.	.	.	.
Slightly flared concave neck	.	.	.	.	.	.	.	.	.	.	×	.	.	.	.
Straight collar, ridged rim	.	.	.	.	.	.	.	.	.	.	×	.	.	.	.
Shallow pedestal bowl, convex sides	.	.	.	.	.	.	.	.	.	.	×	.	.	.	.
Nearly vertical pedestal of bowl	.	.	.	.	.	.	.	.	.	.	×	.	.	.	.
Handle with 3 incised lines	.	.	.	.	.	.	.	.	.	.	×	.	.	.	.
Perforated lug with incised lines	.	.	.	.	.	.	.	.	.	.	×	.	.	.	.
Grooved button lug	.	.	.	.	.	.	.	.	.	.	×	×	.	.	.
Plain flat lug	.	.	.	.	.	.	.	.	.	.	×	×	.	.	.
Press-molded human figure	.	.	.	.	.	.	.	.	.	.	×	×	.	.	.
Interior black ware	.	.	.	.	.	.	.	.	.	.	×	×	.	.	.
Incised handle (any pattern)	.	.	.	.	.	.	.	.	.	.	×	×	.	.	.
Double fillets	.	.	.	.	.	.	.	.	.	.	×	×	.	.	.
Pedestal bowl (any form)	.	.	.	.	.	.	.	.	.	.	×	×	×	.	.
Geometric stamped diamond and dot	.	.	.	.	.	.	.	.	.	.	×	×	×	.	.
Geometric stamped small squares	.	.	.	.	.	.	.	.	.	.	×	×	×	×	.
"Goose flesh"	.	.	.	.	.	.	.	.	.	.	×	×	.	×	.
Burnished Black Ware	.	.	.	.	.	.	.	.	.	.	×	×	.	×	.
Compact Ware	.	.	.	.	.	.	.	.	.	.	×	×	×	×	.
Handle with 4–6 incised lines	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Handle with diverging incised lines	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Small conical lug	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Incised oval lug	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Bilobed lug	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Rope-like fillet	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Zones of incised hatching	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
White band on neck alone	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Bulged neck, long everted rim	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.

Shallow pedestal bowl, straight sides	.	.	.	.	.	.	.	.	.	.	.	×	?	.	.
Shallow pedestal bowl, upturned rim	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Flared pedestal of bowl	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Large flared bowl, concave sides	.	.	.	.	.	.	.	.	.	.	.	×	.	.	.
Large flared bowl, convex sides	.	.	.	.	.	.	.	.	.	.	.	×	×	.	.
Geometric stamped zig-zags	.	.	.	.	.	.	.	.	.	.	.	×	(×)	×	.
Geometric stamped wavy lines and dots	.	.	.	.	.	.	.	.	.	.	.	×	(×)	×	.
Geometric stamped squares and dots	.	.	.	.	.	.	.	.	.	.	.	×	×	×	.
Geometric stamped small diamonds	.	.	.	.	.	.	.	.	.	.	.	×	×	×	.
Bulged neck, long everted rim, thickened at the bulge	.	.	.	.	.	.	.	.	.	.	.	.	×	.	.
Medium straight flared neck, flat lip	.	.	.	.	.	.	.	.	.	.	.	.	×	.	.
Tall straight flared collar	.	.	.	.	.	.	.	.	.	.	.	.	×	.	.
White banded neck with white lip	.	.	.	.	.	.	.	.	.	.	.	.	×	.	.
Finger-modelled wavy surface	.	.	.	.	.	.	.	.	.	.	.	.	×	.	.
White bands on geometric stamping	.	.	.	.	.	.	.	.	.	.	.	.	×	×	.
Geometric stamped straight lines and dots	.	.	.	.	.	.	.	.	.	.	.	.	×	×	.
Geometric stamped groups of lines	.	.	.	.	.	.	.	.	.	.	.	.	×	×	.
Geometric stamped comb design	.	.	.	.	.	.	.	.	.	.	.	.	×	×	.
Short carinated neck	.	.	.	.	.	.	.	.	.	.	.	.	.	×	.
White neck with band at base of neck	.	.	.	.	.	.	.	.	.	.	.	.	.	×	.
Press-molded fish and birds	.	.	.	.	.	.	.	.	.	.	.	.	.	×	.
Press-molded large bumps	.	.	.	.	.	.	.	.	.	.	.	.	.	×	.
Hollow protuberances on geometric stamped surfaces	.	.	.	.	.	.	.	.	.	.	.	.	.	×	.
Geometric stamped large diamonds	.	.	.	.	.	.	.	.	.	.	.	?	.	×	.
Geometric stamped frets	.	.	.	.	.	.	.	.	.	.	.	.	.	×	.
Geometric stamped lines ot triangles	.	.	.	.	.	.	.	.	.	.	.	.	.	×	.
Geometric stamped lines of semicircles	.	.	.	.	.	.	.	.	.	.	.	.	.	×	.
Stamped scroll (any technique)	.	.	.	.	.	.	.	.	.	.	.	.	.	×	×
Stamped checkerboard squares (any technique)	.	.	.	.	.	.	.	.	.	.	.	.	.	×	×
Stamped checkerboard diamonds (any technique)	.	.	.	.	.	.	.	.	.	.	.	.	.	×	×
Stamped flower design	.	.	.	.	.	.	.	.	.	.	.	.	.	.	×
Medallion stamping	.	.	.	.	.	.	.	.	.	.	.	.	.	.	×
Pitchers and cups in European tradition	.	.	.	.	.	.	.	.	.	.	.	.	.	.	×
Bowls with flat bottoms	.	.	.	.	.	.	.	.	.	.	.	.	.	.	×
Olla with thick upturned rim	.	.	.	.	.	.	.	.	.	.	.	.	.	.	×
Brick Red Ware	.	.	.	.	.	.	.	.	.	.	.	.	.	.	×

of the Piura style succeeded each other over the entire extent of the Piura-Chira-Pariñas region. Though Piura F and Simbilá are little represented in the collection, they represent respectively the Colonial and modern Republican periods. The designation "Piura D" is reserved for a period abundantly illustrated in the literature but not represented in the collection studied.

This leaves Negritos and Piura E as potential problems. It could be argued that Piura E, known only from the southern edge of the region studied, is actually a separate southern ceramic style and not part of the Piura style. However, south of Nunura there is only the rocky Illescas Peninsula, then a vast stretch of desert without irrigated valleys, while to the north there is easier communication around the Bay of Piura. It is probable that Nunura was culturally affiliated with the easily reached, fertile Piura Valley, rather than with the desert to the south. Furthermore, as we shall see, Piura E, as known at Nunura, is related to the Late Horizon styles of the north coast, while Piura A–B belong to the Middle Horizon and Piura C to the earlier part of the Late Intermediate Period. Hence Piura E also appears as a temporal variant within the Piura-Chira sequence.

Negritos, on the other hand, could actually be a local Pariñas style contemporary with Paita A or B, or perhaps an unusual ware locally associated with Paita D in the Pariñas region. However, the fact that it does not occur in the Paita C–D assemblage from Negritos South 2 makes this doubtful, and it is probably a separate ceramic style earlier than Paita.

The entire sequence proposed here, on the basis of seriation of small sherd samples, constitutes a hypothesis to be tested in the field. In general, the samples of decorated sherds examined have been sufficiently large and varied to inspire confidence that the phases distinguished really are separate time units and that they follow each other in the order proposed. Even the best documented portions of the sequence, however, need stratigraphic proof or further seriational evidence. Field testing would certainly leave the general outlines of the sequence as they now stand but could well upset it at points where the documentation is now exceptionally poor. Most subject to question are the time position of Negritos, the relative time order of Paita A and B, and the relative time order of Sechura D and E.

TEMPORAL RELATIONSHIPS TO OTHER REGIONS

This study was undertaken in the hope that it would provide concrete evidence for the cross-dating of north Peruvian and south Ecuadorian sequences. This hope has been largely disappointed, and what has emerged is a picture of a nearly independent regional ceramic tradition, showing outside influence from time to time, but never with simultaneous influences from specific north Peruvian and south Ecuadorian phases. Even so, there are enough similarities of sequence between these regions to give a general picture of interregional time relationships.

The early incised phases show general similarities both to Valdivia on the Guayas coast (Evans, Meggers, and Estrada 1959; Estrada 1958, pp. 21–51) and to Early and Middle Guañape in the Virú Valley to the south (Strong and Evans 1952, pp. 34–39, 277–295), though the sequence of innovations is different in each region. The unusual flat, finger-pressed fillets of Negritos type are much like

those at Valdivia (Evans, Meggers, and Estrada 1959, Fig. 33a–e), while Paita-type notched fillets more resemble those of Early and Middle Guañape (Strong and Evans 1952, Fig. 46). Incised designs in Valdivia and Middle Guañape are largely based on parallel lines, but Valdivia design composition is rather more reminiscent of Paita A–B incised decoration than is that of Middle Guañape (*ibid.*, Fig. 50; Evans, Meggers, and Estrada 1959, Figs. 35, 38, 47, 48). Other Paita-like features in Valdivia are dented jar lips and rows of hollow finger-pressed protuberances (*ibid.*, Figs. 29, 50).

These similarities are all rather vague and generalized, and there is no precise identification of particular phases in the different regions. In general, similarities to Valdivia seem greater than those to Guañape. Furthermore, the earliest Valdivia phase (Valdivia A), is characterized by a very coarse tempered ware, as is Negritos in the Piura-Chira region. Negritos is suggestive of Early Guañape in the simplicity and orientation of designs, but the ridiculously small size of the sample of Negritos decorated sherds makes this similarity almost meaningless.

Both Valdivia and Early-Middle Guañape are at the beginning of the ceramic sequences of their respective regions. Their generalized similarity to Negritos-Paita A–B reinforces the early position of the latter phases in the Piura-Chira sequence.

While the early incised styles do not seem related to any known highlands style, the succeeding phases of red painted pottery—Paita C and D—show similarities in decoration to a widespread stylistic complex of southern Ecuador, which includes Early and Late Cerro Narrío of the Cañar Valley (Collier and Murra 1943), Monjashuaico and Huancarcuchu of the Cuenca region (Bennett 1946), Machalilla of the Guayas coast (Estrada 1958, pp. 53–68), and a group of sherds from Trapichillo in the Catamayo (upper Chira) Valley. The latter group consists of only a few sherds illustrated by Collier and Murra (1943, Pl. 12, nos. 7–10) and is not at present a definable style. Where an adequate sample has been published, the styles in this complex all share the following traits:

1. Red slip painting on natural buff, orange, or light red surfaces, with bands, parallel lines, and small simple geometric figures as prominent design elements.
2. Incised decoration featuring groups of parallel lines and crosshatching.
3. Zone punctation and line punctation enclosed in bands by incised lines.
4. Small jars with short flaring necks and relatively wide mouths.
5. Very thin ware.

In addition, the highlands styles in this complex feature small notched fillets like those of Paita C–D, and often have brushed exterior surfaces, but they differ from Paita C–D in that the red painted lines or areas are burnished over the brushing.

The similarities between these styles are sufficiently detailed to warrant the assumption that they are all approximately contemporary with each other. The center of the complex seems to have been in the south Ecuadorian highlands, where the Cerro Narrío style is found in abundance on large sites, and goes through at least three clearly distinct phases: Monjashuaico, Early Cerro Narrío-Huancarcucho, and Late Cerro Narrío (Bennett 1946, pp. 54–56). The Ecuadorian

coastal member of the complex, Machalilla, may represent only a brief intrusion in the coastal sequence (Estrada 1958, p. 55). It is known to date only from the type site, from a site on the Santa Elena Peninsula recently excavated by Henning Bischoff (John H. Rowe, personal communication) and from mounds 1 and 3 at La Carolina, Santa Elena (Disselhoff 1949, Taf. I, IV).

In a general sense, the styles in this red-on-buff complex form two chronological groups: Machalilla, Monjashuaico, Huancarcucho, Early Cerro Narrío, Trapichillo, and Paita C, an earlier group in which narrow parallel lines and small geometric designs are prominent in the red-painted style; and Late Cerro Narrío and Paita D, each demonstrably later than the first group in its own region, in which red bands predominate and the smaller designs play almost no part. The Chorrera style of the Guayas coast and basin, which should correspond in time with this later group, is markedly different in style but does use red banding as a decorative technique (Estrada 1958, p. 92, Cuadro 2). Further evidence suggestive of the contemporaneity of Chorrera and Paita D is the presence in both of bottles with spout-and-bridge arrangements.

In grouping these red-painted styles as a complex, there is no intention to imply that they actually represent a single widespread ceramic style. Though they are linked by the traits listed above, they are distinguished by prominent local differences. Thus, for example, the red designs in Machalilla are painted on carinated bowls, while in Paita C–D and the highlands group the red designs appear primarily on the short-necked jars. The jar necks differ in detail in each style. Stirrup spouts and polypod vessels occur in Machalilla; annular bases in all the Ecuadorian styles; negative painting, pattern burnishing, and (in Late Cerro Narrío) pedestal bowls in the highlands group. All these features are lacking from Paita C and D, which in turn show such local specialties as matte paint, post-fired painting, and bevelled lip bowls.

Noteworthy in Paita C is the use of red and yellow resin paints in zones outlined by incision, or to fill incised lines. Though the Paita Variant I sherds bearing this type of decoration are markedly different from other Paita C sherds, there seems to be no obvious neighboring region from which to postulate diffusion. The most similar specimen is an incised and resin-painted bowl from a Cupisnique grave in Chicama (Larco Hoyle 1941, Fig. 74; cf. fig. 2, *g* herein). This bowl is almost certainly a trade piece in Chicama but, on the basis of Larco's photo, it is not definitely a Paita C piece. Zoned resin painting is also found in the Torrecitas style of Cajamarca (Rowe MS; Reichlen and Reichlen 1949, fig. 4, B, E, G). Ubbelohde-Doering illustrates sherds of a zoned polychrome style from Tecapa on the Pampa de Paiján between Chicama and Pacasmayo, but does not say whether the paint was applied before or after firing (Ubbelohde-Doering 1957, Taf. XII-1, 3). At present it is not possible to determine whether Paita C zoned crusting is related to either the Torrecitas or the Tecapa assemblages, though such a relationship is certainly possible.

The Sechura style does not show close similarity to any other style, but in a general sense it, too, may be included in a widely diffused south Ecuadorian complex, of which the principal unifying features are white-on-red designs of bands, discs, and dots; two-color and three-color negative painting; and pedestal bowls

(the latter lacking from the Sechura style). Members of this complex are Garbanzal in Tumbes (Majía Xesspe 1960; Ishida *et al.*, 1960, pp. 423–424); Cashaloma and Tuncahuán (at least variants A and F) of the Cañar Valley and Chimborazo (see below, Appendix I; Collier and Murra 1943, pp. 64, 66, 75–78); Tejar and Quevedo in the Guayas Basin (Evans and Meggers 1957, pp. 240–243; Estrada 1957*c*); and, at least in part, Guangala of the Guayas-Manabí coast (Bushnell 1951, pp. 22–52).

The similarities between these styles and Sechura are of a more generalized nature than the traits which link the red-on-buff styles. The closest similarities are between Cashaloma, Tejar, and Sechura A–B white-on-red, which resemble each other not only in design, but also in having the white design on a red slipped base rather than on the plain clay, and in having some white designs on bowl interiors.

The later white-on-red and negative-painted phases in each region (Sechura, Quevedo, Tuncahuán) are less similar to each other, but are linked by a combination of key traits in the pottery excavated by the University of Tokyo expeditions to Perú at Garbanzal, Tumbes. One bowl from this cemetery seems to be exactly the same as the Sechura D bowl with inner-bevelled rim and notched lip (Ishida *et al.* 1960, p. 120, no. 48), while another is of the deep hemispherical form found in Sechura E (*ibid.*, p. 120, no. 50). A highly distinctive Sechura D–E form associated with these bowls is the "market basket" handle (*ibid.*, p. 120, no. 41; Mejía Xesspe 1960, Lám. Ii). The "market basket" handle is known from southern Ecuador and is a potentially useful time marker, but unfortunately its stylistic relations there are far from clear (Estrada 1957*a*, Fig. 8; 1957*b*, Fig. 62). Pedestal bowls and interior negative painting at Garbanzal indicate affiliation with the Ecuadorian white-on-red and negative-painted complex (Ishida *et al.* 1960, p. 120, nos. 43, 45, 53–57; first color plate), while an incurved bowl with appliqué decoration seems to be specifically similar to the *cocinas de brujo* of the Quevedo style (*ibid.*, p. 120, no. 40; cf. Estrada 1957*c*, Figs. 32, 41–47).

Sechura similarities to north Peruvian white-on-red and negative-painted styles are very vague. Christensen (MS., pp. 368–370) and Kelley (MS., p. 4) point out similarities between Chusís (Sechura E) and Gallinazo. In a general sense, such similarities undoubtedly exist, especially in the appliqué decoration of the two styles. The other Sechura phases, however, show only slightly less similarity to Gallinazo, and there is some evidence which suggests a slightly later date for Sechura E. For the Virú-Chicama region, the specimens which most closely resemble Sechura E are several jars in a Moche III grave excavated by Uhle, now in the Robert H. Lowie Museum of Anthropology. These jars (4-2854, 4-2867, 4-2868, 4-2869; Grave 10, Moche Site F) have large tall collars bearing incised and punctate faces. The eyes are done in the peculiar style seen in pl. 16, *b*, with an incised line extending out to both sides of a bean-shaped eye. Like Sechura E faces, too, those of Moche III have double rows of punctations as cheek ornaments or "tear bands." Gallinazo neck faces, on the other hand, are totally different in style.

If, nevertheless, Sechura E plastic decoration as a whole should be judged more similar to Gallinazo than to Moche III, this need not indicate contempo-

raneity with Gallinazo. Ubbelohde-Doering has illustrated very Gallinazo-like modelled and appliqué specimens from Moche III graves at Pacatnamú in the Pacasmayo Valley (Ubbelohde-Doering 1957, Taf. I–IX). Evidently, this tradition continued as strongly in the northern part of the Moche area as it did in Virú. On the whole, a Moche III date for Sechura E seems most convincing. This is the first cross-date to the established north Peruvian sequence which can be accepted with some confidence.

At this point there is a marked break in the Piura-Chira sequence, filled only by the few stamped and pressed sherds from Chusís. This period should be contemporary with Moche IV–V in the Chicama-Virú region—that is, with the end of the Early Intermediate Period and the beginning of the Middle Horizon. In spite of recent valiant efforts by Estrada, there remains sufficient confusion in the late coastal archaeology of Ecuador so that the styles there cannot profitably be compared with the latter part of the Piura-Chira sequence.

Beginning with Piura A, the stylistic affiliations of Piura and Chira are all with the north Peruvian coast. No more connections with Ecuadorian styles can be found, nor any with the Peruvian highlands. The press molded decoration of Piura A–B, featuring human figures and decoration on bowl exteriors, forms part of a molded style which extends as far south as Supe, and which belongs to the Peruvian Middle Horizon. It is found in the Middle Horizon assemblage at Site A in Moche (Kroeber 1925*a*, Pls. 64–65); in the Middle Supe collection from San Nicolás (Kroeber 1925*b*, Pls. 71, 75, 78); and at a Middle Horizon site discovered by Ernesto Tabío in Huarmey (information from Dorothy Menzel). Many examples of the style, most of them on typical Middle Horizon vessel forms, have been illustrated by Carrión Cachot (1959) from Huarmey. The principal difference in the Piura version of this style is that the bowls have pedestal bases, whereas further south they have simple flat bases.

Another reason for assigning Piura A–B to the Middle Horizon lies in the distribution of paddle-marked decoration, a technique which presumably originated in either the Lambayeque or Piura regions and diffused out therefrom. All known examples of this decoration south of Piura are from Middle Horizon or later times (Collier 1955, p. 110), which implies at least a comparable antiquity for the earlier paddle-marked phases in Piura.

Piura A, and perhaps also Piura B, should be contemporary with Tuncahuán Variant D negative and Elen Pata in Cañar (see Appendix I). Just as Piura A and B show influence from Peruvian coastal Middle Horizon styles, so Tuncahuán D has traits suggestive of highland Middle Horizon influence, specifically from the widely diffused Wari style. In each case, the diffused traits are not Tiahuanacoid designs, but other features locally associated with Tiahuanacoid styles respectively on the north Peruvian coast and in the Peruvian highlands.

Piura C, while generically a late north coastal Peruvian style, cannot be specifically affiliated with any other style. With Piura A–B dated to the Middle Horizon, however, Piura C should date to the first part of the Late Intermediate Period, about contemporary with black-white-red geometric and Cursive Modelled in Moche and Virú. This leaves Piura D, which is not represented in the collection studied, contemporary with Chimú. Many of the Chimú and Chimú-derived specimens in the literature on Piura probably date from this time.

Finally, Piura E belongs to the Late Horizon—the time of the Inca conquest. The evidence is again in the press-molded decoration, which features small fish and birds such as are found at Site B in Moche (unillustrated specimens from the Uhle collection in the Robert H. Lowie Museum of Anthropology), at a Late Horizon site discovered by Tabío in Huarmey (Dorothy Menzel, personal communication), and on "aryballoi" and other Inca or Inca-associated forms on the north Peruvian coast (Kroeber 1925*a*, Pl. 68*i*; 1925*b*, Pl. 70*d*). The lizardlike figures on one sherd from Nunura E (pl. 32, *d*) are repeated almost exactly on a modified "aryballos" from Túcume (Kroeber 1930, Pl. XXII, no. 6). Finally, globular paddle-marked jars with carinated necks exactly like those of Piura E also occur in the Late Horizon assemblage from Site B in Moche (Robert H. Lowie Museum of Anthropology, nos. 4-2487, 4-2488).

In postconquest times, ceramic style at Piura has maintained its relationship to styles on the rest of the north Peruvian coast. No comparison is possible for Piura F, but the Simbilá style is very similar to pottery made at Mórrope in the Lambayeque region (Collier 1960). The principal differences are that at Mórrope the bottom portion of the vessel is molded over a pot and the upper part worked with paddles, some of which retain carved designs.

The proposed time relations between southern Ecuador, Piura-Chira, and the Virú-Chicama region are shown in table 22. There is much guesswork in this table, especially in cross-dating Paita and Sechura A–D to the north Peruvian coastal sequence and in reconciling conflicting published and unpublished interpretations of south Ecuadorian sequences. It will undoubtedly have to be revised as more is learned about these regions. At the same time, I feel that the sequence of three early stylistic complexes (incised, then red painted, then white-on-red and negative) for Piura-Chira and the whole of southern Ecuador is a valid generalization, supported by convincing if skimpy evidence. Similarly, the cross-dating of the Piura style to the known north coastal Peruvian sequence is based on reasonably sound evidence and will probably suffer only minor corrections as more information is gathered.

ABSOLUTE DATING

Very little evidence for the absolute dating of the Piura-Chira sequence is available, and none of it is derived directly from archaeological sites in the Piura-Chira region. Many proposed dates for south Ecuadorian and north Peruvian styles are not based on sufficient evidence to permit their application by analogy to the Piura-Chira sequence (see Appendix II).

A guess date of 1500 B.C. may be assigned to the beginning of the ceramic sequence by analogy with the radiocarbon dates for Valdivia and Early Guañape. Three radiocarbon determinations made on seashells from Valdivia (phases A and B) give a consistent series of dates in the range 2000–2500 B.C. (Evans, Meggers, and Estrada 1959, pp. 87–88), while an excellent series of carbon sample dates from Huaca Prieta, Chicama, indicate a beginning date of about 1250 B.C. for pottery in that region (Bird 1951, p. 43).[8] This difference in dates implies that the potter's

[8] This date may be as much as two hundred years too recent, since the Huaca Prieta determinations have not been adjusted to compensate for the Suess effect or for the recent recalculation of the half life of carbon-14.

art was diffusing southward from southern Ecuador, so that the beginning of the ceramic sequence in Piura should date to some time between the earliest dates for southern Ecuador and Chicama. The choice of 1500 B.C. for Negritos, rather than 2000 B.C., is simply a matter of caution about assigning exceptionally early dates without more direct and positive evidence.

The next dates which may be assigned are for Sechura D and E and are more or less contradictory. There are two radiocarbon dates of 655 ± 80 A.D. for Moche IV in Virú (Broecker and Kulp 1957, p. 1329, L-335A and B; see also Appendix II herein). Moche III, which is probably approximately contemporary with Sechura E, could reasonably be dated to around 600 A.D., perhaps a little earlier. At the same time, a date of 220 ± 70 A.D. for Garbanzal should be applicable to some point in the Sechura D–E time range (Ishida *et al.* 1960, p. 518, G-605). If we assume that the latter date falls near the beginning of Sechura D, the two dates are perhaps not too incompatible, but the spread between them is a little more than I would have expected.

The beginning of Piura A should fall around 1000 A.D. or slightly earlier, since the widespread north coastal press-molded style which appears as a component of Piura A is later than Moche V and therefore well into the Middle Horizon. The Inca conquest of the Piura-Chira region evidently came some time in the 1460's (Rowe 1946, Map 4), so we may take the date 1460 as an arbitrary border line between Piura D and Inca-contemporary Piura E. There is no way of knowing whether the ravages of the years after 1532 had an immediate effect on the ceramic style of the native Piura tradition, and 1550 is perhaps as good a date as any for the end of Piura E. The following dates are probably fairly close to reality:

Simbilá	? –1960
Piura F	1550– ?
Piura E	1460–1550
Piura D	1300–1460
Piura C	1200–1300
Piura B	1100–1200
Piura A	1000–1100

There is so little information about absolute dates for the sequence before Sechura E that no attempt has been made to indicate a time scale in table 22. The placement of Negritos in the table reflects the hypothesis of the southward diffusion of ceramics from southern Ecuador to northern Peru, which in turn is based on the year dates for Valdivia and Early Guañape. Such dates as can be assigned to the sequence indicate that the earlier phases represent longer periods of time than the later ones. Accordingly, more vertical space has been given in table 22 to the earlier phases, but the amount of space allotted to each phase is not intended to be an exact estimate of its relative duration.

CONCLUSIONS

The ceramics studied here represent, in scanty fashion, some 3500 years of history on the Piura-Chira coast. Ceramic style during this period was strongly regional in character but was influenced from time to time by styles in the Ecuadorian

highlands, on the Ecuadorian coast, and on the north Peruvian coast to the south of Piura. There is a strong local stylistic tradition found from beginning to end of the sequence, and only rarely was foreign influence strong enough to modify it

TABLE 22

TEMPORAL RELATIONSHIPS OF SOUTH ECUADORIAN AND NORTH PERUVIAN STYLES

	Guayas Coast and Basin		Cañar-Cuenca	Piura-Chira	Virú-Chicama
				Simbilá	
				(Piura F)	
		↑	(Cashaloma White Slipped)	Piura E	Inca-Chimú
				(Piura D)	Chimú
				Piura C	Cursive Modelled
		Milagro	(Tuncahuán D) Elen Pata	Piura B	Moche Site A
				Piura A	
			(Tuncahuán B-C)		Moche V
					Moche IV
	↑	Quevedo	(Tuncahuán A,F)	Sechura E	Moche III
				Sechura D	Moche II
					Moche I
	Guangala			Sechura C	Gallinazo
		Tejar	Cashaloma White-on-Red	Sechura B	Salinar
				Sechura A	Cupisnique C
100 BC?	Chorrera		Late Cerro Narrío	Paita D	Cupisnique B
			Early Cerro Narrio		
	Machalilla		Monjashuaico	Paita C	Cupisnique A
	↑			Paita B	Middle Guañape
	Valdivia D			Paita A	Early Guañape
	Valdivia C			Negritos	
	Valdivia B				
	Valdivia A				

to any extent. Elements of the tradition are the predominance of wide-mouth jar forms with fairly short necks; the extreme rarity of small-mouthed jars, bottles, stirrup spouts, neckless ollas, vessel supports, handles, and other features common in surrounding areas; the simplicity of decoration at all times; the overwhelming tendency to geometric designs; the importance of plastic decoration throughout the sequence, whether or not associated with painting; and the lack of a distinction between decorated wares and cooking wares. This last feature is most unusual

in a larger area where almost every ceramic style is composed of separate "fancy" wares and utilitarian wares, usually on different pastes, always with different vessel forms.

There are, of course, a few specimens of "fancy" wares in the Piura-Chira sequence. These would be the Variant I incised and crusted pieces of Paita C; the engraved and white-on-red slipped specimens of Sechura A–B; and the rare burnished black ware of the Piura style, incuding the Chimú and Chimú-derived pieces found in the literature. The latter are definitely of foreign derivation, and the earlier "fancy" wares are so unusual in the Piura-Chira tradition that they, too, many be of foreign origin rather than being native developments.

Given the rarity of prestige wares, it is noteworthy that they nevertheless make up the bulk of the specimens illustrated to date from Piura and Chira. The Morropón Chavinoid bottle (Larco Hoyle 1941, Fig. 209), the Sullana polychrome bottle (Rowe 1942), and the numerous Moche-like, Chimú, Chimú-derived, Inca-Chimú, and Inca bottles and jars (Kroeber 1925*a*, Pl. 69; Lothrop 1948, Figs. 49–50, 52–54) are as out of place in the Piura-Chira tradition as they would be in an assemblage from the other side of the world. Even some vessels considered to represent purely local types seem strange and foreign in comparison with the known local tradition. These include red-ware carafes (Kroeber 1925*a*, Pl. 69k–l; Lothrop 1948, Fig. 48A) and Chimú forms with white or cursive black decoration (Kroeber 1925*a*, p. 228, Pl. 69d, g–h; Lothrop 1948, Pl. 52B). The very rare illustrated specimens in the native tradition are Piura paddle-marked jars (Kroeber 1925*a*, Pl. 69n, probably Piura B; Lothrop 1948, Fig. 51, Piura D?), Sechura white-on-red jars (*ibid.*, Figs. 53F, Sechura D or E; Fig. 54C), and jars with "market basket" handles of Sechura D–E type (Uhle 1920, Lám. XLVII, two jars near bottom of photo).

There are undoubtedly several reasons for the predominance of foreign or foreign-influenced pieces in the literature. Most important, probably, is the fact that these pieces come from private collections and are the result of selection of the specimens considered most beautiful by the collector. Frankly, there is little in the native Piura-Chira styles which would appeal to a collector, and every foreign piece saved may represent hundreds of native vessels rejected. Secondly, the sherds studied here are almost all from beach sites, which were fishing villages, temporary fishing camps, and fishermen's cemeteries. Since the foreign-influenced vessels probably bore high prestige, one would expect to find them primarily in the more urban sites, rather than among fishermen. Finally, most of the illustrated specimens are Chimú or Chimú-derived, probably contemporary with Piura D, which is not represented in Miss Haase's collection.

It is to be noted that the foreign influences on the Piura-Chira coastal tradition do not include Chavinoid or Tiahuanacoid designs, decorative techniques, or vessel forms. Except for the Morropón bottle, which could be a trade piece or could even belong to a separate up-valley tradition, there is no trace of Chavín influence. The Paita style should be partly contemporary with the Chavín diffusion which revolutionized ceramic style in other regions of the Peruvian coast. Yet Paita shows none of the traits of the typical Chavinoid style: feline and eagle designs, floating eyes, heavy burnished black ware, rocker stamping, dentate rouletting,

combed decoration, prepolish incision, bottles with stirrup spouts of large diameter, and others. Only the bevelled-lip bowls of Paita C suggest Chavinoid forms, and this trait is too generalized to ascribe to the Chavín diffusion with any certainty.

The influence of the north coastal Tiahuanacoid style is evident in the press-molded decoration of Piura A and B. This press-molded style, however, is not itself Tiahuanacoid but rather a local north coast style, partly of Moche derivation, associated in the area from Chicama to Supe with Tiahuanacoid polychrome decoration, goblet forms, and double spout bottles. These Tiahuanacoid features apparently did not reach Piura, and the only polychrome painted double spout bottle known from Piura—Rowe's Sullana bottle—does not bear a Tiahuanacoid design and could be a trade piece from farther south.

A number of other features of the Piura-Chira sequence are worth noting here. These will be discussed in a period-by-period summary of the sequence.

PRECERAMIC

Preceramic sites are known on the Illescas and Paita Peninsulas and, just to the north of the region treated in this study, around Cabo Blanco and the Máncora Valley. The site on the Paita Peninsula is a small one from which only a few quartzite flakes were collected (Brown 1926, p. 100). The Illescas sites are burial caves, from which carved stone bowls, nets, and looped textiles have been reported (Kostritsky 1955). Of the Máncora sites, the most important is El Estero, near La Breita. Artifacts from this site included curious eared stone axes, stone bowls or mortars, pestles, retouched flakes, hammerstones, and a few other stone implements (Brown 1926, pp. 97–99).

There is little to indicate the age or nature of these preceramic cultures. The presence of looped textiles and stone bowls at the Illescas sites suggests affiliation with the numerous preceramic fishing and small-scale farming villages of the Peruvian coast. A similar affiliation could be suggested for El Estero, but the polished stone axes at that site give the assemblage a non-Peruvian quality.

NEGRITOS

Still less is known about what seems to be the earliest ceramic period in the collection studied here. The Negritos style is represented by only thirteen sherds, distinctive in their moderately thick, heavily tempered brown coiled ware. They are decorated with small, flat, finger-pressed fillets like those of the Valdivia style of Ecuador, long incised lines, and rows of large punctations. Negritos, with the succeeding Paita A–B phases, forms part of a complex of very early incised styles which either use no paint or use it only as an over-all red slip. This complex includes Valdivia to the north and Early and Middle Guañape to the south.

PAITA A–B

Beginning with Paita A, we find the distinctive Thin Red Ware with its fine tempering, brushed surfaces, and thin vessel walls. It is presumably related to the early thin wares of Ecuador, though the incised decoration of Paita A–B shows little more similarity to Ecuadorian than to Peruvian incised styles. In Paita A

and B, the predominant color of the ware is brown, though light red surfaces occur. The typical Paita firing pattern—the vessel mouth down, fired in a reducing atmosphere but exposed to air at the last moment to give a more oxidized exterior surface—was established in Paita A times and became standard during Paita B.

The only nonpottery artifact associated with the Paita A–B collections is a single fragment of a pressure-flaked chert projectile point from Casita 2. This is the only stone projectile point known from the Piura-Chira region.

The preceramic assemblages and the earlier incised styles are known only from surface sites and looted cemeteries. The earliest sure evidence of village life is the two-acre refuse deposit at Paita, which dates to Paita B and C times. One may assume that substantial earlier village sites will be found on the Piura-Chira coast, as they have been along the entire Peruvian coastline south to Nasca.

PAITA C–D

The outstanding feature of the late Paita phases, their red slip painted decoration, seems to have been introduced from Ecuador—perhaps from the south Ecuadorian highlands. Not only was the red-on-buff complex well established there, but there is a logical route of diffusion down the Catamayo Valley which, in its lower reaches, is the Chira Valley of Peru. In fact, from Collier and Murra's description, the small group of red-on-orange sherds from Trapichillo in the Catamayo Valley seems to be more similar to Paita C than is any of the other red-painted assemblages. The Paita C incised and resin-painted sherds show some similarity to early stylistic assemblages from the north coast and highlands of Peru (Tecapa and Torrecitas), but are not definitely related to them.

Most Paita C pottery has well-oxidized light red exterior surfaces. Such well-fired red ware is present in Paita A and B, but is overshadowed in those phases by darker brown tones. In Paita C, on the other hand, while the typical Paita firing pattern was retained, good red surfaces were systematically achieved. Curiously, in Paita D there is a return to darker wares fired in a poorly controlled atmosphere which could not be described as either oxidizing or reducing. These darker wares continue into Sechura A, whereafter there is a steady increase in red ware until Sechura E, when we again find systematically red pottery. This sequence of events can best be explained as due to a change in firing pattern, followed by a long period during which the potters learned to control new techniques for the manufacture of red ware. The Paita pattern—mouth-down firing, last-minute oxidization—reaches its greatest frequency in Paita B and C. The typical red-exterior, gray-interior sherds are less common in Paita D, and thereafter occur in such small frequencies that they can be attributed to accident. Insofar as there is a systematic relationship between dark and light colors in later phases, it is in Sechura E, where many sherds have light gray cores and light red inner and outer surfaces. Evidently, then, new ways of firing pottery were introduced in Paita D times, and these were not fully mastered for the systematic production of red ware until Sechura E.

The Paita D style in many ways looks like a simplification of Paita C, without any noteworthy introductions from outside. It shows a development of ware quali-

ties toward those of Sechura A not only in the dark firing, but also in the thicker ware and in the abundant large pyrites found in the paste. This latter feature is found in Paita D and Sechura A pottery from the mouth of the Piura River (San Pedro 8) north nearly to Talara (Negritos 1 and 2), which suggests that the pyrites were added deliberately as temper, rather than being accidental inclusions in local clay deposits.

The one clear case of outside influence on Paita D is a sherd of a spout-and-bridge bottle. This form is common in the Chorrera style, which was presumably contemporary with Paita D.

SECHURA A–B

With the introduction of white-on-red band and disc designs, rare two-color and three-color negative painting, and engraving, we seem to have another wave of influence from Ecuador. The annular bases of Sechura A and B, too, may be a reflection of the Ecuadorian pedestal bowls of this period. It is reasonable to suppose that these new influences also came down the Catamayo Valley from the highlands, but the stylistic evidence does not clearly favor the highlands as against the Ecuadorian coast as a source for these innovations. It is certain, however, that the stylistic similarities are to the south Ecuadorian, rather than the north Peruvian, white-on-red and negative-painted styles.

In its use of engraving and its rather heavy burnished brown ware, Sechura A pottery resembles Peruvian pottery of the Early Horizon. The designs, of course, are not Chavín, and the resemblances are vague and probably coincidental. The influence probably came from the dark engraved wares of Late Cerro Narrío or Chorrera as part of the Ecuadorian influence on Sechura A.

SECHURA C

With Sechura C, we find changes in style which were probably purely local in character: replacement of small fillets by large, white painting on unslipped ground, and, above all, the transition from coiled pottery to paddle-made pottery. It is unfortunate that the Sechura C sample should be so very small, because this transition is more deserving of intensive study than any other portion of the sequence. It represents a very fundamental change in the potters' working habits and was a necessary step in the development of the paddle-marked pottery of the Piura style. At present there is no way of knowing whether the period of transition was long or short, or whether the paddle-and-anvil appeared as a local invention or as an innovation introduced from without. If the latter, one could expect that it would be associated with other stylistic features of the region from which it was learned.

The technique seems, on present knowledge, to have originated in Piura-Chira or in the Lambayeque region. It certainly did not come from the Moche region proper because Moche pottery was pressed in molds or coiled. Similarly, no paddle-made pottery has been reported from southern Ecuador nor, to date, from the north highlands of Peru. When Lambayeque chronology has been elaborated in detail and cross-dated to that of Piura, it should be possible to single out one region as the homeland of the paddle-and-anvil technique.

SECHURA D–E

While Sechura D and E belong, in a general sense, with the south Ecuadorian white-on-red and negative-painted styles, they are much less similar to any Ecuadorian style than are Sechura A and B. At the same time, Sechura E decoration seems related to the tradition of appliqué and punctate decoration found in the region from Virú to Pacasmayo, which lasted from Salinar times at least until Moche III. Insofar as Sechura E shows the influence of a specific phase farther south, it is Moche III. Evidently, this was a time when a cultural boundary was moving northward. At present, there seems always to have been a sharply delineated boundary between the southern Ecuadorian and northern Peruvian regions across which very little identifiable diffusion took place, at least until the Inca conquest. In early times Piura was part of the southern Ecuadorian sector but, beginning with Sechura E, it became affiliated rather with northern Peru. The process probably continued during the unstudied period following Sechura E and was completed by the beginning of Piura A.

The first major break in the sequence is in the period of transition to paddle-and-anvil manufacture of pottery, which is represented only by the thirteen Sechura C sherds. After Sechura E there is a more complete break, filled only by one sherd in Miss Haase's collection and four reported by Christensen. The specimens in question are the stamped and molded sherds from the surface of Chusís—the first indication of the geometric stamping which was to become the typical decoration of the Piura style.

The stamped and molded sherds from Chusís, occurring only on the surface, probably represent a brief period immediately following Sechura E. If so, we may assume that press molding and paddle stamping appeared in the Piura-Chira sequence at about the same time, approximately contemporary with Moche IV. With the resumption of the sequence in Piura A, we find geometric paddle stamping scarce but growing steadily more abundant, associated with two rare types of press-molded decoration. One of the latter makes use of the same simple designs as the paddle stamping, carving them on the inside of pottery molds rather than on paddles. The other is the "goose flesh" and representational design tradition. Both types of press molding are common at least from Lambayeque to Chicama, and the "goose flesh"-representational type extends as far south as Supe. In Lambayeque, they are associated with abundant paddle marking, while further south the latter technique is not so common.

Press molding is found throughout the Moche sequence in Chicama and Moche, and is therefore older than Piura paddle marking. It is possible that the entire tradition of paddle marking in Piura and Lambayeque was the result of the northward diffusion of the press-molding technique from the Moche-Chicama region. The local potters—either in Piura or in Lambayeque—may simply have adapted the new type of decoration to a ceramic technique with which they were familiar, transferring the geometric designs to their paddles and, accordingly, stamping them on the whole vessel rather than pressing them on delimited portions of it. This transfer very probably took place in the Piura-Chira region, where press molding, though known, did not take a strong hold on the style. If Lambayeque was the

scene of the innovation, the new techniques probably diffused northward to Piura together. In either case, once paddle stamping was under way it increased steadily in the number and variety of its designs, and some of them in turn may have been transferred back to the press-molding technique.

Collier has pointed out the existence of separate traditions of paddle marking and press molding, respectively in the northern and southern halves of the north Peruvian coast. He refers to the common occurrences of press molding in the Moche style, and states that, "At present the molding tradition of the south is thought to be older than the stamping tradition of the north, but when the far North Coast is better known archaeologically, the stamping tradition may prove to be equally old" (Collier 1960, p. 428). The history of pottery stamping in Lambayeque remains to be investigated, but a tentative answer to this question can be offered for Piura and Chira. Of the two types of stamping to which Collier refers, medallion stamping appeared very briefly just after Sechura E (i.e., about contemporary with Moche IV), then disappeared from the style until after the Spanish conquest. Paddle stamping, introduced at the same time, grew in popularity until it dominated the style throughout the Late Intermediate Period and the Late Horizon. Neither is so old as Moche press molding. On the other hand, paddle-and-anvil manufacture of pottery is somewhat older, probably contemporary in its beginnings with Gallinazo or Moche I.

Clay stamps from Lambayeque, bearing typical geometric designs (Kroeber and Muelle 1942, Figs. I–II) suggest that medallion stamping of Simbilá-Mórrope type may have been more strongly established in that region in prehistoric times. However, it is possible that the Lambayeque stamps date from the Colonial Period.

PIURA A–B

With the establishment of the Piura style, the Piura-Chira region was entirely within the north Peruvian cultural province and apparently cut off from further contact with southern Ecuador until both were incorporated into the successive Inca and Spanish empires. Foreign influences on the Piura A–B style came from farther south on the Peruvian coast in the form of press molded designs, fine burnished black ware, and handles on cooking pots. Though the press molded style which reached Piura at this time belongs to the Middle Horizon, it is not Tiahuanacoid but rather local north coastal. The one Ecuadorian trait in the rare Piura version of this style is the pedestal bowl, which may well have been introduced earlier, during the unstudied period after Sechura E.

The rare burnished black ware of Piura A–B was also introduced from farther south on the Peruvian coast. Like press molding, it is part of a Moche tradition which continued into later times. It became very common during the Middle Horizon in the Moche area and apparently diffused northward at that time. This burnished black ware of Moche tradition is entirely different from the occasional black specimens of the Sechura style, which are comparatively thick and soft and at most irregularly polished, true to the strongly utilitarian tradition of Piura-Chira pottery.

Piura B is the last phase to retain strong links to the earlier Sechura style. Curvilinear white-on-plain-red decoration and over-all red slipping disappear

from the style during Piura A, while Sechura-type large plain and notched fillets continue only through Piura B. Granular Paddled Ware, too, ceased to dominate the style after Piura B.

PIURA C

Little can be said of Piura C, except that it carried on the native tradition with relatively minor changes, concentrating almost exclusively on geometric stamping and crude white banding for its decoration. The most noteworthy feature of the Piura C sample is a negative one: the lack of Burnished Black Ware and representational press-molded decoration. The sample is not large and does not assure that these features were actually lacking from the style at this time. It would be no surprise, however, if this should prove to be true. Neither type was abundant in Piura A and B, when the Piura potters were presumably in direct contact with the potters to the south who had influenced their work. With the falling off of interregional contacts which took place all over Peru after the Middle Horizon, the Piura potters or their customers may well have lost interest in these exotic foreign-type wares.

PIURA D–F

The end of the archaeological record in Piura and Chira comes with the conquest of the region, in rapid succession, by the kings of Chimor, Cuzco, and Castille. Piura D, the Chimú period, is not represented in the collection studied. The Piura E collection from Nunura 1, coming as it does from a fishing establishment far removed from the nearest important valley center, shows no Inca influence. On the other hand, the influence of coastal regions farther south is evident in the new representational press-molded style and in the increased frequency of gray and black utilitarian ware of native tradition. Piura E is the only phase in the entire sequence in which reduced ware is found as frequently as oxidized ware. In Virú, and presumably in Moche and Chicama as well, reduced-fired cooking ware was important in the Middle Horizon, and was made nearly to the exclusion of red ware in the Late Intermediate Period and Late Horizon (Collier 1955, pp. 109–110). The much later appearance of this tendency in Piura, and its lesser intensity, suggest that the increased frequency of gray ware in Piura E was a function of renewed contacts with the regions to the south.

Nothing can be said of Piura F at the moment, except that, if we may judge by Kelley's report, the Piura style continued to be made in Colonial times.

SIMBILÁ

In the Simbilá style, as in the related Mórrope style of Lambayeque, we find a continuation to the present day of the ancient tradition of pottery making. Though some Simbilá vessel shapes and flower designs come from the European tradition, there is nothing European about the methods by which the pottery is made and fired, and the stamped decoration is only a slight modification of the paddle-stamping technique. The remarkable thing about this retention of an aboriginal ceramic tradition is that it shows so little influence of the three successive conquests of the region, though the third conquest has drastically revolutionized life in Piura and Chira.

After the initial destruction and near depopulation of the region described by

Cieza de León (1945, Capítulo LVIII, p. 180), the native population seems to have continued on, as Indians, into the eighteenth or nineteenth century. Since then, however, they have become *mestizos* in language, dress, and other aspects of culture. Yet their pottery remains basically in the pre-Chimú stamped red ware tradition, and other industries, such as weaving, have been little affected by acculturation to the *mestizo* norms.

FINAL COMMENTS

It is hoped that this study provides a skeletal framework of chronology on which the body of Piura-Chira archaeology can be built. Based as it is on few sites and small samples, it has perhaps resulted not in a complete skeleton but in a collection of bones, some of them firmly articulated, others put tentatively in their places. Having recently finished the analysis, I am acutely aware of its weak points and of the need for testing it. The region is an important one for Andean archaeology, because it lies midway between two great culture provinces and was a member first of one, then of the other. It is important, too, because it was the locus of a newly discovered and previously undocumented stylistic tradition, and because it may have been the homeland of ceramic techniques which were widespread in northern Peru from Middle Horizon times onward. The region deserves intensive survey and excavations to amplify the sketchy knowledge presented here, to test the inferences about chronology and cultural relationships, and to investigate the problems raised here as well as others which will surely arise during the course of continuing research.

APPENDIX I

An Alternate Interpretation of the Ceramic Sequence of the Cañar Valley, South Ecuadorian Highlands

Because of the importance of the archaeological sequence of the Cañar Valley in interpreting chronological relations between Piura and southern Ecuador, a discussion of some problems of Cañar archaeology is presented here.

The one systematic archaeological study of the Cañar Valley is that of Collier and Murra, based on their excavations of 1941 (Collier and Murra 1943). It is this report—by far the best piece of archaeological analysis for the Ecuadorian highlands—which gives Cañar its importance for interregional comparison. Collier and Murra's report is outstanding for the quality of its descriptions, for its extensive illustrations, and for the soundness of its documentation. In fact, it is one of those archaeological reports—rare for South America—which presents the data with sufficient thoroughness so that one may disagree with the authors' conclusions and draw evidence for the disagreement from the report itself.

Collier and Murra, on the basis of stratigraphic excavations at three sites and a surface collection from a fourth, propose a sequence of three periods, linked by a single basic ware, Narrío Red-on-Buff. The first period, Early Cerro Narrío, is characterized by three scarce variants (A, B, C) of Narrío Red-on-Buff, an abundant especially thin related ware (Narrío Red-on-Buff Fine), a burnished red-slipped ware (Cañar Polished) which may bear engraved or negative painted decoration, and a coarse utilitarian ware (Granulated Ware). This period is defined by materials from the deeper levels at Cerro Narrío (Collier and Murra 1943, pp. 49–54, 81).

The second period, Late Cerro Narrío, is represented in the upper levels at Cerro Narrío, at Shillu and in a surface collection from Quillohuac, and apparently in the lower levels at Cashaloma. It is characterized by a new variant (D) of Narrío Red-on-Buff, new vessel forms in the standard Narrío Red-on-Buff ware, a new coarse utilitarian ware (Narrío Gross), and two successive groups of "intrusive" wares. The earlier of these, present at all four sites, is Group X, which includes engraved red and black wares, rare negative painting on glossy red slip, red-slipped bands with incised outline, and graters made by embedding pieces of quartz in the interior surfaces of bowls. The later group of intrusive wares, present only at Cerro Narrío, are identified as trade pieces from Chimborazo Province to the north, where similar styles are found. They include Elen Pata (incised and sometimes slip painted), San Sebastian (incised grater bowls with pedestals), and six varieties of Tuncahuán (two- and three-color negative, white-on-red, red banded). Other Late Cerro Narrío features are clay drums or seats, and metal artifacts. (*Ibid.*, pp. 50, 54–66, 74–77, 81–82.)

Finally, the third period occurs at Cashaloma, where it apparently comes from the upper levels of the site. It includes Narrío Red-on-Buff ware, less well smoothed and with more extensive areas of red slip, and a number of new types said to be Inca-influenced. The latter include large crude white-slipped jars with punched fillets, rough incision, cane stamping, punctation, or brushing of the surface; in-

cised flat lugs; polished white-on-red bowls and plates with rim lugs; and white-on-red bowls, pedestal bowls, and bottles with spouts. (*Ibid.*, pp. 76–78.)

Examination of the evidence presented by Collier and Murra leads me to feel that there are not three, but six or seven stylistic periods represented in their material from Cañar, and that the sequence of styles may be rather different from that which they propose. Comparison with the Piura-Chira and south coastal Ecuadorian sequences indicates that a revision of the Cañar sequence is not only possible, but very likely to be accurate. Without going to great lengths to defend the sequence outlined below, let me point out that it is an alternate hypothesis, subject to the possibility of gross error, and requiring testing in the field. Without further evidence from the field, it should not be considered as either more or less "true" than the sequence proposed by Collier and Murra.

Two considerations led to the reconsideration of the Cañar sequence. Given the similarity of Narrío Red-on-Buff decoration to the red painted ware of Paita C–D, it seemed incredible that Narrío Red-on-Buff could have continued through 2000–3000 years till Inca times with so little change in form and decoration. Secondly, judging by the illustrated specimens, the Cashaloma white-on-red style seemed sufficiently similar to Tejar and Sechura A–B that association with Inca remains or influence was to be doubted.

In proposing a revised sequence as an alternate hypothesis, several facts reported by Collier and Murra must be taken into account. Firstly, Cerro Narrío has been subject to looting on a tremendous scale. Though Collier and Murra found small patches of undisturbed deposit to excavate, as indicated by the presence of post holes, packed earth floors, and burials, the upper levels of most or all of their trenches could well be made up of soil moved by vandals. Secondly, despite the small reported sample of Puruhá-Tuncahuán sherds, an unusual number of whole or partly reconstructed vessels of these types are attributed to the excavated trenches (*ibid.*, Pls. 36, nos. 1–4; 38, nos. 2 and 5; 40, nos. 1–5; 41, nos. 2 and 7). In addition, the Puruhá-Tuncahuán types are reported only from Cerro Narrío, and are notably absent from Cashaloma, where the deposit spans the period to which these types are attributed. Also, most of the illustrated Cashaloma specimens said to show Inca influence (*ibid.*, Pls. 52, nos. 3, 5–6; 53; 54) do not in fact show any characteristic of the Inca style. The exceptions to this statement are one of the crude white-slipped jars shaped vaguely like an Inca "aryballos" and another with a simple zoomorphic lug seemingly of Inca type (*ibid.*, Pl. 54, nos. 1 and 5).[4] Finally, genuine Inca pottery or local copies thereof are reported from Cerro Narrío, but not from Cashaloma (*ibid.*, Pl. 45, nos. 3–5, 7–9).

On the strength of these considerations, I should like to suggest that the entire group of Puruhá-Tuncahuán ceramics from Cerro Narrío comes from disturbed burials dug into the Late Cerro Narrío midden that blankets the site, and that they are of later local manufacture. This would explain not only the frequent whole and reconstructed vessels of these types, but also their absence from Cashaloma. Since the Cañar Valley is only a few miles south of the region where they are known to be native, this hypothesis proposes a slight southerly extension of the Puruhá-Tuncahuán native area.

[4] Collier informs me that he no longer considers most of these specimens to be Inca influenced. We are in agreement that the lug shown in his Pl. 54, no. 5, is of Inca type, however.

Two additional hypotheses are that the pottery drums and the Group X wares—whether imported or made locally—are genuinely associated with Late Cerro Narrío; and that there were three periods of occupation at Cashaloma: Late Cerro Narrío; a period of white-on-red designs on bowls and pedestal bowls and modified Narrío Red-on-Buff ware; and a period of crude white-slipped and incised or stamped jars, some of which may show Inca influence. The first two of these periods should be earlier than Puruhá-Tuncahuán, the third later.

Collier has pointed out that Tuncahuán pottery probably does not represent a single stylistic unit, and that it should be possible to establish regional and temporal variants of it (Collier 1948, pp. 81–82). Collier and Murra divide Tuncahuán into six variants—five from the excavated deposit, the sixth a single sherd from the surface—and it is reasonable to suppose that some of the differences between the variants are due to difference in time. With this in mind, the following revised sequence is suggested for the Cañar Valley:

1) *Early Cerro Narrío.* This period, well founded on stratigraphic evidence, remains as defined by Collier and Murra. The stylistic components are standard Narrío Red-on-Buff (mostly jars with short flared collars, bearing polished red-slipped bands, and often pattern burnished); Narrío Red-on-Buff Fine (similar jars, very thin, with red geometric designs as well as the usual bands, sometimes pattern burnished); Narrío Red-on-Buff Variants A (shoe-shaped jars with notched fillets and pattern burnishing), B (small jars with red zones outlined by white lines and sometimes alternating with fields of small punctations), and C (jars with incised decoration made up of intersecting groups of parallel lines); Cañar Polished (mostly bowls, with or without ring bases, with polished red slip and occasional engraved or resist negative decoration); Granulated Ware; and occasional anthropomorphic modelling featuring eyes made by setting a flat pellet in a circular depression.

2) *Late Cerro Narrío.* This period differs from Collier and Murra's definition in that it does not include Puruhá-Tuncahuán. Standard Narrío Red-on-Buff continues, now with shallow bowls and new jar forms, and Variant D of Narrío Red-on-Buff introduces the *compotera* or pedestal bowl and lines of punctations enclosed in bands. Narrío Gross ware is common. Modelled eyes are now of "coffee bean" type. The Group X engraved, negative, red-banded, and quartz-studded types occur, along with pottery drums. Collier and Murra illustrate a stirrup-spout bottle from Azuay with a complex engraved design made up partly of hatched zones like those on the Group X engraved ware. Though the design may show some faint Chavín influence, it is definitely not similar to designs in any Peruvian style; but the bottle has a thick stirrup suggestive of early Cupisnique stirrups (Collier and Murra 1943, Pl. 10, no. 4).

3) *Cashaloma white-on-red.* Here are included the modified Narrío Red-on-Buff ware from Cashaloma, and the white-on-red plates, bowls, and pedestal bowls from that site, characterized by designs of lines with rows of dots or discs. Some of the tall-necked white-and-red-zoned bottles are probably also to be included here (*ibid.*, Pls. 45, no. 6; 46, nos. 1–3; 52, no. 6; 53, nos. 13–21; 54, no. 7). At least one of the specimens grouped as Tuncahuán Variant D white-on-red may also belong in this period (*ibid.*, Pl. 40, no. 6).

4) *Tuncahuán Variants A, F,* and part of Variant D white-on-red. These three groups are linked by similar vessel forms, and have designs which are very close to Cashaloma white-on-red designs. Decoration consists of white-on-red lines, discs and dots, and negative-on-white slip with red slip as a third color. Forms are pedestal bowls with perforated pedestals and shallow incurved bowls with marked shoulders (*ibid.,* Pls. 38; 40, nos. 8, 11–13; 41, no. 7; 52, nos. 3, 5). The San Sebastian incised graters may belong to this period on the strength of their perforated pedestals, and some of the white-and-red-zoned bottles attributed to the previous period probably also belong (*ibid.,* Pls. 37, nos. 1–3, 5; 45, no. 6; 46, nos. 1–3; 52, no. 6; 54, no. 7). Though there must be an associated cooking ware, it cannot be defined. If the specimens are from looted graves, as suggested, the cooking ware may not have been placed with them.

5) *Tuncahuán Variants B, C,* and part of Variant D white-on-red. These groups feature negative painting on pink slip or on unslipped surfaces, with white lines as the third color, together with a continuation of white-on-red line and dot designs. Pedestal bowls may no longer occur. Forms are incurved bowls without shoulders, tall vessels with annular bases and angular shoulders, jars with tall necks, and double bowls. Simple adornos appear on bowl lips. Unlike previous phases, decoration is limited to the outside of the vessels (*ibid.,* Pls. 39; 40, no. 7; 41, nos. 1–4). A stirrup-spout bottle of Moche V form (*ibid.,* Pl. 46, no. 6) may be attributed to this period, not because of any similarity of design but because it should immediately precede the Wari influence seen in the next period.

6) *Tuncahuán Variant D negative, Elen Pata.* With these groups from Cerro Narrío may be included several vessels from Zula, a few miles north of the Cañar Valley (*ibid.,* Pls. 2, nos. 1–3, 5–7; 35, nos. 1–4; 36, nos. 1–4; 40, nos. 1–5). Negative painting continues with white as the third color, but now occurs on a red or orange slipped base, again only on the outside of the vessel. Incised decoration (the Elen Pata group) is common. Collier and Murra do not report slip-painted and two-color negative vessels like those from the Elen Pata cemetery in Chimborazo, but otherwise the assemblage—including the Tuncahuán Variant D negative pieces—fits well with the material from that site (Jijon y Caamaño 1927, pp. 61–147, Pls. LIII–CIX).

Incurved bowls in this group are more closed at the mouth, and are accompanied by tall goblets and jars with tall necks. Rim adornos are now zoomorphic. Both the incurved bowls and the goblets may have drinking tubes. The drinking tubes, goblets, and jar forms are all reminiscent of the Middle Horizon Wari style of the Peruvian highlands, and some of the painted designs (Collier and Murra 1943, Pls. 2, no. 3; 40, no. 3) also suggest Wari affiliation. Though this is by no means a Tiahuanacoid style, it does seem to have connections with one.

7) *Cashaloma white-slipped incised.* The crude white-slipped jars from Cashaloma are entirely different from the preceding styles, and seem to show genuine Inca influence. In addition, jars of this type were found by Jijón y Caamaño in Inca association at Joyaczhi (*op. cit.,* p. 77). This group of vessels evidently represents the ceramic style of the Cañar Indians. Contemporary with it would be the Inca pieces from Cerro Narrío, and presumably a painted Chimú stirrup-spout

bottle and an Inca-Chimú blackware effigy bottle (Collier and Murra 1943, Pls. 45, nos. 1–5, 7–9; 46, nos. 4–5; 53, nos. 1–9; 54, nos. 1–6).

The copper axe excavated by Collier and Murra, and the copper and gold objects taken from Cerro Narrío by vandals (*ibid.*, pp. 69–70) cannot be dated in this proposed revision of the Cañar sequence, but presumably all come from the intrusive burials (Puruhá-Tuncahuán and Inca) at the site. The lack of fragmentary metal objects in Collier and Murra's excavations suggests that they were not a component of the midden of the Cerro Narrío periods.

APPENDIX II

Radiocarbon and Obsidian Dates for Southern Ecuador and Northern Peru

Since the absolute dating of the earlier portions of the Piura-Chira sequence depends entirely on analogies with dated sequences in southern Ecuador and on the southern portion of the north Peruvian coast, it is worth while to review briefly the evidence for dating in those regions in order to select only those dates which are based on substantial evidence.

The very early dates for Valdivia A and B on the Guayas coast (Evans, Meggers, and Estrada 1959, pp. 87–88) come from radiocarbon determinations on samples of sea shells. Shell-sample determinations often give most improbable dates, but these three dates are remarkably consistent as a series and I can see no reason at present to doubt their validity.

Evans, Meggers, and Estrada compare the Valdivia dates with shell-sample dates for Early and Middle Guañape in the Virú Valley and conclude that the latter phases are contemporary with Valdivia (*ibid.*, pp. 89–90). As Lathrap points out, however:

> The use of the [shell-sample] dates of 5750 ± 200 and 4300 ± 200 B.P. for Middle and Early Guañape in preference to the much later dates based on vegetal materials implies that the authors regard as worthless most of the rest of the radiocarbon dates determined in Peru, since most of the latter, especially the long series of dates from Huaca Prieta, clash hopelessly with these two extremely early dates (Lathrap 1960, p. 126).

Actually, of six radiocarbon dates for Early and Middle Guañape in Virú, three were run on shell and are highly inconsistent among themselves; a fourth (L-122F, 1849 ± 150 B.C.) was run on a carbon sample described as coming from a level containing both preceramic and Early Guañape midden; the other two (L-122C, 1149 ± 200 B.C.; L-122A, 1199 ± 90 B.C.) are entirely consistent with the excellent series of dates from Huaca Prieta (Kulp *et al.* 1952, p. 410).

The only other north Peruvian radiocarbon dates applicable by analogy to the Piura sequence are those for Moche IV, which should be only slightly later than Sechura E. The dates are 113 ± 90 A.D. (Bird 1951, p. 19, C-619), 655 ± 80 A.D., and 655 ± 80 A.D. (Broecker and Kulp 1957, p. 1329, L-335A and L-335B). The first of these dates is impossibly early, while the later ones are about what one would expect for the period just before the beginning of the Middle Horizon.[5]

For southern Ecuador, there is a large series of dates determined by the measurement of hydration layers on obsidian artifacts (Evans and Meggers 1960, pp. 500–508, 526–532). Evans and Meggers seem to feel that these age determinations substantiate their guess dates of 1500–500 B.C. for Chorrera, 500 B.C. to 500 A.D. for Tejar, and 500–1500 A.D. for Milagro. If one could be sure of these dates, they could be applied by analogy to Paita D and Sechura. Unfortunately, they are doubtful for several reasons.

To begin with, the obsidian measurements do not date the south Ecuadorian styles because the time scale on which they are plotted uses the guess date for

[5] Cf. Broecker and Kulp 1957, p. 1329, L-335F, 756 ± 90 A.D. for Nasca 8 on the south coast, just before the Middle Horizon.

Chorrera as a major point of reference (Friedman and Smith 1960, p. 488). Thus, the dates will be substantiated only if they are right in the first place, and a poor guess would be supported by the obsidian determinations as well as a good guess. It is no surprise, then, that nearly two-thirds of the 32 Chorrera dates for various sites are within the estimated range of 1500–500 B.C. On the other hand, only 45 per cent of the 45 listed dates for Tejar and 30 per cent of the 127 Milagro dates are within the estimated ranges. In fact, nearly half of the "good" Milagro dates come from a single site, Cambio de la Balsa. From all of the other sites together, only some 20 per cent of the dates fall within the estimated range of 500–1500 A.D. for Milagro.

More than half of all of the Ecuadorian obsidian dates listed in the table are older than the estimated dates, and for Milagro this figure reaches two-thirds. Evans and Meggers, in an admirable display of caution, suggest several possible archaeological reasons for the discrepancies, but do not consider the possibility that either the time scale or the estimated dates, or both, might be incorrect, or that the source of error might lie in the theory and practice of the obsidian dating method. All the dates which are considered too old are explained as being due to the reuse of old artifacts. Such collecting and reuse does, of course, occur, but I find it incredible that from 50 to 80 per cent of a stone industry could consist of reused specimens.

Careful reading of the articles by Friedman and Smith and by Evans and Meggers, together with a perusal of their Table 1, convinces me that there are such serious unresolved problems in the theory that correlates thickness of hydration layers on obsidian with elapsed time, that the method is not yet near to being a useful dating tool. For area after area—Alaska, Egypt, the Near East, coastal Guatemala, the Maya area, and others—half or more of the obsidian dates are far outside the range of dates calculated by other means. In some of these regions, especially Egypt, the Southwest United States, and the Maya area, there is no question but that the estimated dates are close to being true and the obsidian dates are far off.

As to the guess date for Chorrera on which the Ecuadorian time scale is based, 1500 B.C. seems excessively old and 1000 years an excessively long duration, when seen from Piura. The early date seems to have been arrived at by two means: assumptions about the completeness of the Guayas sequence and analogy with the dates of similar materials in Guatemala. With Valdivia dated at about 2500–1500 B.C., Evans and Meggers assume that Chorrera follows immediately thereafter. This position, in turn, rests on the assumption that the succession of Valdivia, Chorrera, Tejar and Milagro represents the entire 4000-year ceramic sequence of the Guayas region. This seems very little stylistic change for 4000 years of ceramic history. One could fit Machalilla before Chorrera—as Estrada does—and still have grave doubts about the completeness of the sequence. Evans and Meggers state that Machalilla is contemporary with Chorrera (Evans and Meggers 1960, p. 504). However, the known Machalilla sites are in the heart of Chorrera territory. It would be most unusual for a few villages to maintain such a strikingly distinct ceramic style in the midst of Chorrera country. Estrada's placement of Machalilla between Valdivia and Chorrera, which calls for a more recent date for the latter, seems much more reasonable.

The second method of arriving at a guess date of 1500 B.C. for Chorrera is still more doubtful. Coe proposes to extend to Ecuador the dating of two early phases at La Victoria, Guatemala (Coe 1960, Fig. 10). The Guatemalan Ocós and Conchas assemblages, to be sure, show marked similarities to Chorrera and Tejar, but Coe's evidence by no means proves their contemporaneity. Furthermore, the early date for Ocós (starting 1500 B.C.) is itself derived by projecting backward from a radiocarbon date of 1052 ± 100 B.C. for the presumably contemporary Chiapas I phase in Chiapas, Mexico (*ibid.*, pp. 366–367). But this analogy, in turn, cannot be properly evaluated until the full evidence on the La Victoria sequence is published. Such multiple analogies and projections on the basis of unpublished evidence do little to enhance confidence in the proposed dates.

Finally, we may consider three radiocarbon dates for the early Bahía de Caraquez culture on the central coast of Ecuador. The dates are 212 ± 200 B.C. (Crane and Griffin 1959, p. 192, M-734), 240 ± 240 B.C., and 190 ± 240 B.C. (Rubin and Alexander 1960, p. 181, W-833 and W-834). According to Estrada, early Bahía de Caraquez is not only contemporary with the latter half of Chorrera but also is nearly identical to it in style (Estrada 1958, pp. 69–71). These dates around 200 B.C. would be very reasonable for Paita D, but again I hesitate to apply them because of the double analogy involved—that is, dating Chorrera from early Bahía de Caraquez, then dating Paita D from Chorrera.

It seems best, then, not to attempt to apply all these dates to the Piura sequence, but rather to limit absolute dating for the moment to those dates which are based on fairly straighforward evidence. These, as discussed in the text, are 1500 B.C. or somewhat earlier for Negritos (interpolated between the Valdivia and Early Guañape dates), 600 A.D. for Sechura E (by analogy with Moche III), about 1000 A.D. for the beginning of Piura A (well into the Middle Horizon), 1460 A.D. for the beginning of Piura E (time of the Inca conquest), and 1550 A.D. for the beginning of Sechura F (shortly after the Spanish conquest.)

APPENDIX III

Piura-Chira Sites Visited by the First University of Tokyo Scientific Expedition to the Andes

The report of the first University of Tokyo Scientific Expedition to the Andes appeared when the present paper was nearly completed. It was possible to include observations on the Expedition's excavations at Garbanzal in the sections on comparison and cross-dating, but there was no opportunity to modify the descriptive portion of this paper. Since the University of Tokyo's report presents some valuable information on sites in the Piura and Chira valleys, some comments on their materials are added here.

Fifteen sites (nos. 8–22) are reported from the Department of Piura. Drawings and photos of sherds represent various phases of the Piura style almost exclusively. One site of especial interest is Paredones, the small ceremonial site described above under the name Vichayalito (Ishida *et al.* 1960, pp. 129–130, 426–427). The site evidently covers two or three phases of the Piura style, rather than being pure Piura D as I had supposed. Several sherds are Piura B (*ibid.*, p. 130, Figs. 6–9), while others show carinated necks sufficiently different from those of Piura E that they can probably be attributed to Piura D (*ibid.*, p. 129, Figs. 3–4). One of the latter has two small handles from neck to body, as does the possible Piura D vessel published by Lothrop (1948, Fig. 51), also from Vichayal. This suggests either that handled cooking pots continued to be made throughout the Late Intermediate Period, in spite of their absence from Miss Haase's Piura C sample, or that they were reintroduced in Piura at the time of the Chimú conquest of the region.

The only site for which convincingly pre-Piura sherds are illustrated is Yapatera, far up the Piura Valley near Morropón (Ishida *et al.* 1960, pp. 135–136, 428). In addition to paddle-marked and handled sherds of Piura style, there are a few sherds from this site representing Sechura A or a style so similar to Sechura A that it is certainly contemporary with it. A sherd of an incurved bowl with an engraved design of scroll-topped hatched triangles seems to be nearly identical to a Sechura A sherd from Paita (*ibid.*, p. 136, Fig. 8; pl. 11, *f* herein). Another sherd has what looks like a punched fillet circling the upper part of a vessel (*ibid.*, p. 136, Fig. 6). Exceptionally interesting is a double-spout bottle with short vertical spouts and slightly arched bridge, which bears a design of white discs and comblike figures on a red-brown background (*ibid.*, p. 136, Fig. 2). The design, located above the bottle's angular shoulder, fits better in Sechura A than in any other known style of this region. The form of the spouts and bridge is highly distinctive and typical of the Nasca 1 style on the south coast of Peru. While double-spout bottles are known from the intervening area, none of them are close to this specimen in form. Finally, another bottle has a single short spout and a broad looped handle to the top of the body. While the form of the spout on this specimen is similar to the spouts on the first bottle, the total arrangement is more suggestive of Chorrera spout-and-handle bottles than anything else (*ibid.*, p. 136, Fig. 3).

If these four specimens form a contemporary unit—as they probably do—then

they suggest a slightly later date for Sechura A than that shown on table 22, at the beginning of the Early Intermediate Period rather than the end of the Early Horizon. The double-spout bottle looks like the work of a Piura potter who saw and copied forms produced by southern artists. If so, it cannot be earlier than Nasca 1 in time. On the other hand, the presence of the Chorrera-like bottle in this assemblage need not indicate that Chorrera extended into Sechura A times. Spout-and-bridge bottles were being made in Paita D, and this specimen could represent simply a local continuation of the form, later than the Chorrera bottles which were copied in Paita D times.

BIBLIOGRAPHY

BENNETT, WENDELL C.

1939. Archaeology of the North Coast of Peru; an account of exploration and excavation in Viru and Lambayeque Valleys. Anthropological Papers of the American Museum of Natural History, vol. XXXVII, part I. New York.

1946. Excavations in the Cuenca Region, Ecuador. Yale University Publications in Anthropology, no. 35. Yale University Press, New Haven.

BENNYHOFF, JAMES A.

1952. The Viru Valley sequence: a critical review. American Antiquity, vol. XVII, no. 3, pp. 231–249. Salt Lake City.

BIRD, JUNIUS B.

1951. South American radiocarbon dates. *In* Radiocarbon Dating, assembled by Frederick Johnson. Memoirs of the Society for American Archaeology, no. 8, pp. 37–49. Salt Lake City.

BROECKER, W. S., and J. L. KULP

1957. Lamont natural radiocarbon measurements IV. Science, vol. 126, no. 3287, pp. 1324–1333. Washington.

BROWN, CHARLES BARRINGTON

1926. On stone implements from north-west Peru. Man, vol. XXVI, no. 6, art. no. 64, pp. 97–101. London.

BUSHNELL, G. H. S.

1951. The archaeology of the Santa Elena Peninsula in south-west Ecuador. Cambridge University Press, Cambridge.

CARRIÓN CACHOT DE GIRARD, REBECA

1959. La religión en el antiguo Perú. Tipografía Peruana S. A., Lima.

CHRISTENSEN, ROSS TAYLOR

1951. Preliminary report of excavations in the Piura Valley, Peru. Bulletin of the University Archaeological Society, Brigham Young University, no. 2, pp. 36–53. Provo, Utah.

1955. A modern ceramic industry at Simbilá, near Piura, Peru. Chimor, Boletín del Museo de Arqueología de la Universidad Nacional de Trujillo, Año III, no. 1, pp. 10–20. Trujillo, Peru.

MS. An archaeological study of the Illescas-Jubones coast of northern Peru and southern Ecuador. A thesis submitted to the faculty of the Department of Anthropology in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Graduate College, University of Arizona, 1956. University Microfilms, Doctoral Dissertation Series, Publication no. 16,953. Ann Arbor, Michigan.

CIEZA DE LEÓN, PEDRO

1945. La crónica del Perú. Colección Austral, Espasa-Calpe Argentina S.A., Buenos Aires.

COE, MICHAEL D.

1960. Archaeological linkages with North and South America at La Victoria, Guatemala. American Anthropologist, vol. 62, no. 3, pp. 363–393. Menasha.

COLLIER, DONALD

1948. Peruvian stylistic influences in Ecuador. *In* A reappraisal of Peruvian archaeology, assembled by Wendell C. Bennett. Memoirs of the Society for American Archaeology, no. 4, pp. 80–86. Menasha.

1955. Cultural chronology and change as reflected in the ceramics of the Viru Valley, Peru. Fieldiana: Anthropology, vol. 43. Chicago Natural History Museum, Chicago.

1960. Pottery stamping and molding on the North Coast of Peru. Actas del XXXIII Congreso Internacional de Americanistas, Celebrado en San José de Costa Rica del 20 al 27 de Julio de 1958, Tomo II, pp. 421–431. Editorial Lehmann, San José.

COLLIER, DONALD, and JOHN V. MURRA

1943. Survey and excavations in southern Ecuador. Field Museum of Natural History, Anthropological Series, vol. 35. Chicago.

CRANE, H. R., and J. B. GRIFFIN
1959. University of Michigan Radiocarbon Dates IV. American Journal of Science, Radiocarbon Supplement, vol. 1, pp. 173–198. Sterling Tower, Yale University, New Haven.

DISSELHOFF, HANS-DIETRICH
1949. Grabungen und Funde im Canton Sta. Elena (Ecuador). El México Antiguo, Revista Internacional de Arqueología, Etnología, Folklore, Prehistoria, Historia Antigua y Lingüistica Mexicanas, Tomo VII, pp. 343–410. Sociedad Alemana Mexicanista, México, D. F.

ESTRADA, EMILIO
1957*a*. Los Huancavilcas, últimas civilizaciones pre-históricas de la Costa del Guayas. Publicación del Museo Víctor Emilio Estrada, no. 3. Guayaquil.
1957*b*. Prehistoria de Manabí. Publicación del Museo Víctor Emilio Estrada, no. 4. Guayaquil.
1957*c*. Ultimas civilizaciones pre-históricas de la Cuenca del Río Guayas. Publicación del Museo Víctor Emilio Estrada, no. 2. Guayaquil.
1958. Las culturas pre-clásicas, formativas o arcaicas del Ecuador. Publicación del Museo Víctor Emilio Estrada, no. 5. Guayaquil.

EVANS, CLIFFORD, JR. and BETTY MEGGERS
1957. Formative Period cultures in the Guayas Basin, coastal Ecuador. American Antiquity, vol. 22, no. 3, pp. 235–247. Salt Lake City.
1960. A new dating method using obsidian: Part II, An archaeological evaluation of the method. American Antiquity, vol. 25, no. 4, pp. 523–537; Table 1, pp. 494–522. Salt Lake City.

EVANS, CLIFFORD, JR., BETTY MEGGERS, AND EMILIO ESTRADA
1959. Cultura Valdivia. Publicación del Museo Víctor Emilio Estrada, no. 6. Guayaquil.

FORD, JAMES A.
1949. Cultural dating of prehistoric sites in Virú Valley, Peru. Anthropological Papers of the American Museum of Natural History, vol. 43, part 1, pp. 29–89. New York.

FRIEDMAN, IRVING, AND ROBERT L. SMITH
1960. A new dating method using obsidian: Part I, The development of the method. American Antiquity, vol. 25, no. 4, pp. 476–493; Table 1, pp. 494–522. Salt Lake City.

HAASE, YNEZ
MS. (Field notes, February 15 to July 10, 1958. Piura.)

ISHIDA, EIICHIRO, *et al.*
1960. Andes: the report of the University of Tokyo Scientific Expedition to the Andes in 1958. Tokyo.

JIJÓN Y CAAMAÑO, JACINTO
1927. Puruhá: contribución al conocimiento de los aborigenes de la Provincia del Chimborazo. 2 vols., Quito. (Reprinted from Boletín de la Academia Nacional de Historia, nos. 6, 12, 14, 17–26, Quito, 1921–1924.)

KELLEY, DAVID H.
MS. A preliminary report on archaeological reconaissance and excavation on the North Coast of Peru, especially in the Department of Piura. July 1957–1958, sponsored by the Fulbright Commission and under the auspices of San Marcos University. Mimeographed, Lubbock, Texas, 1959.

KOSTRITSKY, LEÓN
1955. Hallazgos arqueológicos que demuestran la existencia de un antiquísimo pueblo pescador. Pesca y Caza, no. 6, pp. 51–59. Ministerio de Agricultura, Dirección de Pesquería y Caza, Lima.

KROEBER, ALFRED L.
1925*a*. The Uhle pottery collections from Moche. University of California Publications in American Archaeology and Ethnology, vol. 21, no. 5. Berkeley.
1925*b*. The Uhle pottery collections from Supe. University of California Publications in American Archaeology and Ethnology, vol. 21, no. 6. Berkeley.
1930. Archaeological explorations in Peru: Part II, The northern coast. Field Museum of Natural History, Anthropology Memoirs, vol. II, no. 2. Chicago.

1944. Peruvian archeology in 1942. Viking Fund Publications in Anthropology, no. 4. New York.

KROEBER, ALFRED L., AND JORGE C. MUELLE

1942. Cerámica paleteada de Lambayeque. Revista del Museo Nacional, Tomo XI, no. 1, I semestre, pp. 1–24. Lima.

KULP, J. LAURENCE, *et al.*

1952. Lamont natural radiocarbon measurements II. Science, vol. 116, no. 3016, pp. 409–414. Washington.

LANNING, EDWARD P.

1960*a*. Cerámica antigua de la costa peruana: nuevos descubrimientos. Anales de la Universidad Nacional Mayor de San Marcos, Segunda Epoca, Año IX, 1958, no. 19–20, pp. 54–69. Lima.

1960*b*. Notas sobre la arqueología de Piura. *In* Antiguo Perú, espacio y tiempo, trabajos presentados a la Semana de Arqueología Peruana (9–14 de noviembre de 1959), pp. 219–233. Librería-Editorial Juan Mejía Baca, Lima.

LARCO HOYLE, RAFAEL

1941. Los Cupisniques. Trabajo presentado al Congreso Internacional de Americanistas de Lima, XXVII Sesión. Casa Editora "La Crónica y Variedades" S. A. Ltda., Lima.

LATHRAP, DONALD W.

1960. (Review of) Cultura Valdivia by Clifford Evans, Betty Meggers, and Emilio Estrada. American Antiquity, vol. 26, no. 1, pp. 125–127. Salt Lake City.

LOTHROP, SAMUEL K.

1948. Pariñas-Chira archaeology: a preliminary report. *In* A reappraisal of Peruvian archaeology, assembled by Wendell C. Bennett. Memoirs of the Society for American Archaeology, no. 4, pp. 53–65. Menasha.

MEANS, PHILIP AINSWORTH

1931. Ancient civilizations of the Andes. Charles Scribner's Sons, New York and London.

MEJÍA XESSPE, TORIBIO

1960. Algunos nuevos elementos de la civilización Recuay-Pasto en el extremo norte del litoral peruano. *In* Antiguo Perú, espacio y tiempo, trabajos presentados a la Semana de Arqueología Peruana (9–14 de noviembre de 1959), pp. 205–218. Librería-Editorial Juan Mejía Baca, Lima.

REICHLEN, HENRI, AND PAULE REICHLEN

1949. Recherches archéologiques dans les Andes de Cajamarca. Premier rapport de la Mission Ethnologique Française au Pérou Septentrional. Journal de la Société des Américanistes, n.s., tome XXXVIII, pp. 137–174. Paris.

ROWE, JOHN H.

1942. A new pottery style from the Department of Piura, Peru. Notes on Middle American Archaeology and Ethnology, vol. I, no. 8, pp. 30–34. Carnegie Institution of Washington, Division of Historical Research. Cambridge.

1946. Inca culture at the time of the Spanish conquest. *In* Julian H. Steward, Editor, Handbook of South American Indians. Smithsonian Institution, Bureau of American Ethnology, Bulletin 143, vol. 2, pp. 183–330. United States Government Printing Office, Washington, D.C.

1961. Stratigraphy and seriation. American Antiquity, vol. 26, no. 3, pp. 324–330.

MS. The Torrecitas style, Cajamarca. Typescript, Lima, June 30, 1959.

RUBIN, MEYER, AND CORINNE ALEXANDER

1960. U. S. Geological Survey Radiocarbon Dates V. American Journal of Science, Radiocarbon Supplement, vol. 2, pp. 129–185. Sterling Tower, Yale University, New Haven.

SCOTT, SAMUEL MATTHEWSON

1895. The huacos of Chira Valley, Peru. American Anthropologist, vol. 8, no. 1, pp. 8–22. Washington, D.C.

STRONG, WILLIAM DUNCAN, AND CLIFFORD EVANS, JR.

1952. Cultural stratigraphy in the Virú Valley, northern Peru. Columbia Studies in Archeology and Ethnology, vol. IV. Columbia University Press, New York.

UBBELOHDE-DOERING, HEINRICH

1957. Der Gallinazo-Stil und die Chronologie der altperuanischen Frühkulturen. Bayerischen Akademie der Wissenschaften, Philosophisch-Historische Klasse, Sitzungsberichte, Jahrgang 1957, Heft 9, pp. 1–8. München.

UHLE, MAX

1920. Apuntes sobre la prehistoria de la región de Piura. Boletín de la Sociedad Ecuatoriana de Estudios Históricos Americanos, vol. IV, núm. 10, pp. 165–167. Quito.

FIGURES

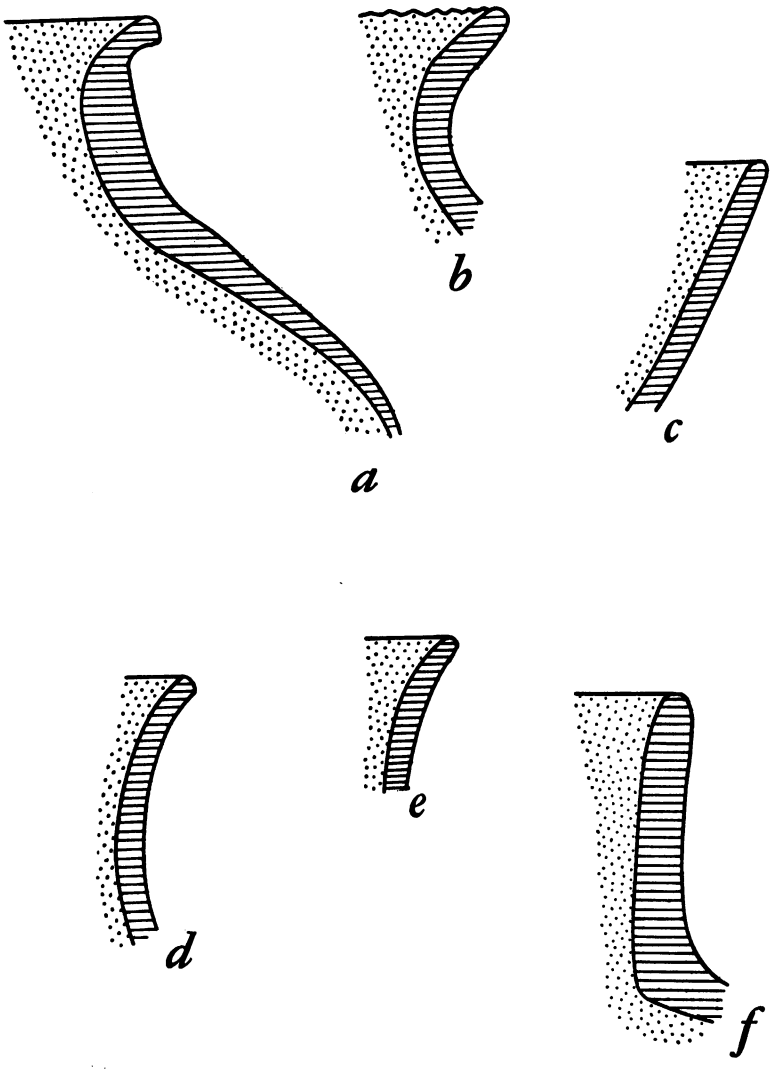


Fig. 1. *a.* Negritos style, Negritos South 1. Rim diameter 16 cm. *b.* Paita phase A, San Pedro North A 18. Rim diameter 9 cm. *c.* Paita phase A, Yasila 1. Rim diameter 22 cm. *d.* Paita phase B, Paita A. Rim diameter 14 cm. *e.* Paita phase A, San Pedro North A 18. Rim diameter 13 cm. *f.* Paita phase D, San Pedro North A 18. Variant II Ware. ($^{16}/_{19}$ actual size.)

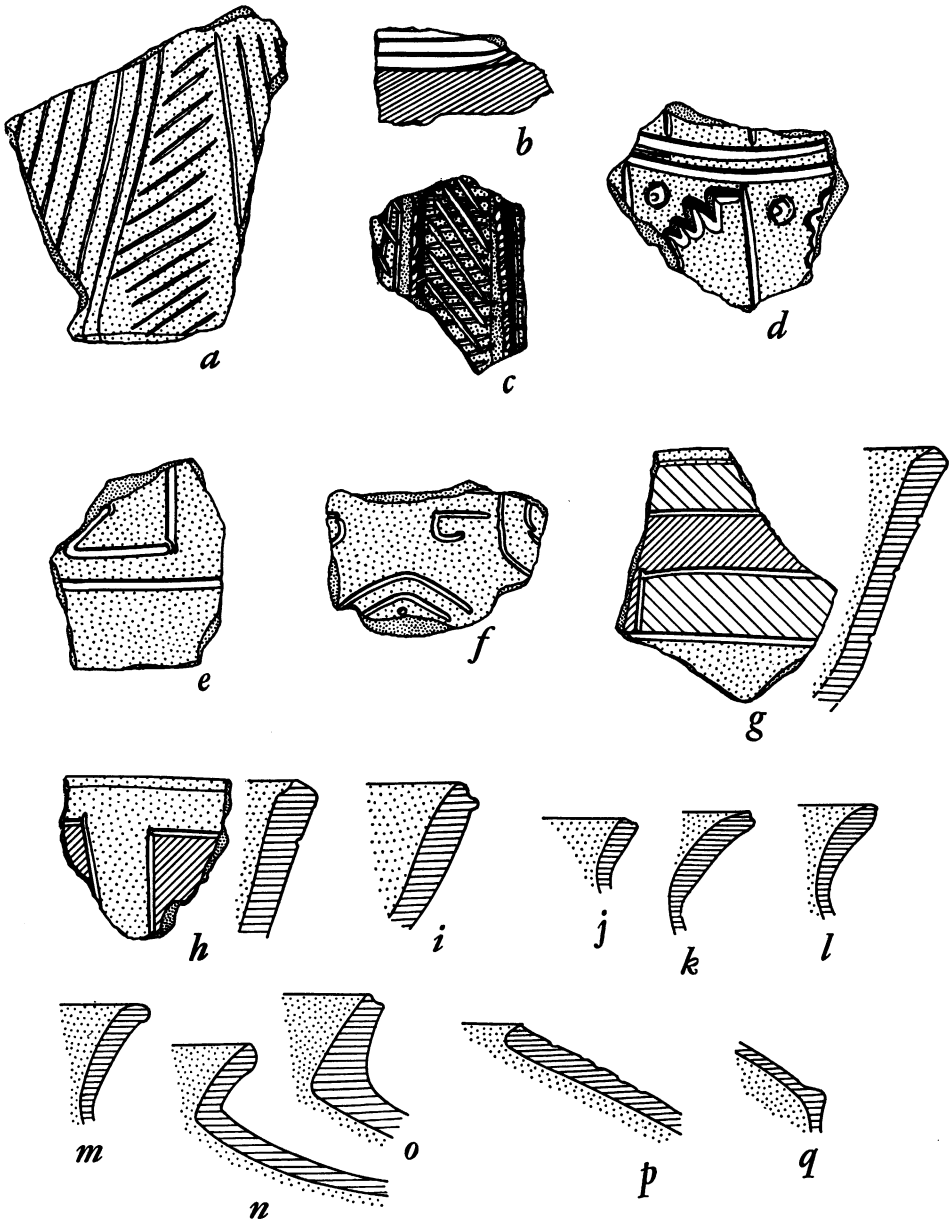


Fig. 2. Paita phase C, Paita site: *a–c*. Thin Red Ware. *d–f*. Variant I Ware. *g*. Variant I Ware. Rim diameter 30 cm. *h*. Variant I Ware. Rim diameter 34 cm. *i*. Variant I Ware. Rim diameter 30 cm. *j*. Thin Red Ware. Rim diameter 11 cm. *k*. Thin Red Ware. Rim diameter 10 cm. *l*. Thin Red Ware. Rim diameter 9 cm. *m*. Thin Red Ware. Rim diameter 10 cm. *n*. Thin Red Ware. Rim diameter 11 cm. *o*. Variant I Ware. Rim diameter 16 cm. *p*. Variant I Ware. Rim diameter ca. 10 cm. *q*. Thin Red Ware. (⅝ actual size.)

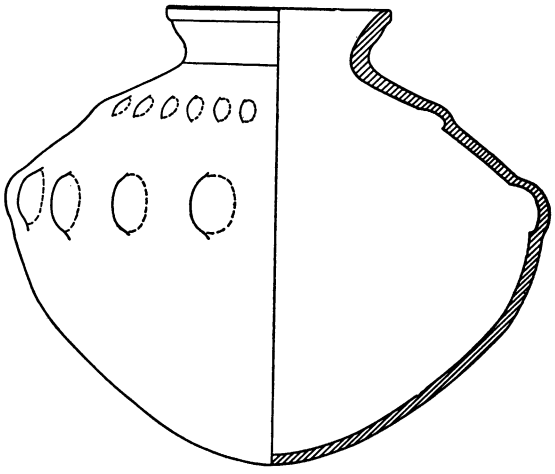


Fig. 3. Paita phase C, Negritos South 2. Ht. 18.3 cm.; max. diameter 21.5 cm.; rim diameter 9 cm. (⅓ actual size.)

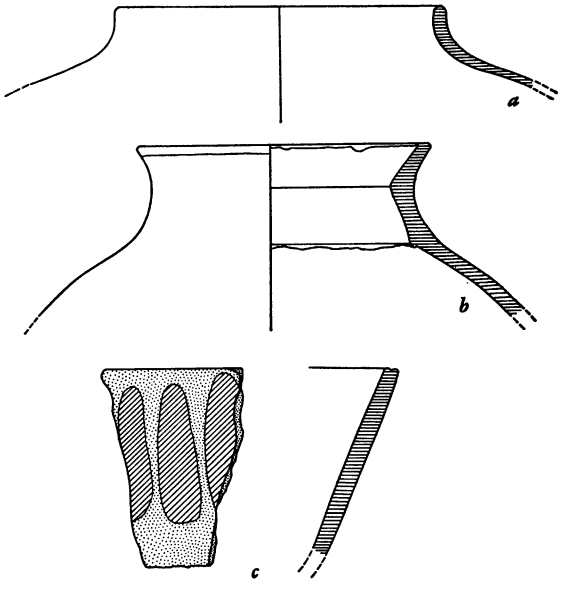


Fig. 4. Paita phase D, Lagunitas: *a.* Thin Red Ware. Rim diameter 13 cm. *b.* Thin Red Ware. Rim diameter 11.5 cm. *c.* Variant II Ware. Rim diameter ca. 39 cm. (⅓ actual size.)

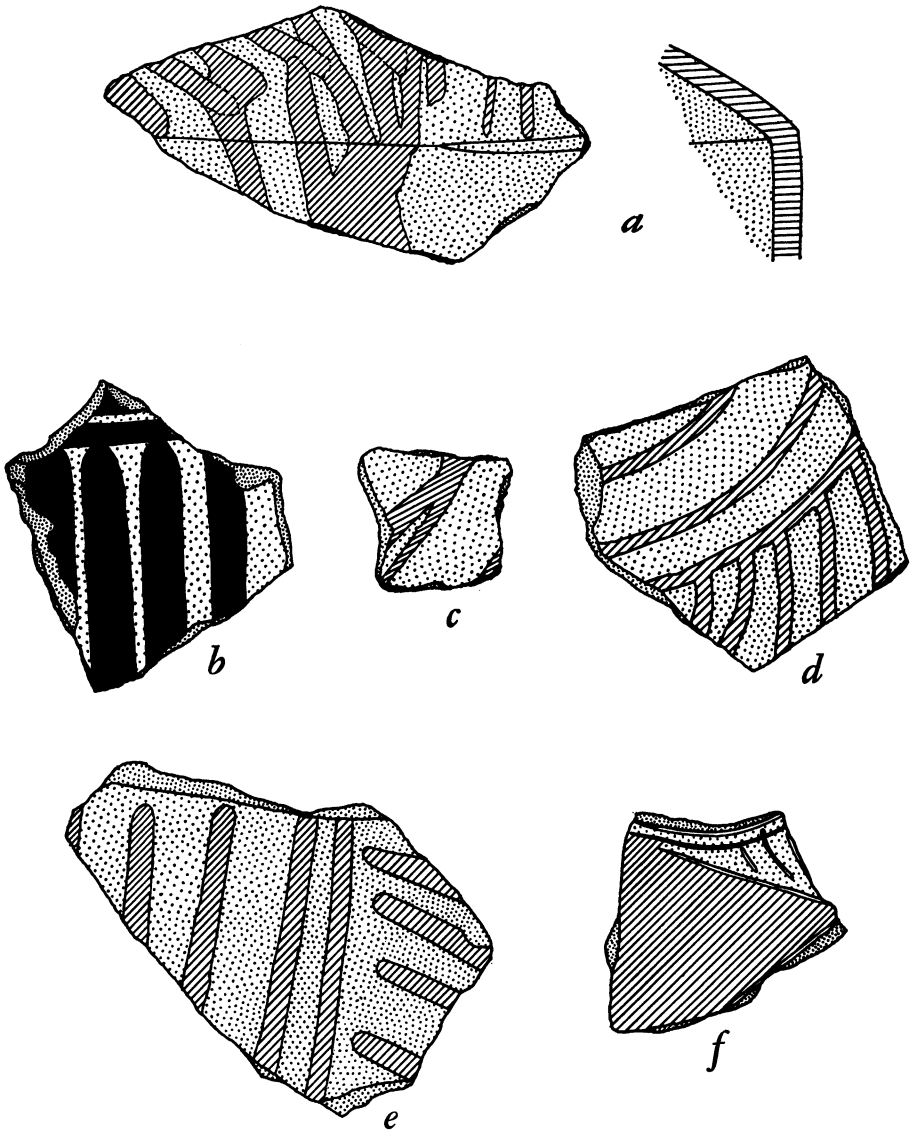


Fig. 5. *a–c.* Paita phase D, Lagunitas. Thin Red Ware. *d.* Paita phase C, Lagunitas. Thin Red Ware. *e, f.* Paita phase D, Lagunitas. Thin Red Ware. (⅔ actual size.)

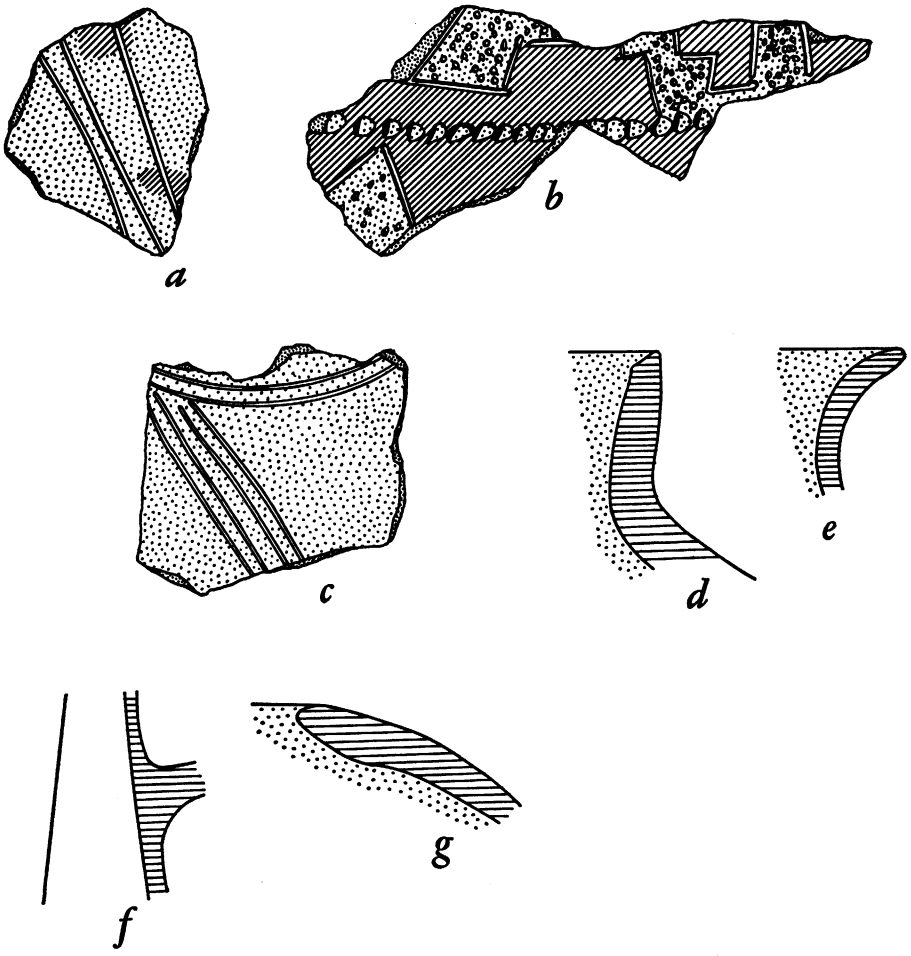


Fig. 6. Paita phase D, Lagunitas: *a–c.* Thin Red Ware. *d.* Variant II Ware. Rim diameter ca. 23 cm. *e.* Thin Red Ware. Rim Diameter 13 cm. *f.* Thin Red Ware. *g.* Variant II Ware. (⅔ actual size.)

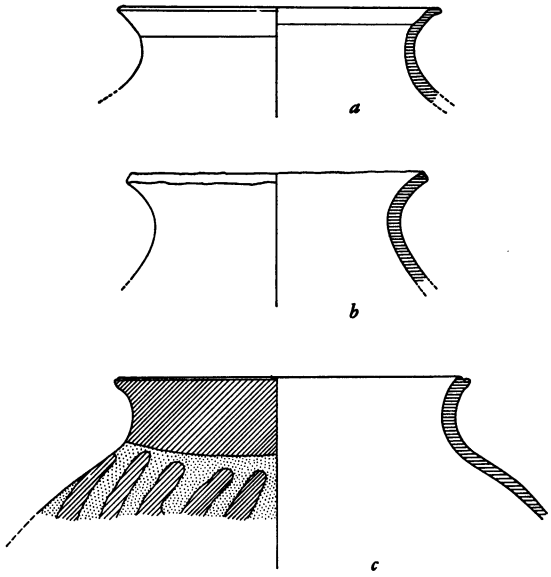


Fig. 7. Paita phase D, Lagunitas. Thin Red Ware: *a*. Rim diameter 13 cm. *b*. Rim diameter 12 cm. *c*. Rim diameter ca. 14 cm. (⅓ actual size.)

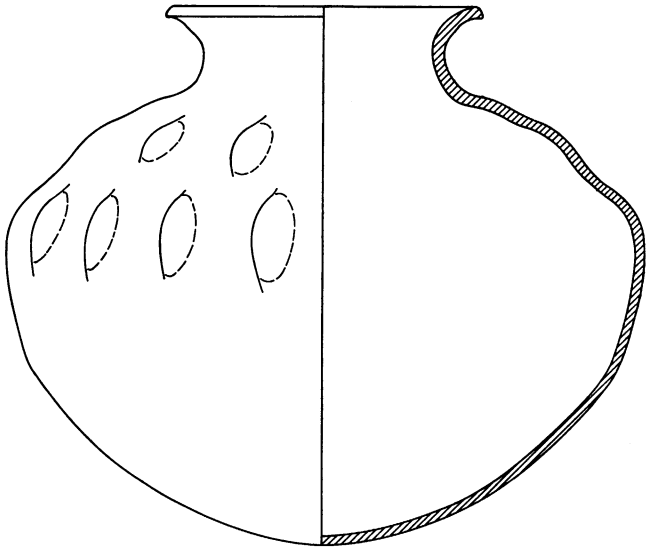


Fig. 8. Paita phase D, Negritos South 2. Max. diameter 25.5 cm.; rim diameter 12.5 cm. (⅓ actual size.)

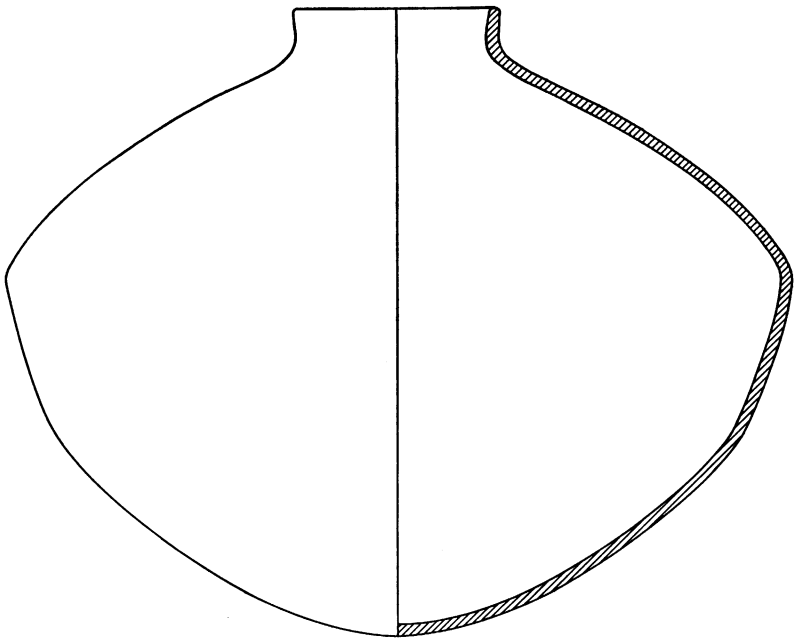


Fig. 9. Paita phase D, Negritos South 1. Ht. ca. 25 cm; max. diameter ca. 31 cm.; rim diameter 8 cm. (⅛ actual size.)

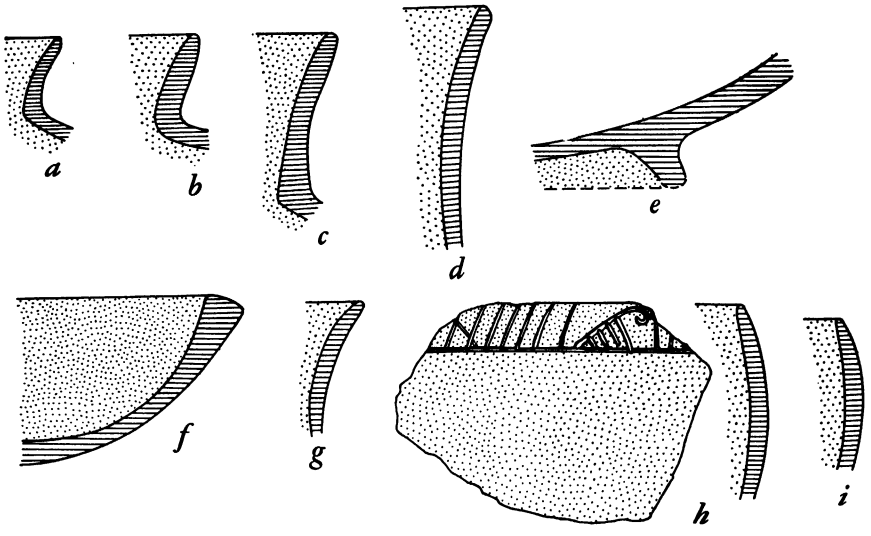


Fig. 10. Sechura phase A: *a.* Punta Nermete 1. Rim diameter 8 cm. *b.* Punta Nermete 1. Rim diameter 9 cm. *c.* Punta Nermete 1. Rim diameter 15 cm. *d.* Punta Nermete 1. *e.* Punta Nermete 1. Foot diameter 9 cm. *f.* Lagunitas. Rim diameter ca. 22 cm. *g.* Punta Nermete 1. Rim diameter 14 cm. *h.* Paita. Rim diameter 19 cm. *i.* Punta Nermete 1. (½ actual size.)

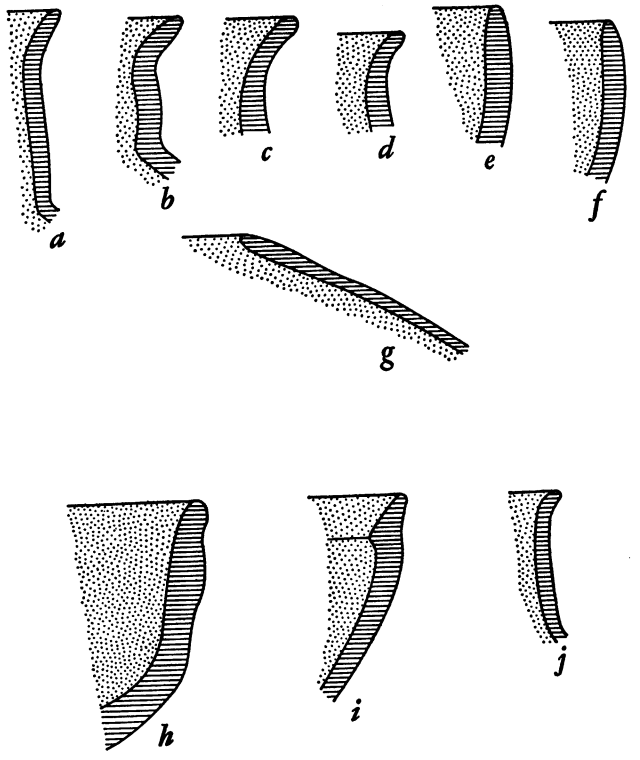


Fig. 11. *a–g.* Sechura phase B, Casita 1: *a.* Sechura phase B, Casita 1. Rim diameter 9 cm. *b.* Sechura phase B, Casita 1. Rim diameter 10 cm. *c.* Sechura phase B, Casita 1. Rim diameter 11 cm. *d.* Sechura phase B, Casita 1. Rim diameter 8 cm. *e.* Sechura phase B, Casita 1. Rim diameter 23 cm. *f.* Sechura phase B, Casita 1. Rim diameter 25 cm. *g.* Sechura phase B, Casita 1. Rim diameter 8 cm. *h–j.* Sechura phase C, San Pedro North A 22: *h.* Coiled (?). Rim diameter 21 cm. *i.* Paddle-made (?). *j.* Coiled (?). (½ actual size.)

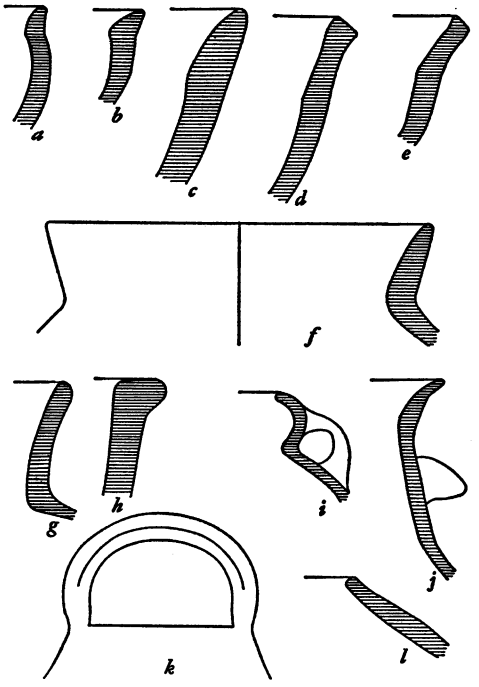


Fig. 12. Sechura phase D: *a*. Punta Nermete 1. Rim diameter ca. 30 cm. *b*. Sechura 2. *c*. Punta Nermete 1. *d*. Punta Nermete 1. Rim diameter ca. 35 cm. *e*. San Pedro North A 22. Rim diameter ca. 28 cm. *f*. Punta Nermete 1. Rim diameter 15 cm. *g*. Punta Nermete 1. *h*. Punta Nermete 1. Rim diameter ca. 32 cm. *i*. Punta Nermete 1. *j*. Sechura 2. *k*. Punta Nermete 1. *l*. San Pedro North A 22. Rim diameter ca. 10 cm. (⅓ actual size.)

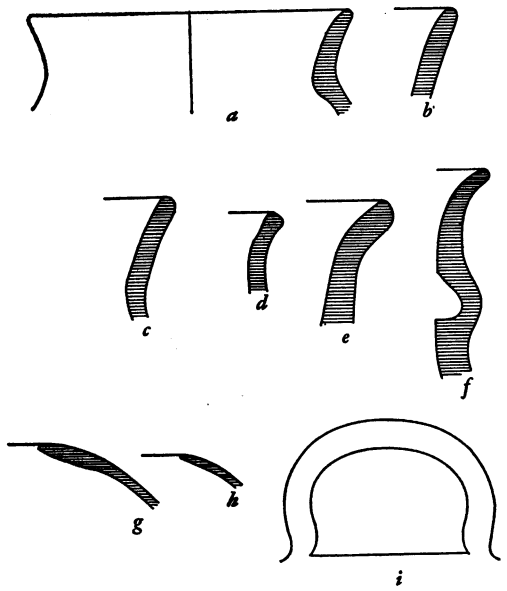


Fig. 13. Sechura phase E: *a*. Chusís. Rim diameter 13 cm. *b*. Chusís. Rim diameter 18 cm. *c*. Chusís. *d*. Chusís. Rim diameter 21 cm. *e*. Chusís. Rim diameter 19 cm. *f*. Tacalá. Rim diameter 11 cm. *g*. Chusís. Rim diameter 9 cm. *h*. Chusís. Rim diameter 8 cm. *i*. Chusís. (⅛ actual size.)

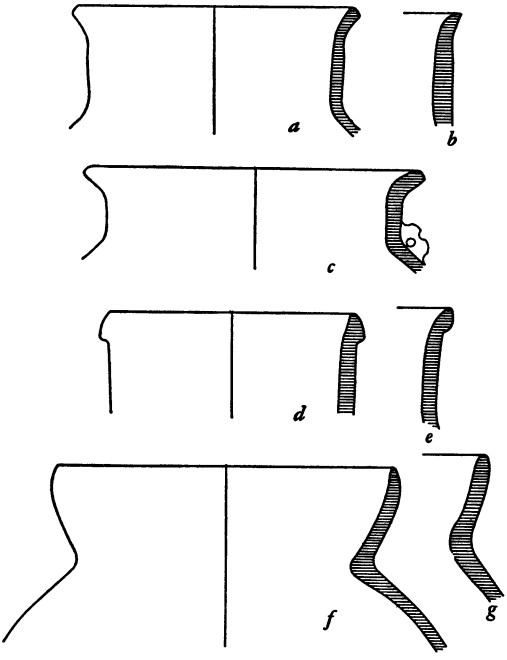


Fig. 14. Piura phase A, Colán: *a*. Rim diameter 11 cm. *b*. Rim diameter 11 cm. *c*. Rim diameter 13.5 cm. *d*. Rim diameter 10 cm. *f*. Rim diameter 14 cm. *g*. Rim diameter 11 cm. (⅛ actual size.)

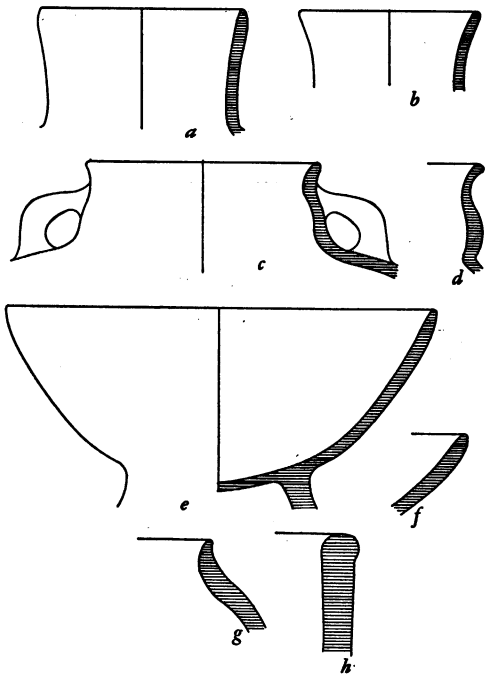


Fig. 15. Piura phase A, Colán: *a*. Rim diameter 8 cm. *b*. Rim diameter 7 cm. *c*. Rim diameter 9 cm. *d*. Rim diameter 8 cm. *e*. Rim diameter 17 cm. *f*. Rim diameter 18 cm. *g*. Rim diameter 12 cm. (⅛ actual size.)

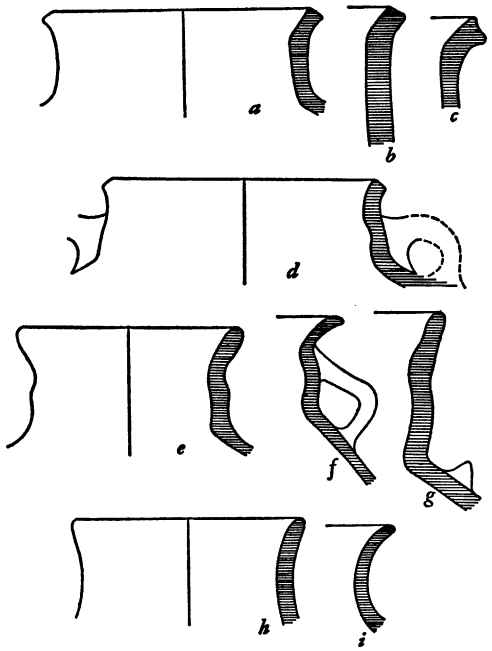


Fig. 16. Piura phase B: *a*. Puerto Rico 4. Rim diameter 11 cm. *b*. Puerto Rico 4. Rim diameter 12 cm. *c*. Puerto Rico 2. Rim diameter 13 cm. *d*. Puerto Rico 4. Rim diameter 11 cm. *e*. Puerto Rico 1. Rim diameter 9.5 cm. *f*. Puerto Rico 2. Rim diameter 13 cm. *g*. Puerto Rico 1. Rim diameter 12 cm. *h*. Puerto Rico 4. Rim diameter 9 cm. *i*. Puerto Rico 2. Rim diameter 14 cm. (⅓ actual size.)

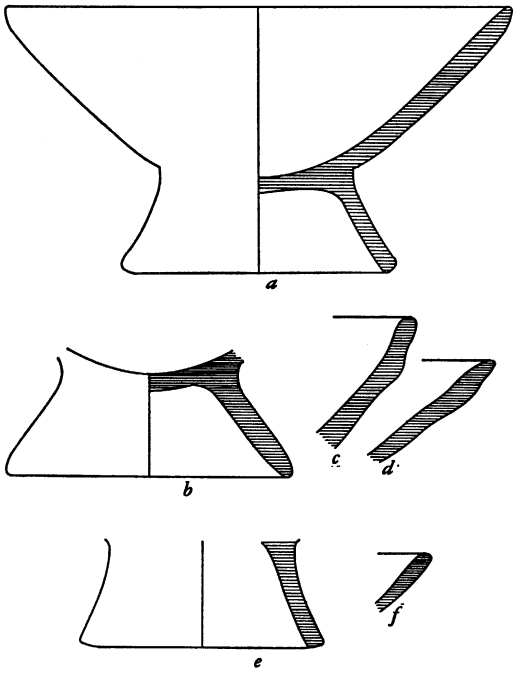


Fig. 17. Piura phase B: *a*. Puerto Rico 2. (reconstructed from 2 sherds of different vessels). Rim diameter 20 cm.; foot diameter 11 cm. *b*. Puerto Rico 2. Foot diameter 11 cm. *c*. Puerto Rico 2. *d*. Puerto Rico 1. Rim diameter 17 cm. *e*. Puerto Rico 4. Foot diameter 9.5 cm. *f*. Puerto Rico 1. Rim diameter 14 cm. (⅛ actual size.)

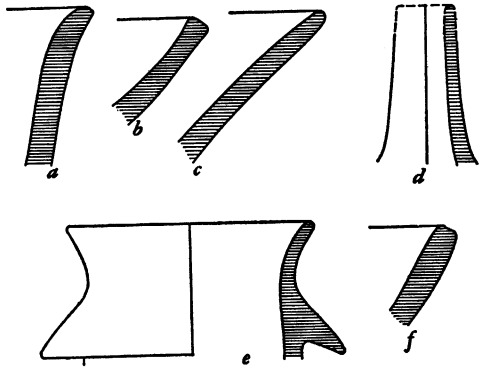


Fig. 18. Piura phase B: *a*. Puerto Rico 2. Rim diameter ca. 35 cm. *b*. Puerto Rico 1. Rim diameter ca. 32 cm. *c*. Quebrada Coyonitas. Rim diameter ca. 24 cm. *d*. Puerto Rico 1. Burnished Black Ware. *e*. Puerto Rico 3. Rim diameter 10 cm. *f*. Puerto Rico 2. Rim diameter 24 cm. (⅛ actual size.)

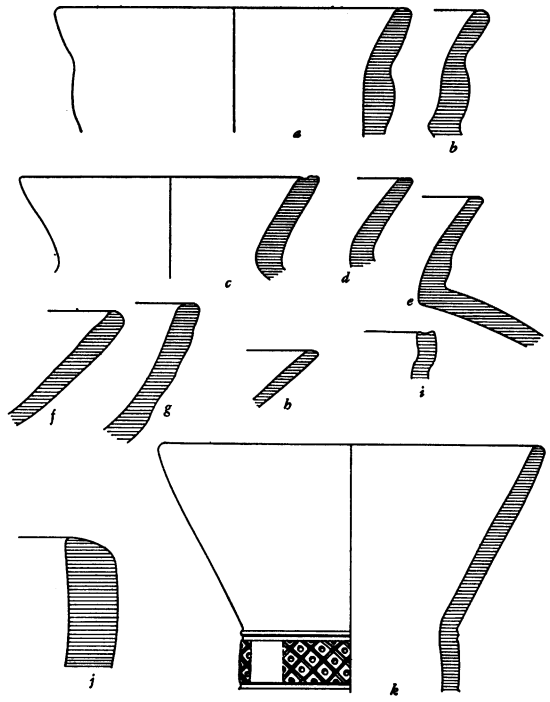


Fig. 19. *a–j.* Piura phase C, Coscomba: *a.* Rim diameter 14 cm. *b.* Rim diameter 12 cm. *c.* Rim diameter 12 cm. *d.* Rim diameter 12 cm. *e.* Rim diameter 13 cm. *f.* Rim diameter 23 cm. *g.* Rim diameter 30 cm. *h.* Rim diameter 14 cm. *k.* Piura phase C, San Pedro North A 14. Rim diameter 15 cm. (⅓ actual size.)

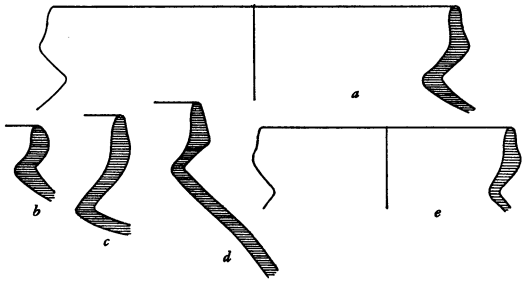


Fig. 20. Piura phase E, Nunura 1: *a.* Rim diameter 16 cm. *b.* Rim diameter 14 cm. *c.* Rim diameter 15 cm. *d.* Rim diameter 14 cm. *e.* Rim diameter 11 cm. (⅓ actual size.)

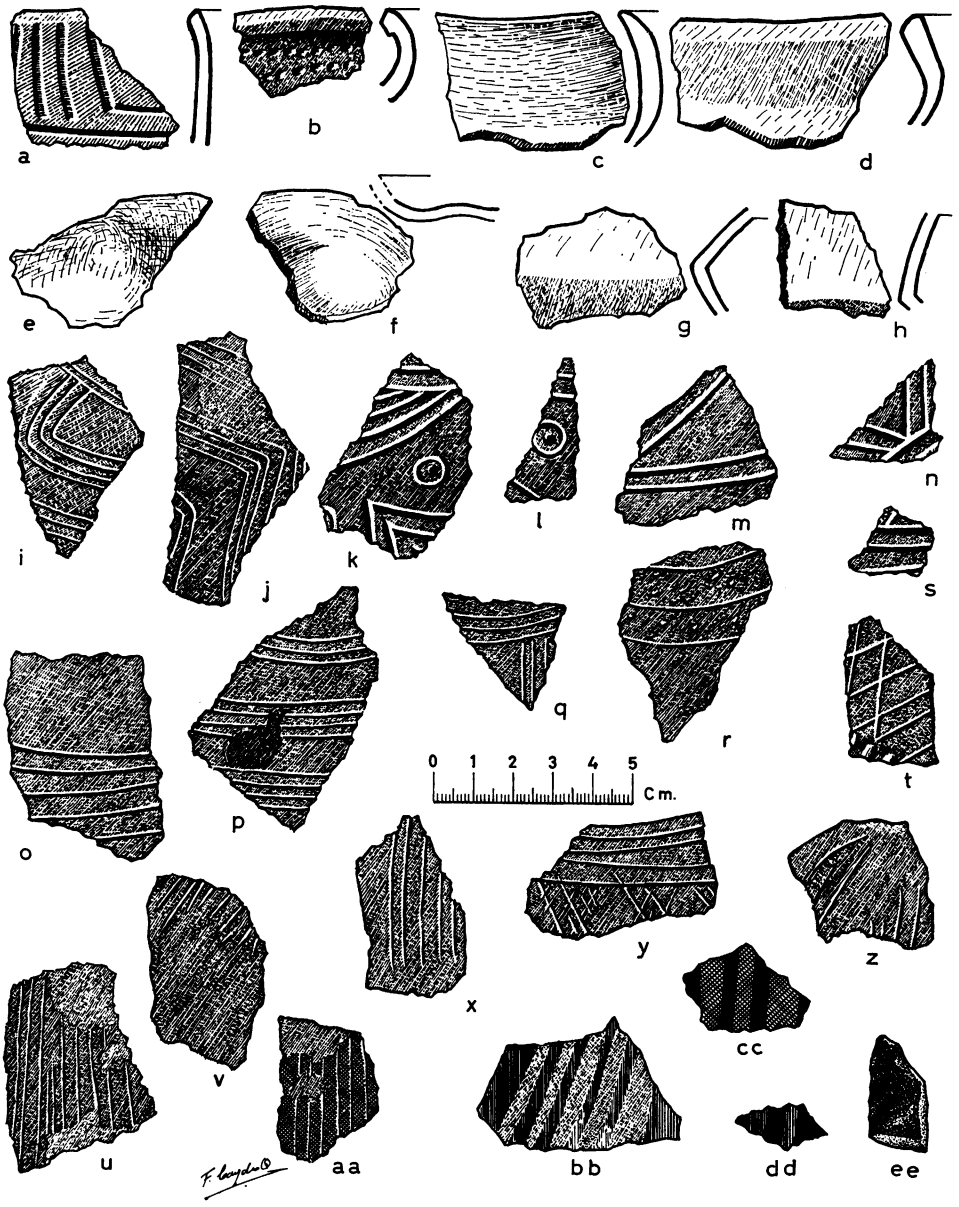


Fig. 21. Paita phases B and C, Casita 2: *a–aa*. Paita B. *bb–dd*. Paita C. *ee*. Chert projectile point fragment.

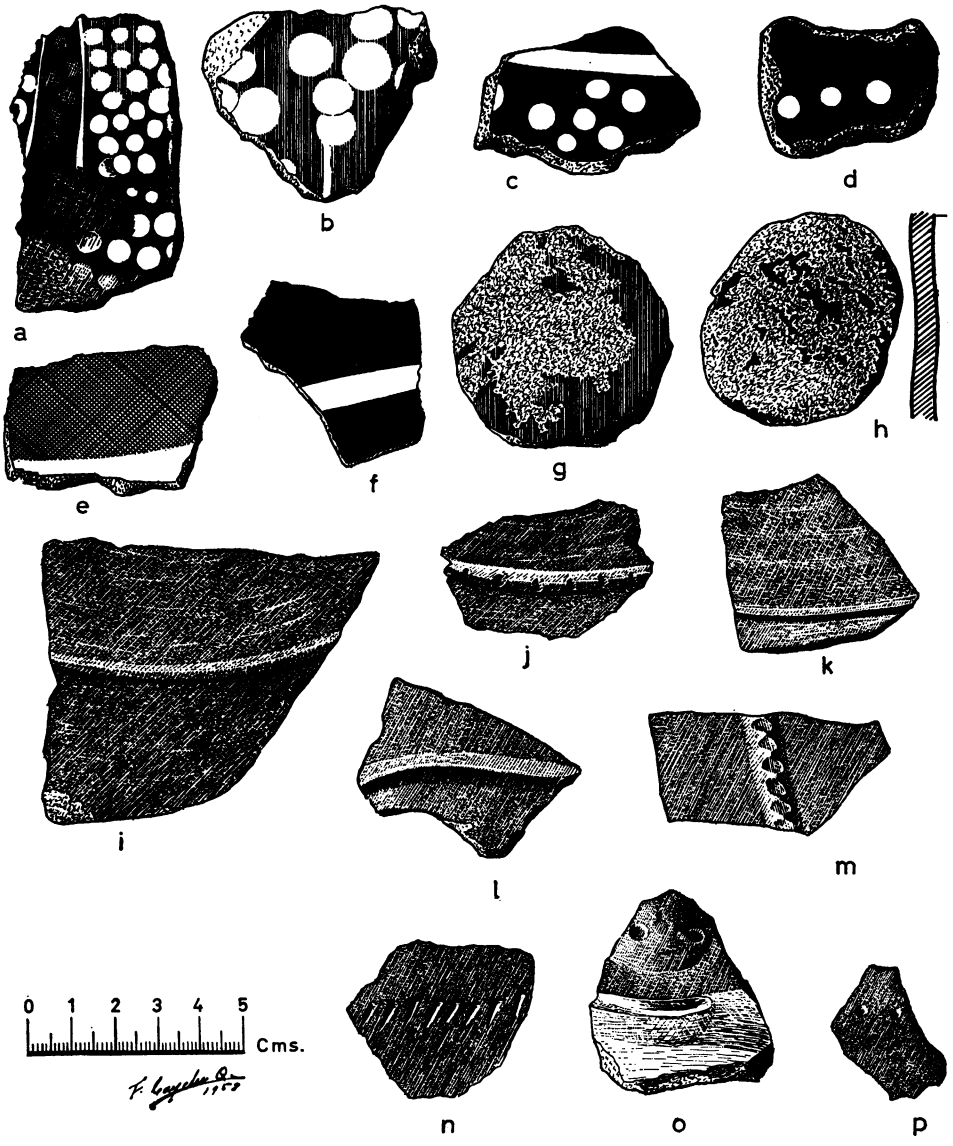


Fig. 22. Sechura phase B, Casita 1 (San Pedro North A 17).

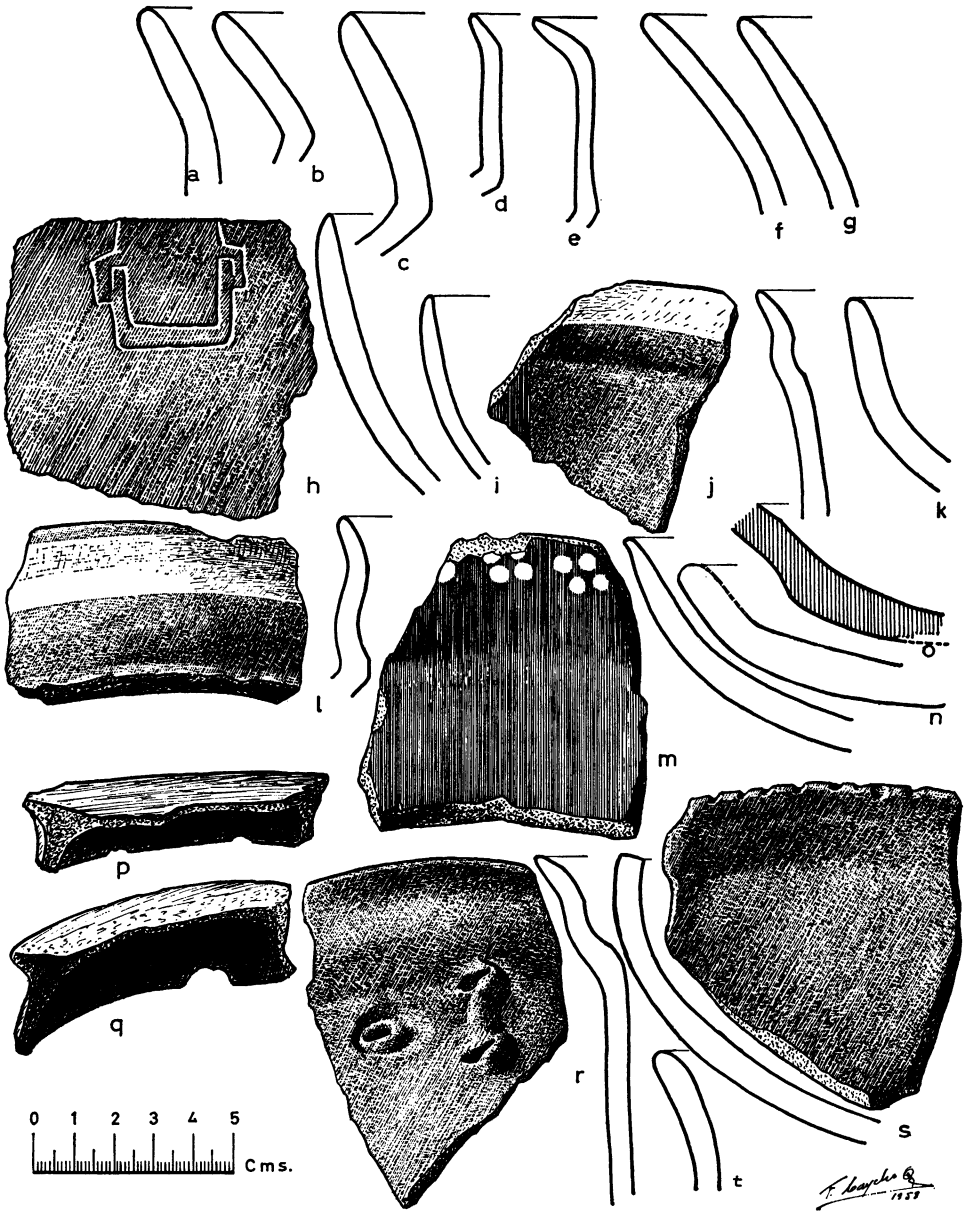
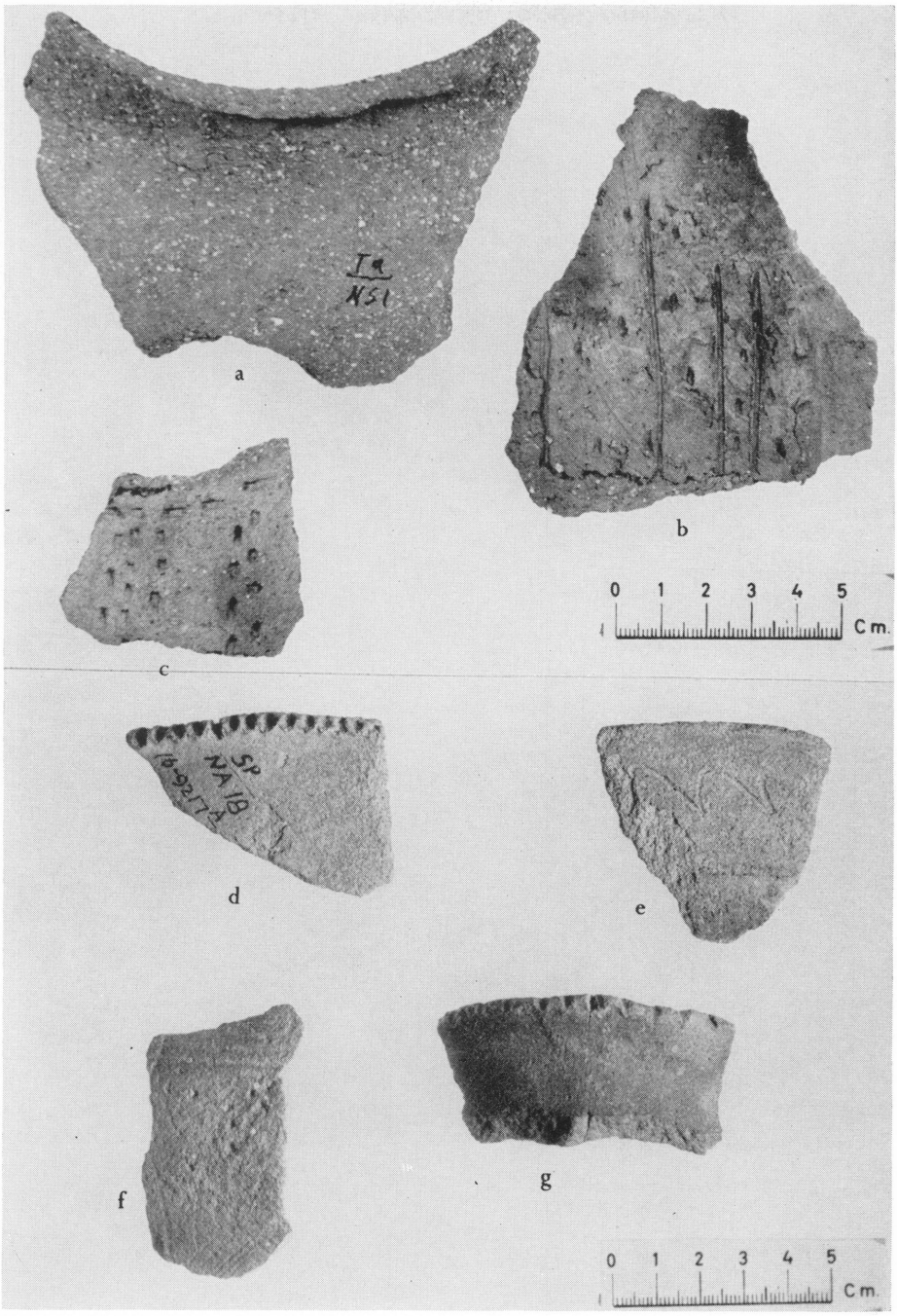


Fig. 23. Sechura phase B, Casita 1 (San Pedro North A 17): *e*. Rim diameter 11 cm. *h*. Rim diameter 30 cm. *k*. Rim diameter 28 cm. *l*. Rim diameter 11 cm. *r*. Rim diameter 14 cm. *s*. Rim diameter 23 cm.

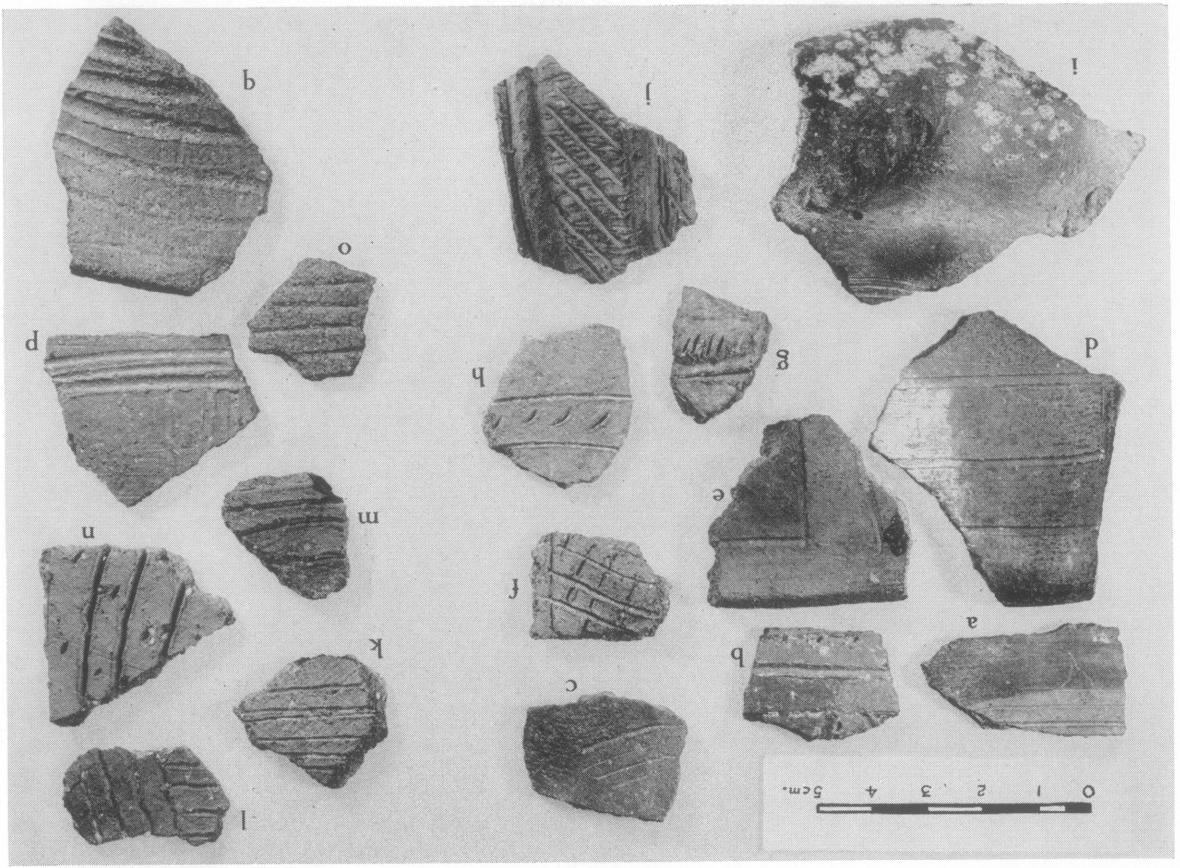
PLATES

IDENTIFICATION OF GEOMETRIC STAMPED DESIGNS

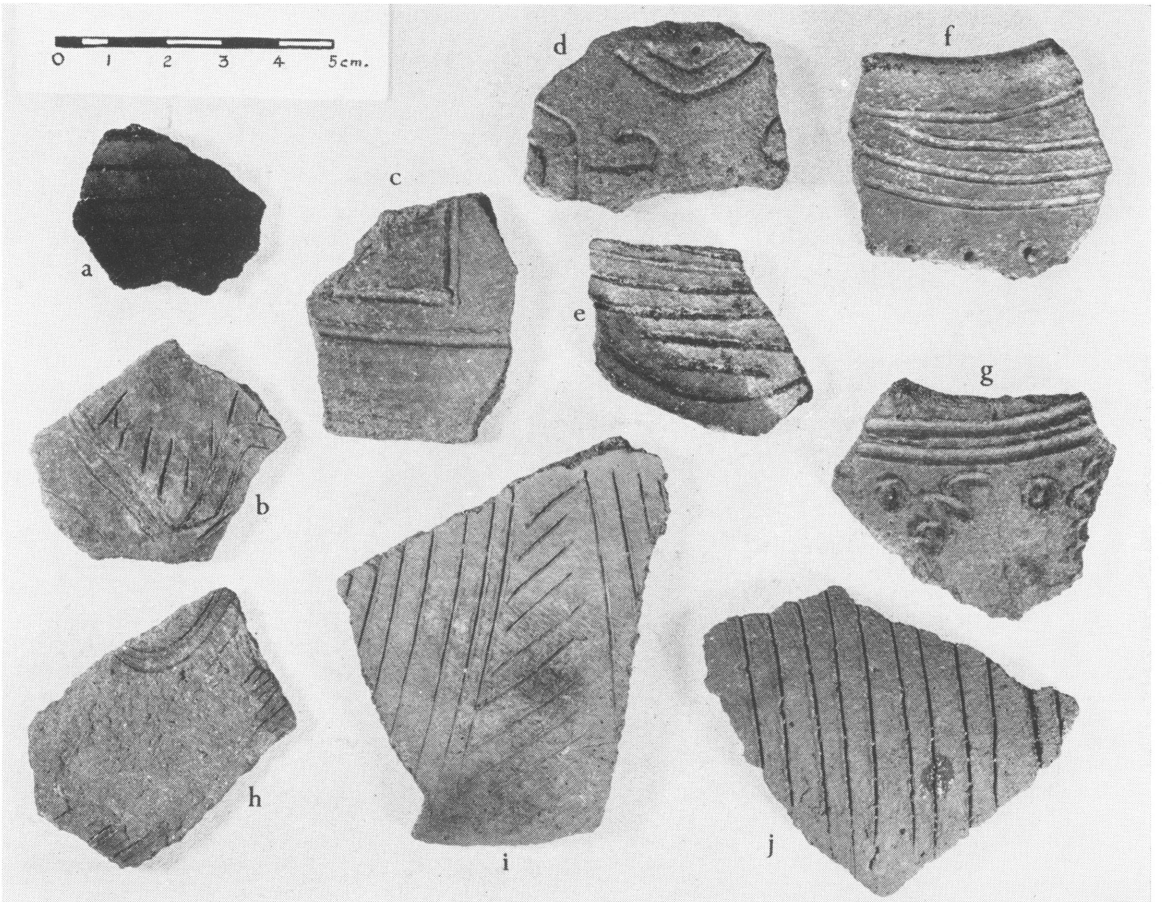
Design	Kroeber-Muelle Number	Plate Number	
		Piura Style	Simbilá Style
Small squares	2	20,*e*; 23,*a*; 27,*a*; 27,*b*; 29,*a*; 29,*b*	33,*d*
Squares and dots	5	23,*c*; 26,*b*; 27,*d*; 29,*e*	
Small diamonds	3	21,*a*; 27,*c*; 29,*c*; 29,*d*	
Diamonds and dots	6, 8	20,*d*; 23,*d*; 27,*f*	
Large diamonds	4	23,*b*; 30,*b*	
Groups of lines	1	23,*e*; 27,*e*; 29,*i*	
Zig-zag lines	11	23,*g*; 29,*f*	
Wavy lines and dots	15	23,*f*; 29,*g*	
Straight lines and dots	..	27,*g*; 29,*h*	
Comb	..	30,*a*	
Fret	33, 35	30,*c*	
Lines of semi-circles	..	30,*d*	
Lines of triangles	23	30,*e*	
Scroll	28, 31	30,*f*; 30,*g*	33,*c*
Checkerboard squares	..	31,*a*	33,*a*; 33,*e*
Checkerboard triangles	..	31,*b*	
Checkerboard diamonds	..	31,*c*	33,*b*
Step	..	31,*d*	
Cogwheel	43		



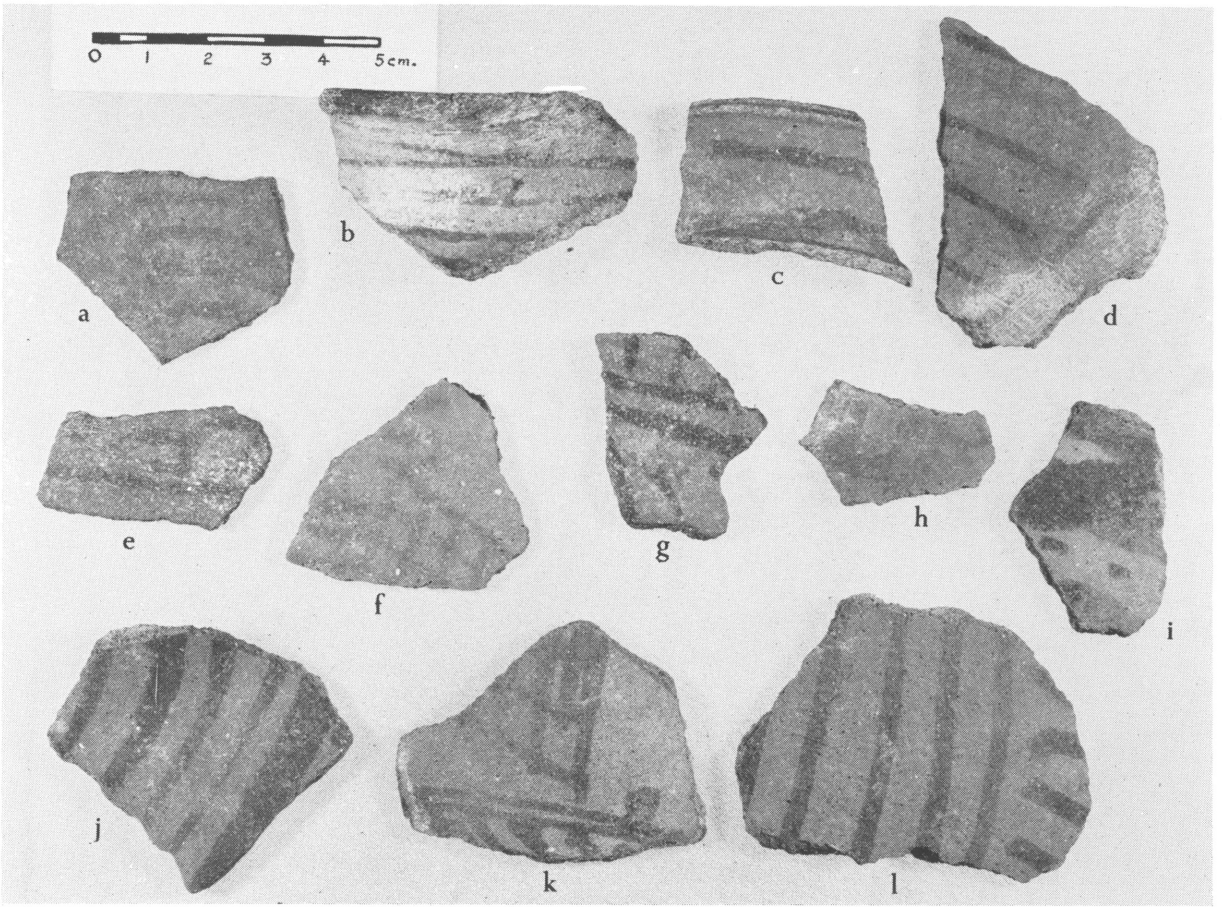
a–c, Negritos style. *a. b*, Negritos South 1; *c*, Punta Nermete 1; Paita phase A.
d, f, g, San Pedro North A 18; *e*, Yasila 1.



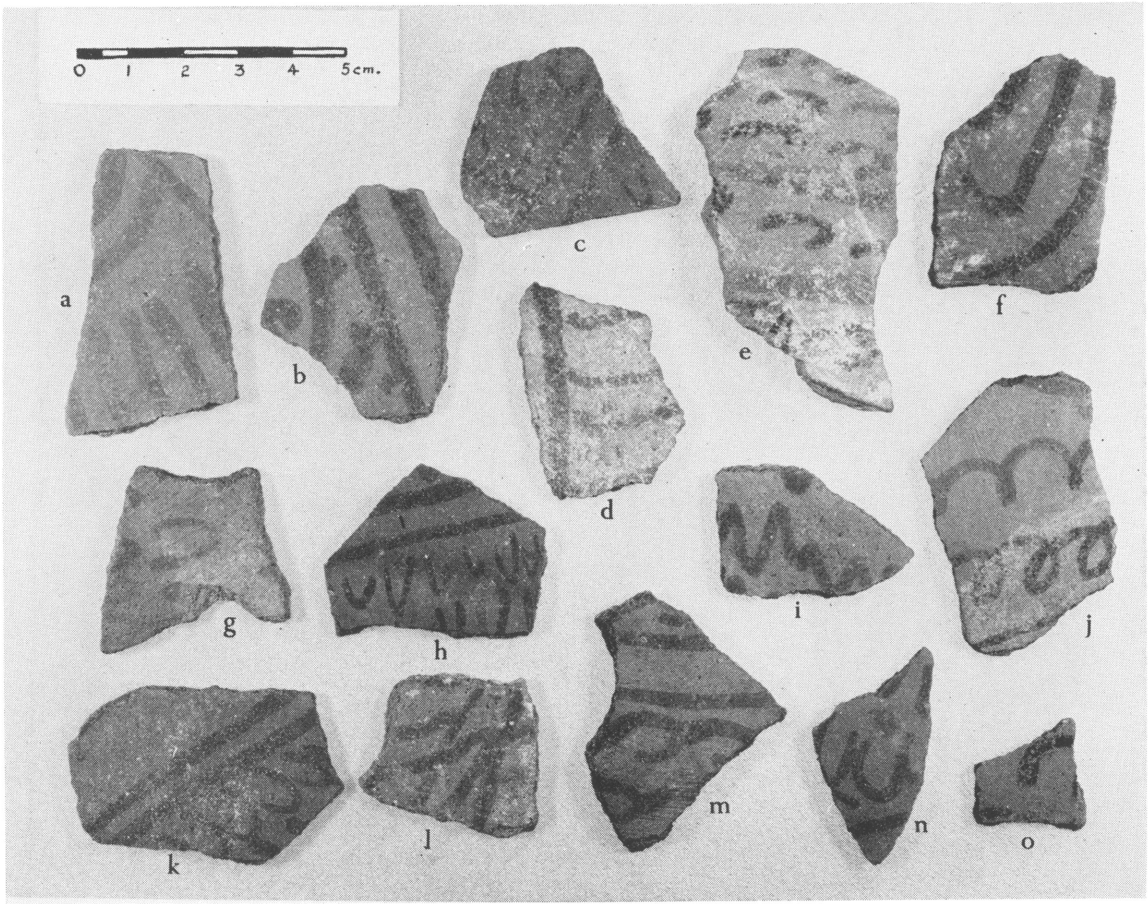
Paita phases B and C, Paita site. *c, k–q,* Paita B; *a, f–j,* Paita C, Thin Red Ware; *d, e,* Paita C, Variant I Ware



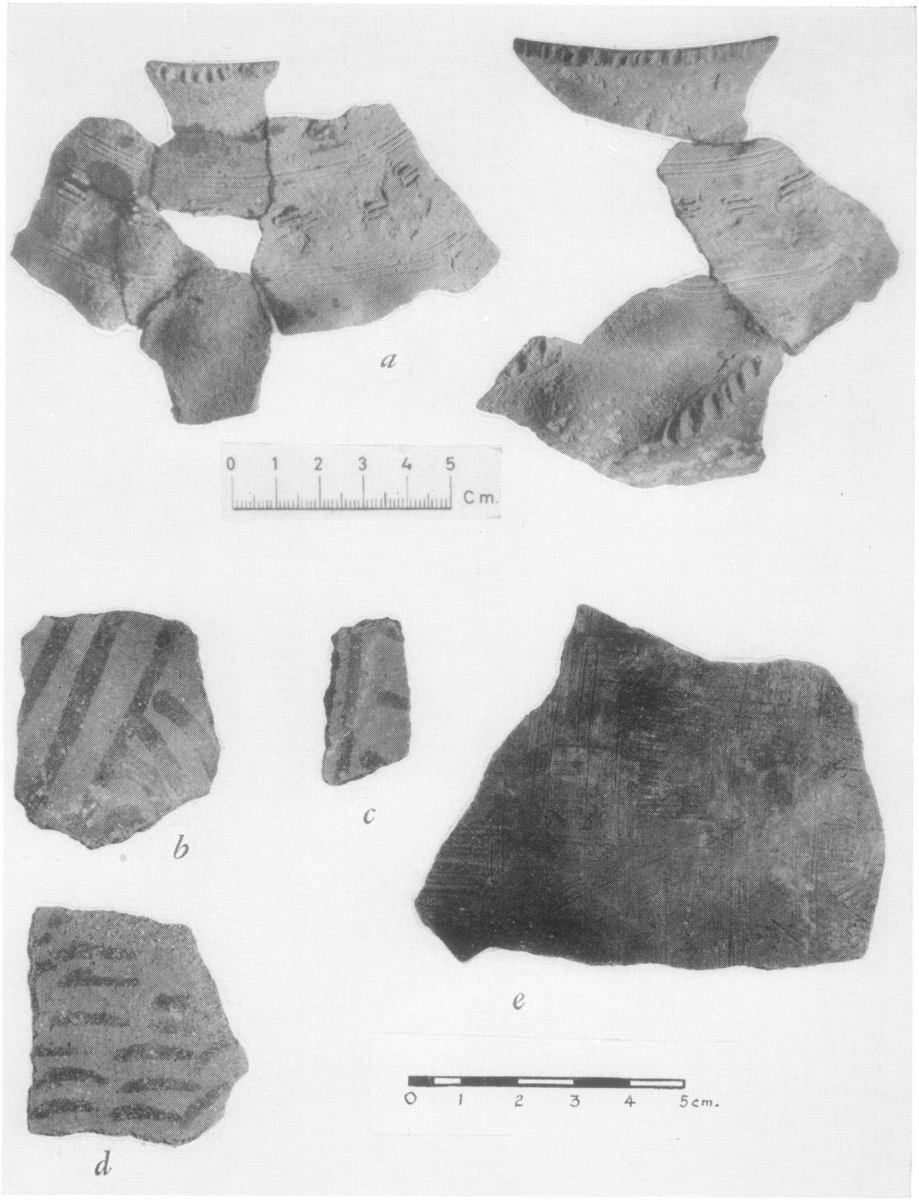
Paita phases B and C, Paita site. *a, h,* Paita B; *b, e, i, j,* Paita C, Thin Red Ware; *c, d, f, g,* Paita C. Variant I Ware.



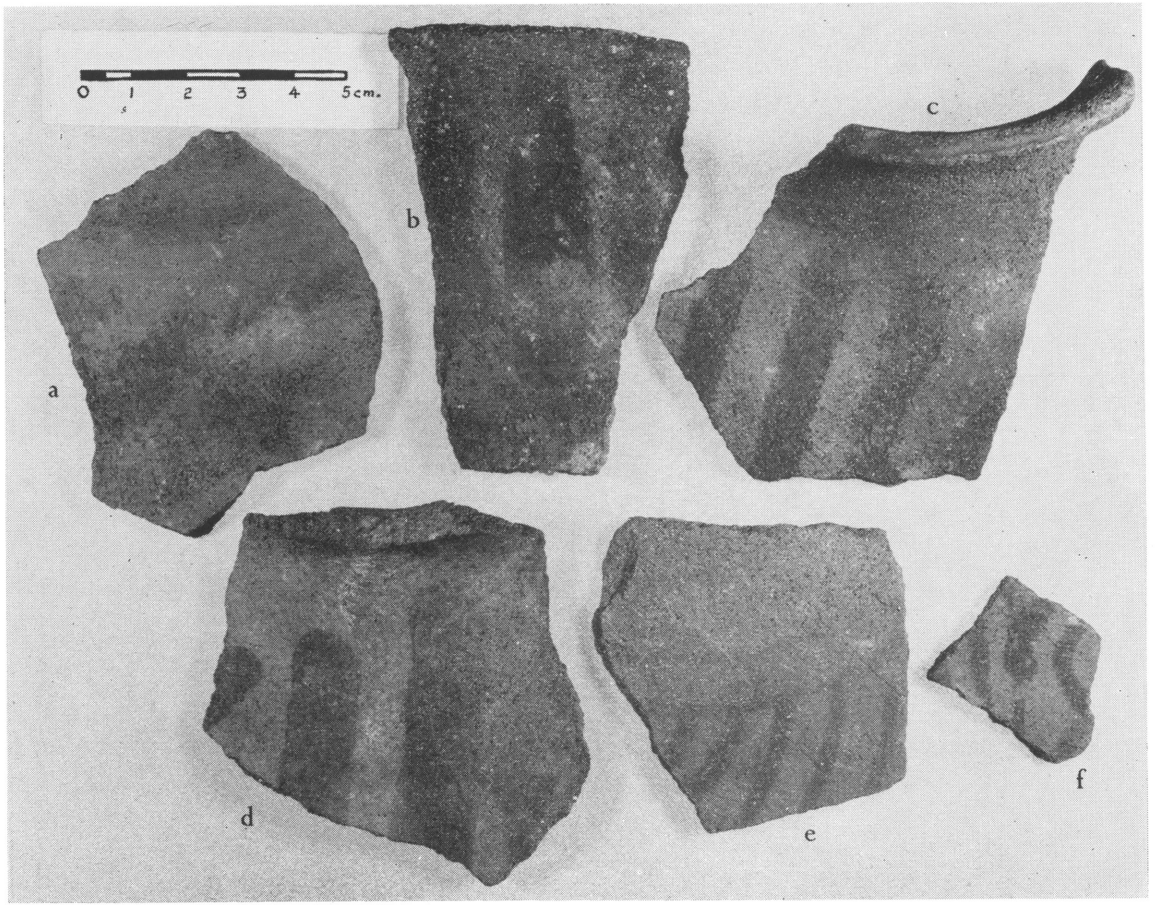
Paita phase C, Thin Red Ware, Paita.



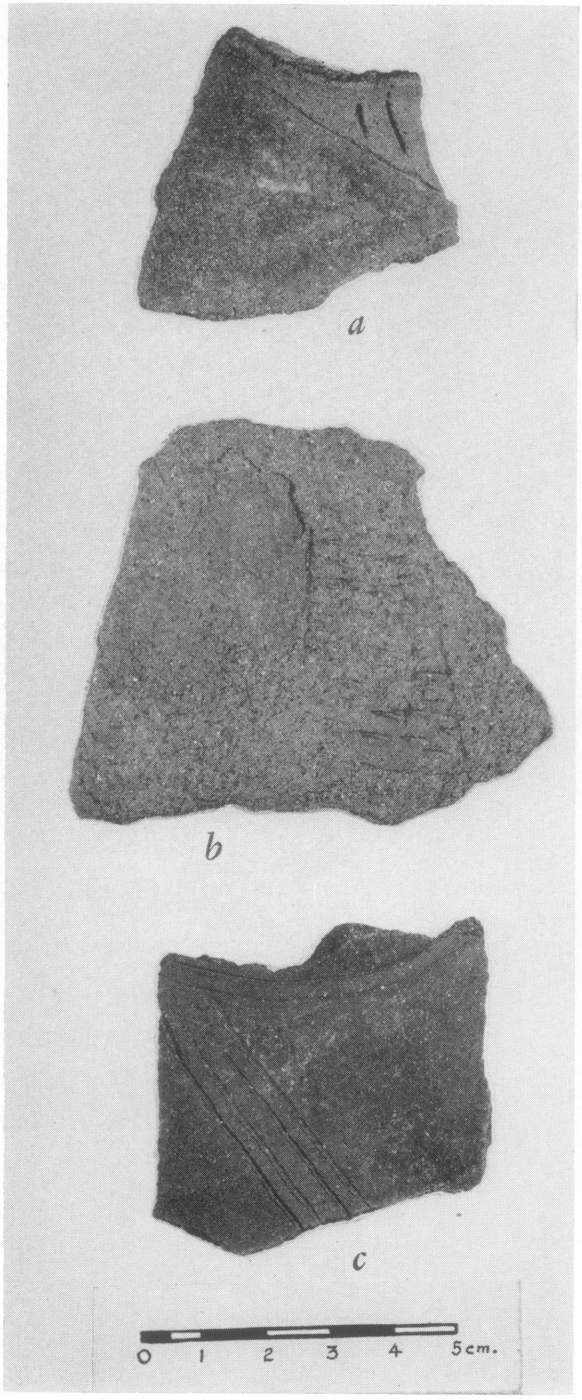
Paita phase C, Thin Red Ware, Paita.



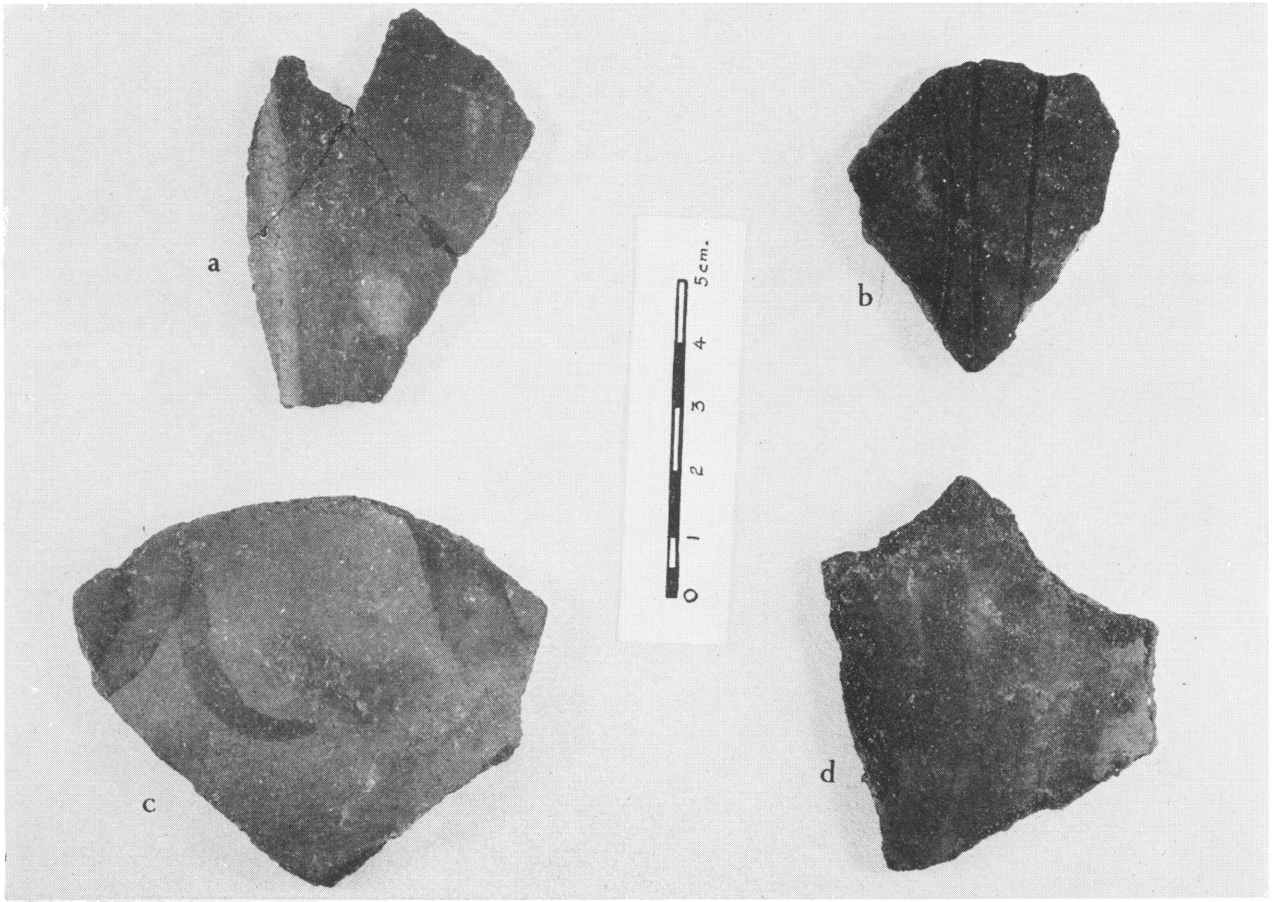
a–d, Paita phase C, Thin Red Ware. *a*, Paita; *b*, *c*, Punta Nermete 1; *d*, Punta Nermete South 1; *e*, Paita phase D, Thin Red Ware, Negritos South 1.



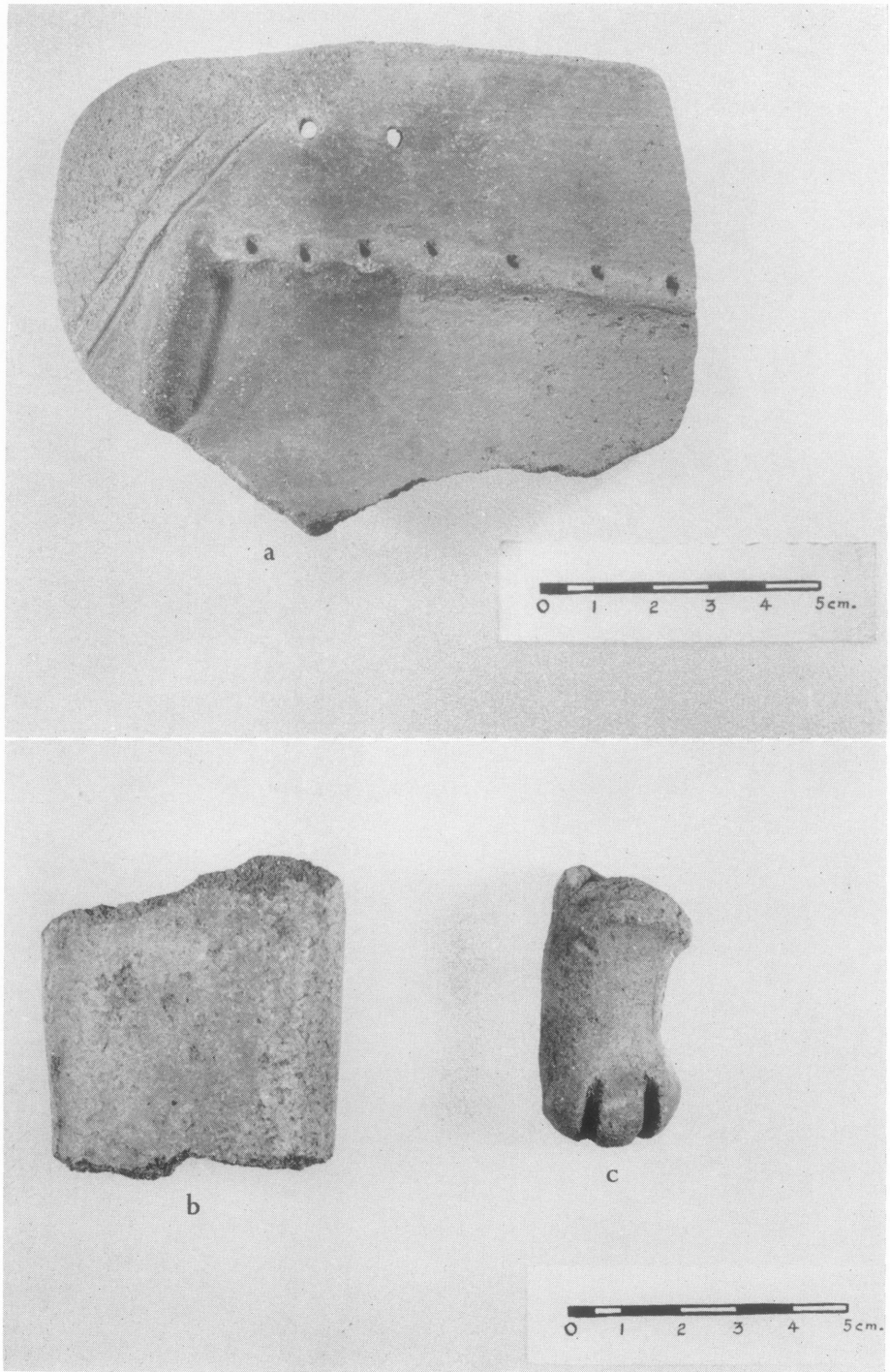
Paita phases C and D, Lagunitas. *a, c, f,* Paita D, Thin Red Ware; *b, d,* Paita D, Variant II Ware; *e,* Paita C, Thin Red Ware.



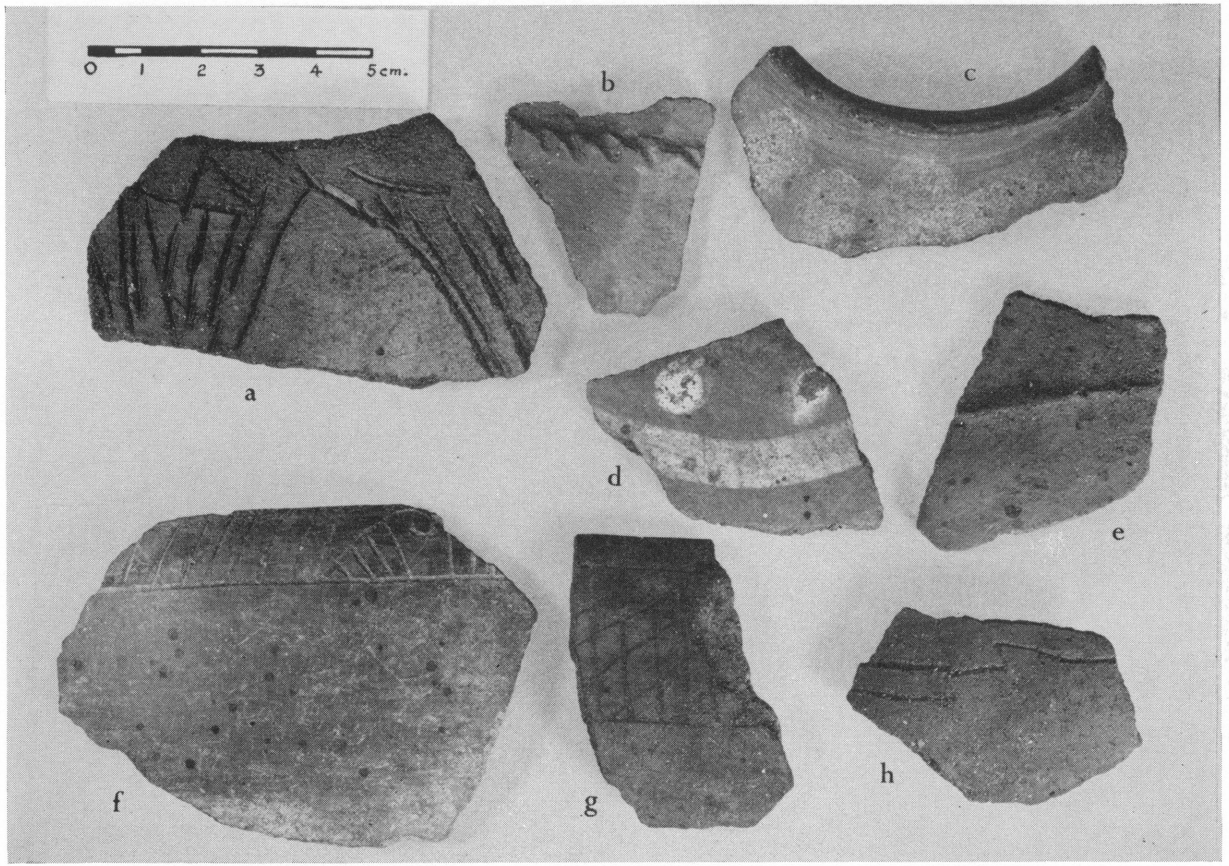
Paita phase D, Thin Red Ware, Lagunitas.



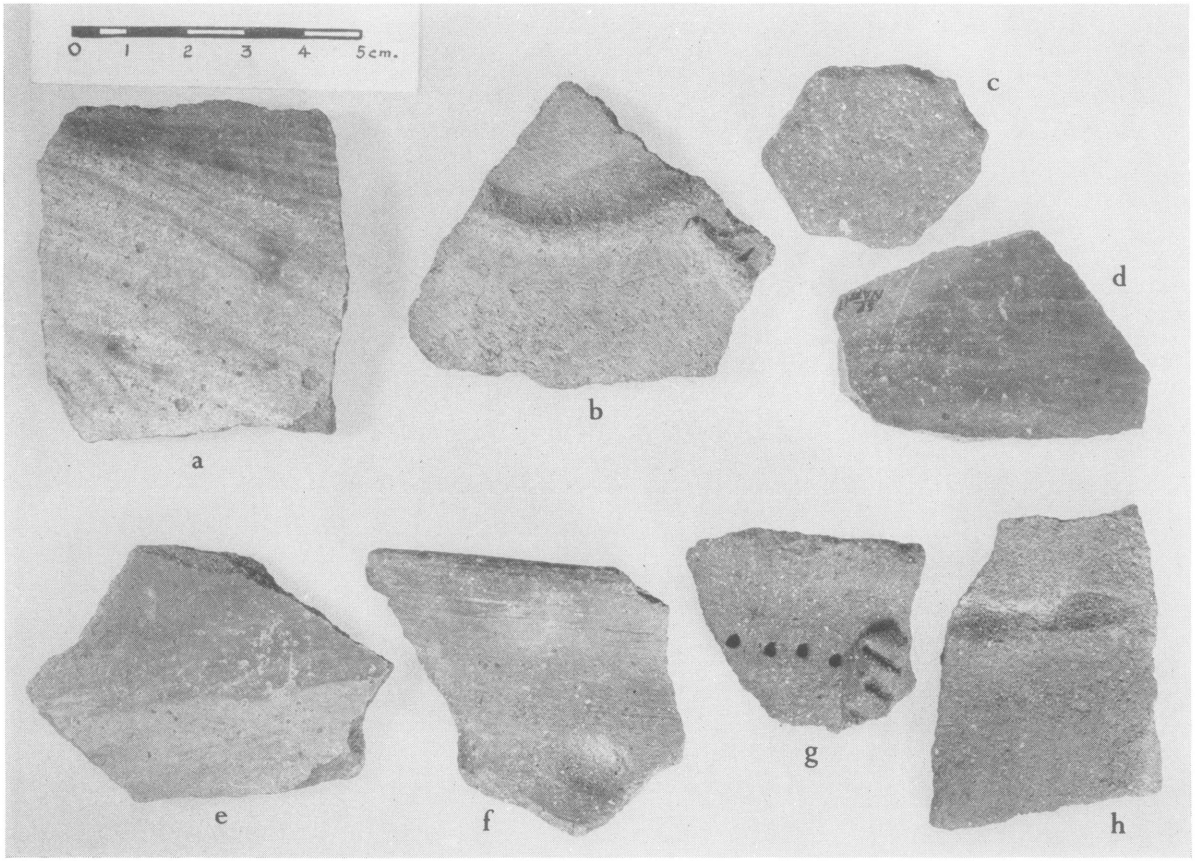
Paita phase D, Sechura phase A, Lagunitas. *a*, Sechura A; *b*, *d*, Paita D, Thin Red Ware; *c*, Paita D, Variant II Ware.



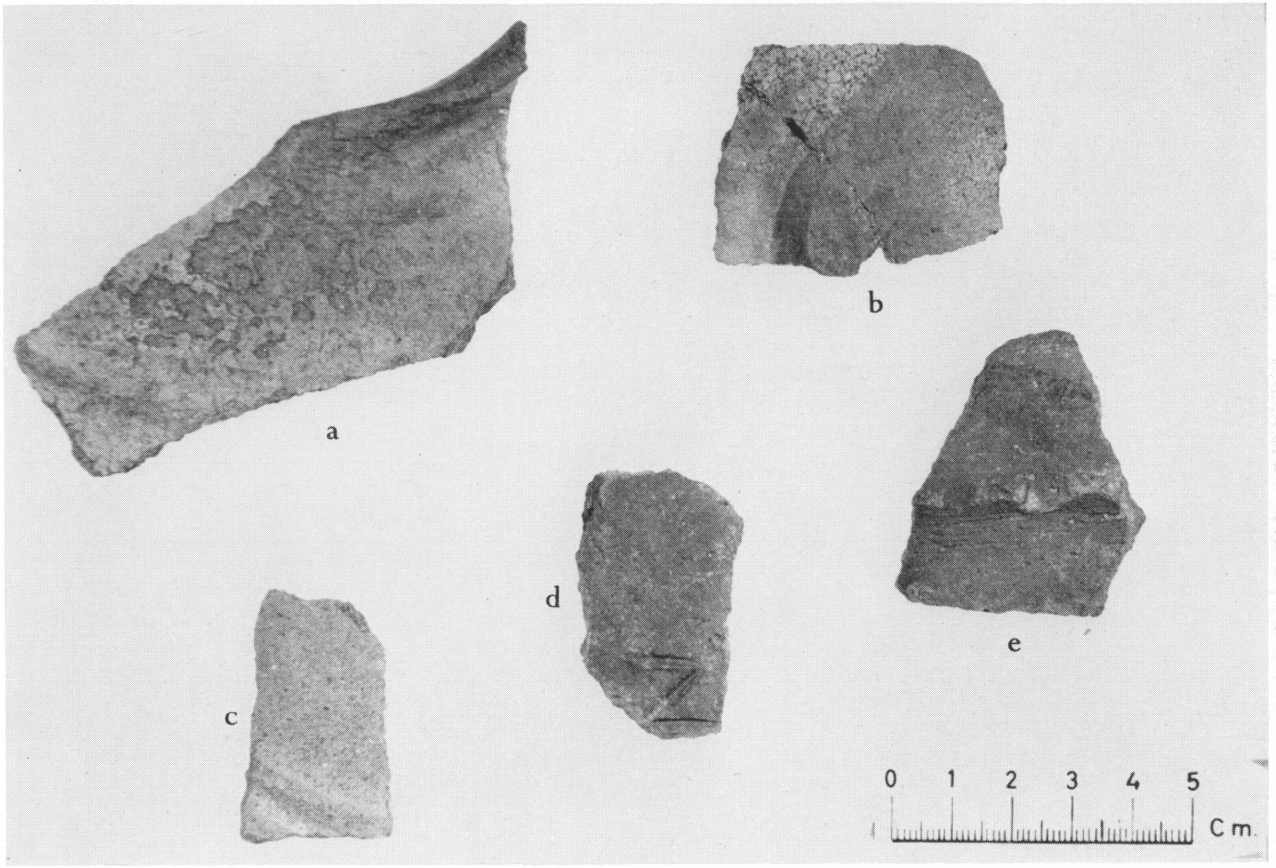
Paita phase D, Lagunitas. *a*, Variant II Ware; *b*, *c*, figurine fragments.



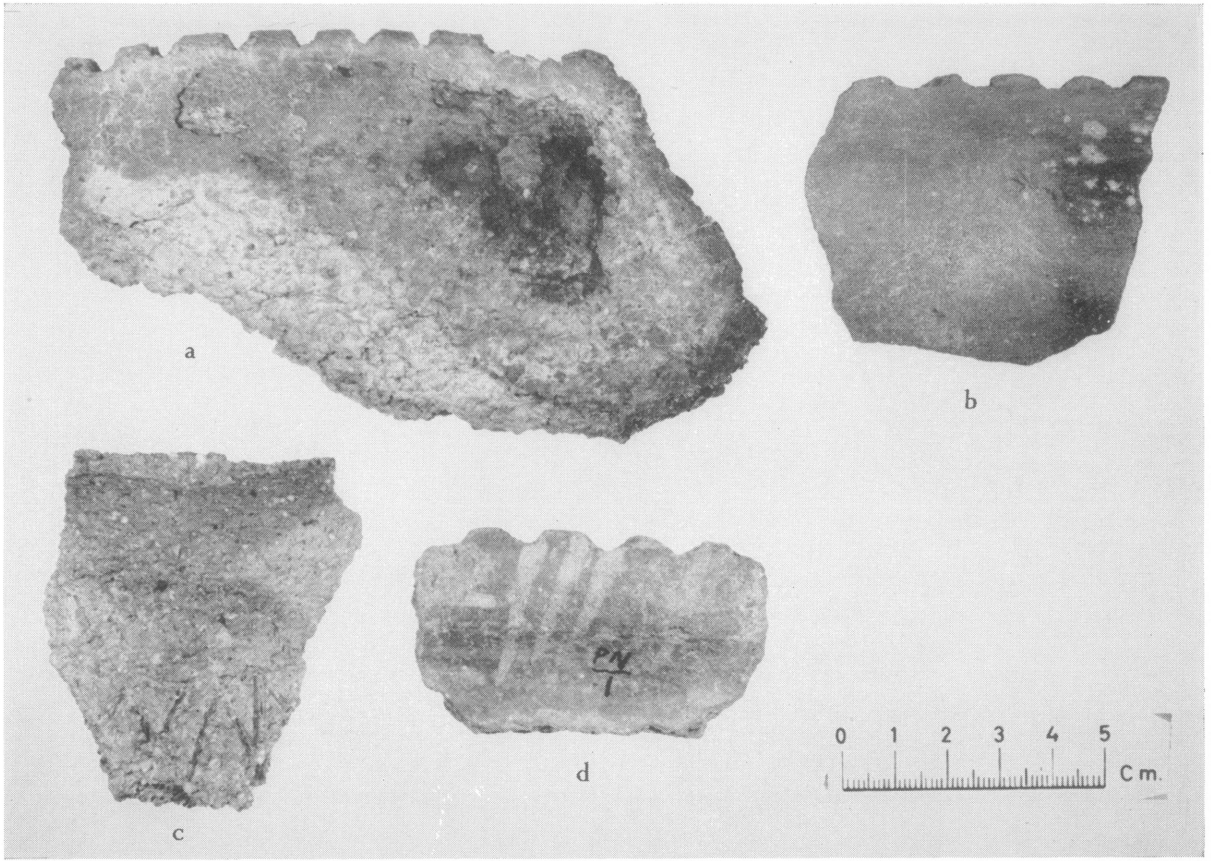
Paita phase D, Sechura phase A. *a*, Paita D, Variant II Ware, Lagunitas; *b, c, e, h,* Sechura A, Punta Nermete 1; *d, g,* Sechura A, Lagunitas; *f,* Sechura A, Paita.



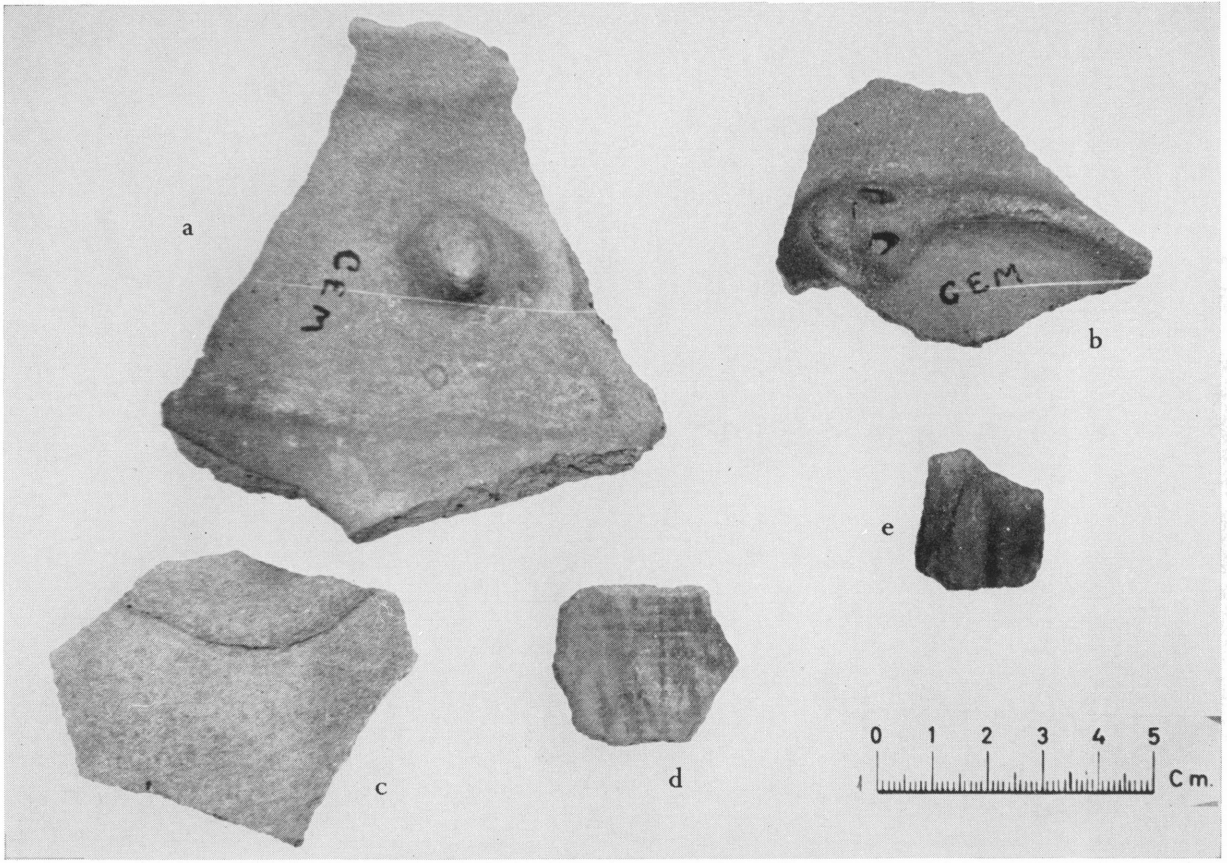
Sechura phase B. *a, c, d, g,* Casita 1; *b,* Punta Nermete 1; *e, f, h,* Tortuga.



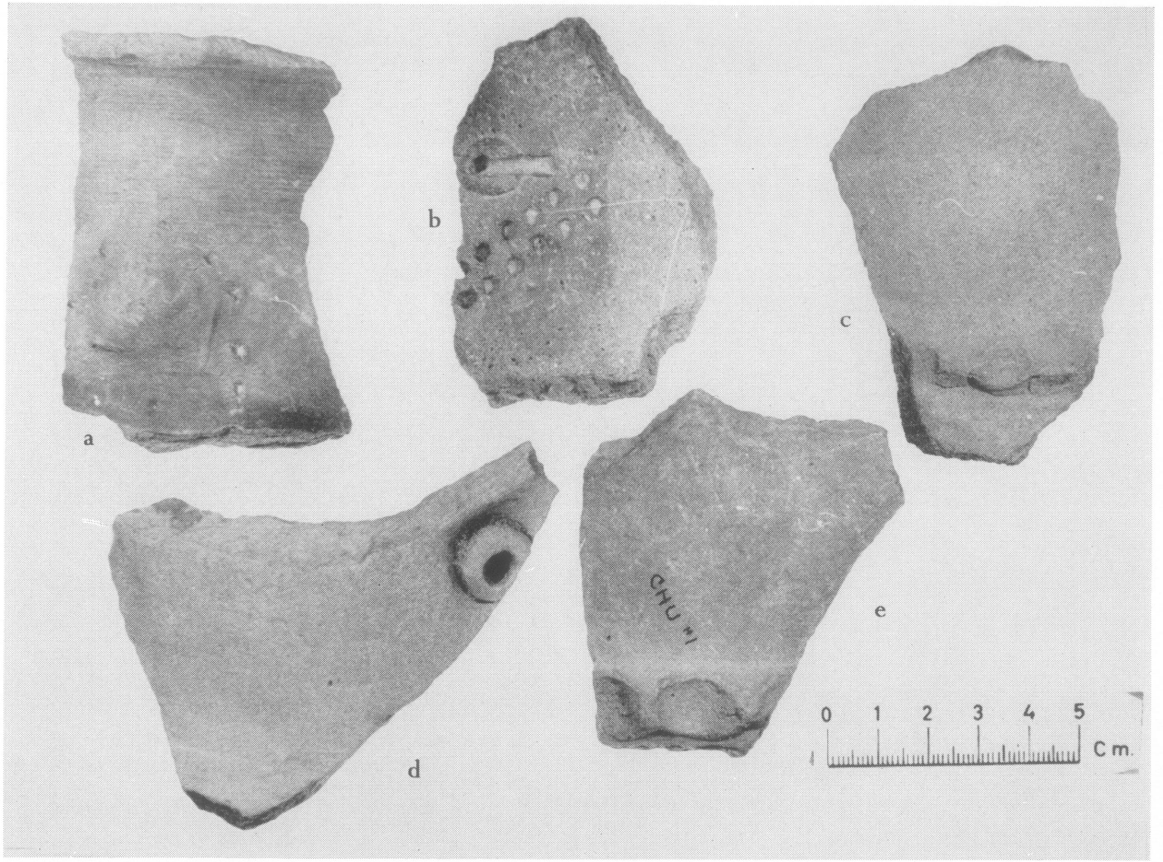
Sechura phase C, San Pedro North A 20. *a, b, d,* paddle made; *c, e,* coiled.



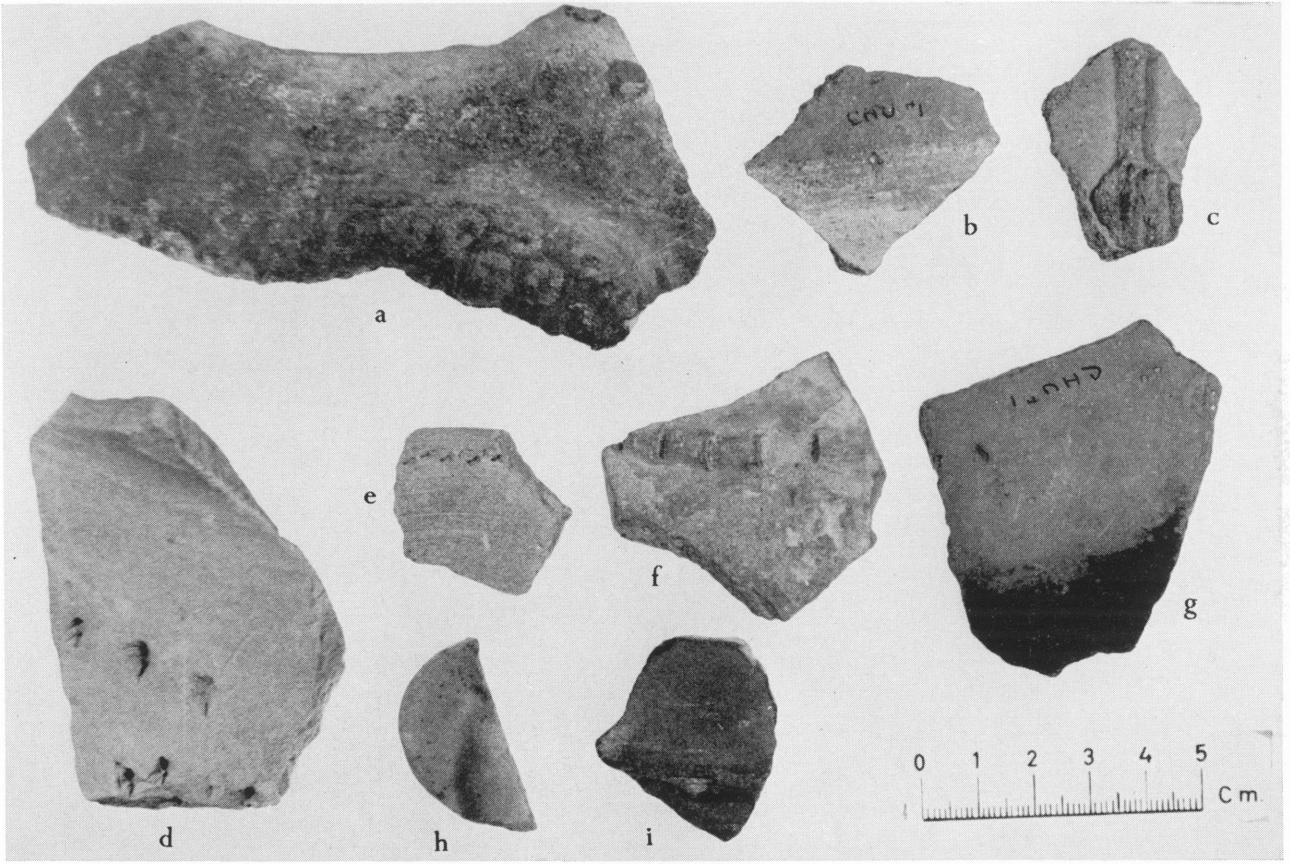
Sechura phase D. *a*, San Pedro North A 22; *b*, *c*, Sechura; *d*, Punta Nermete 1.



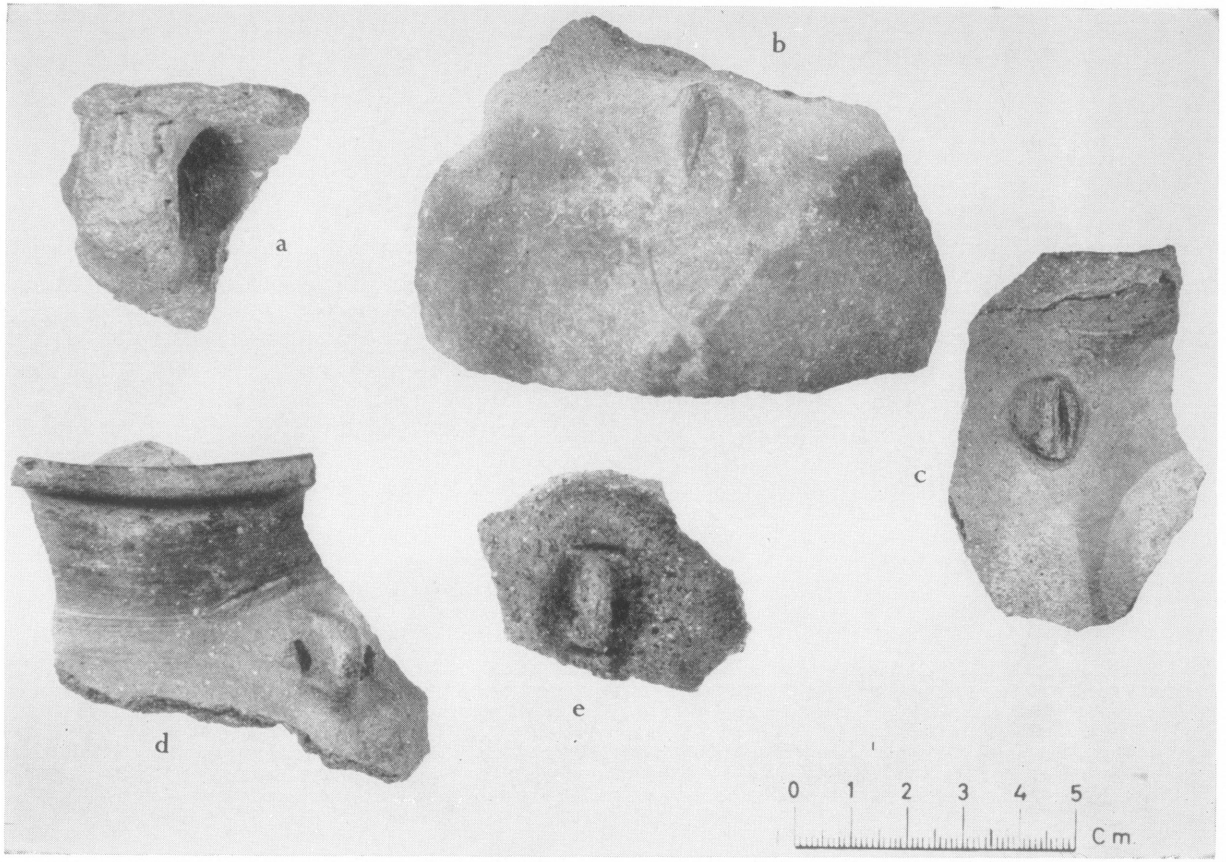
Sechura phase D. *a–c,* Sechura 2; *d, e,* Punta Nermete 1.



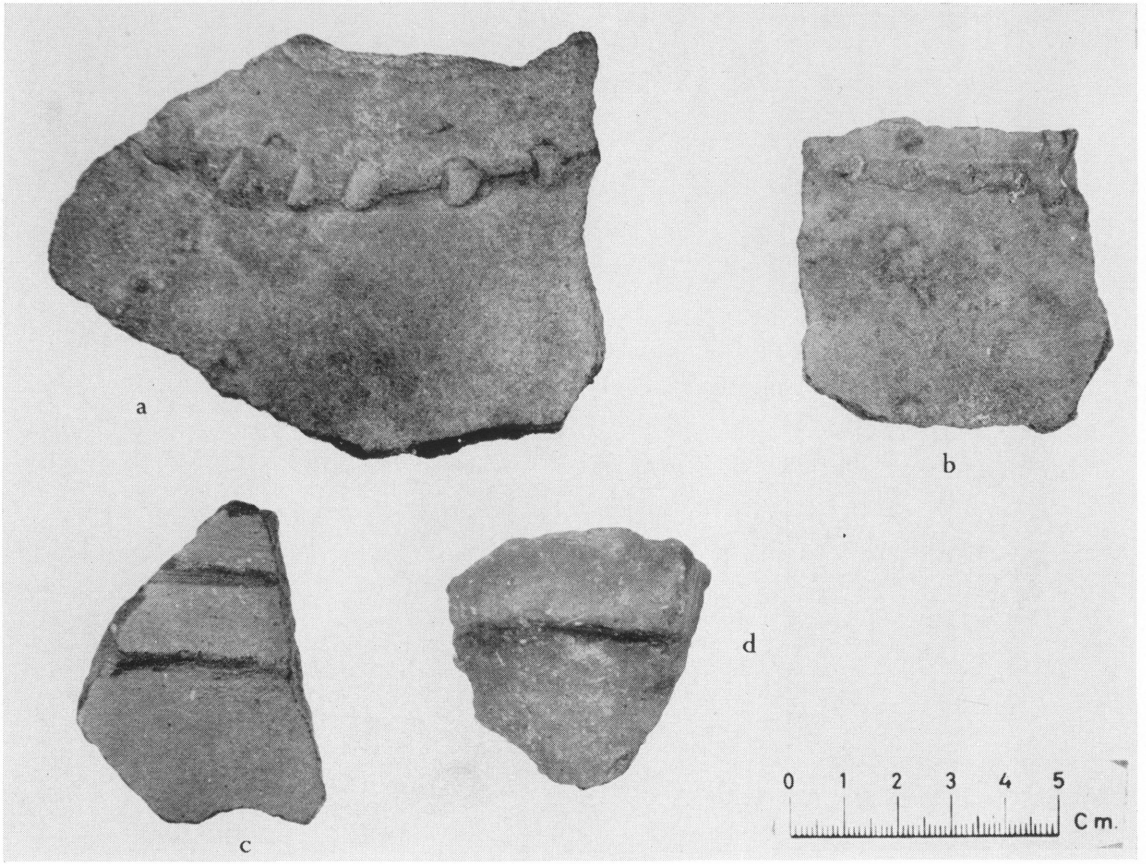
Sechura phase E. *a*, Tacalá; *b–e*, Chusís.



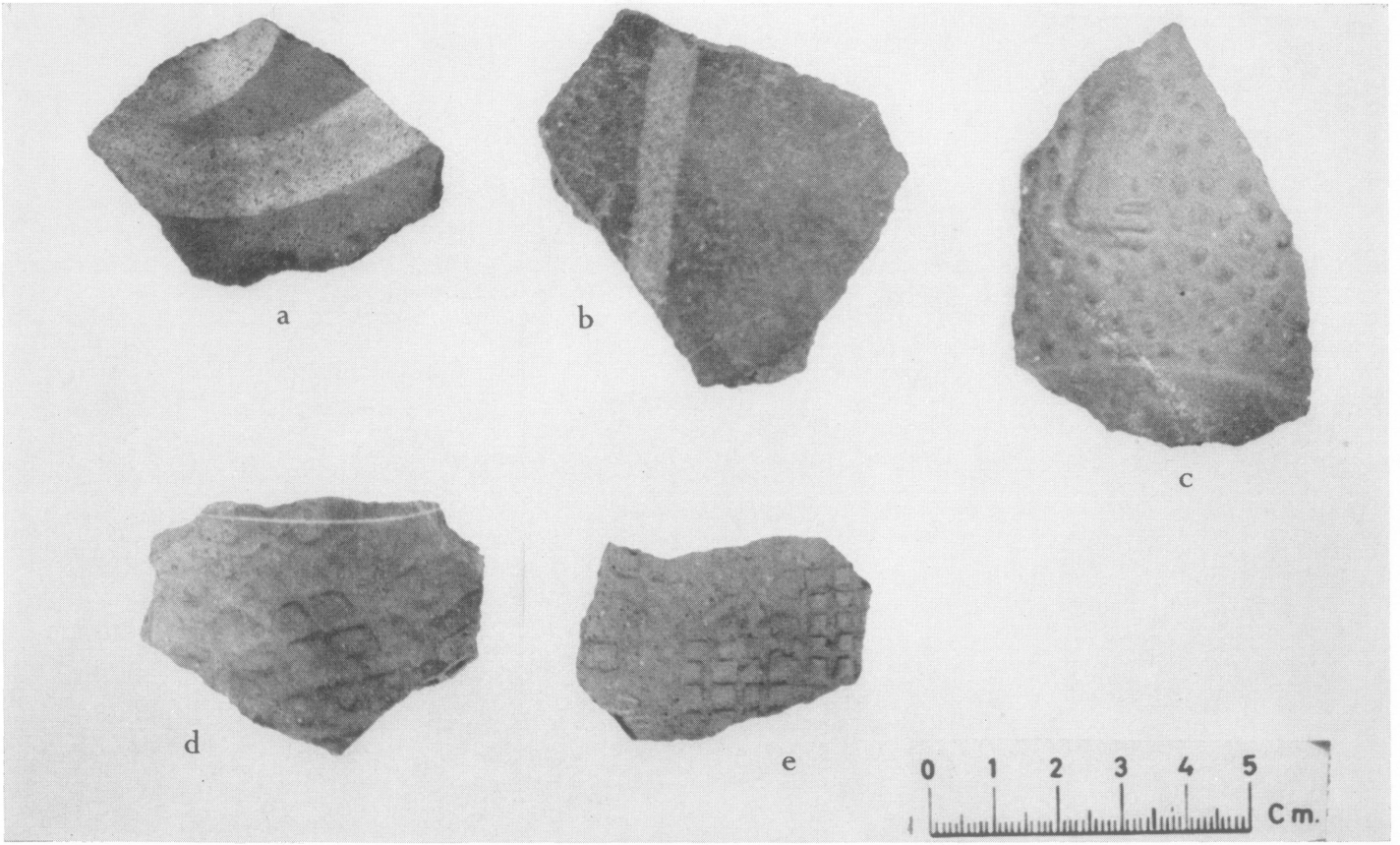
Sechura phase E. Chusís.



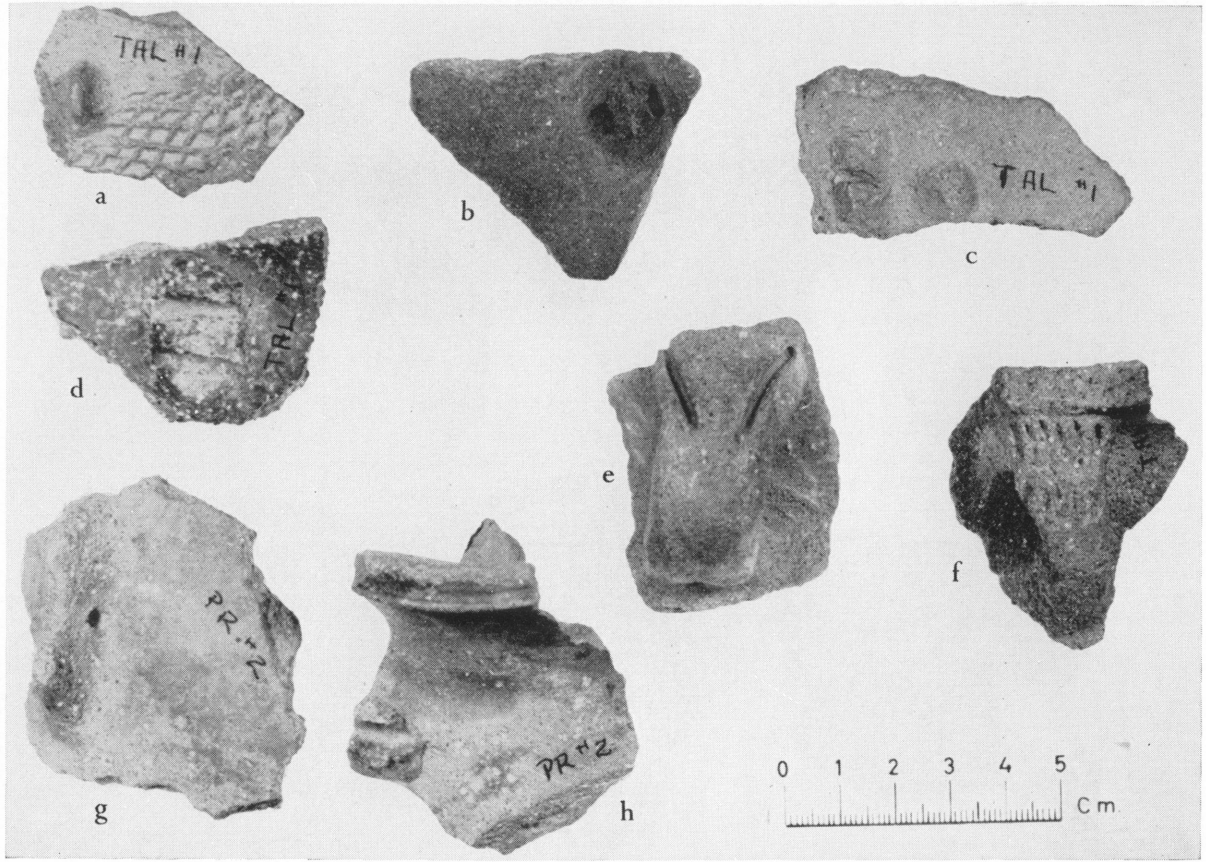
Piura phase A. *a–d*, Colán; *e*, Yasila 3.



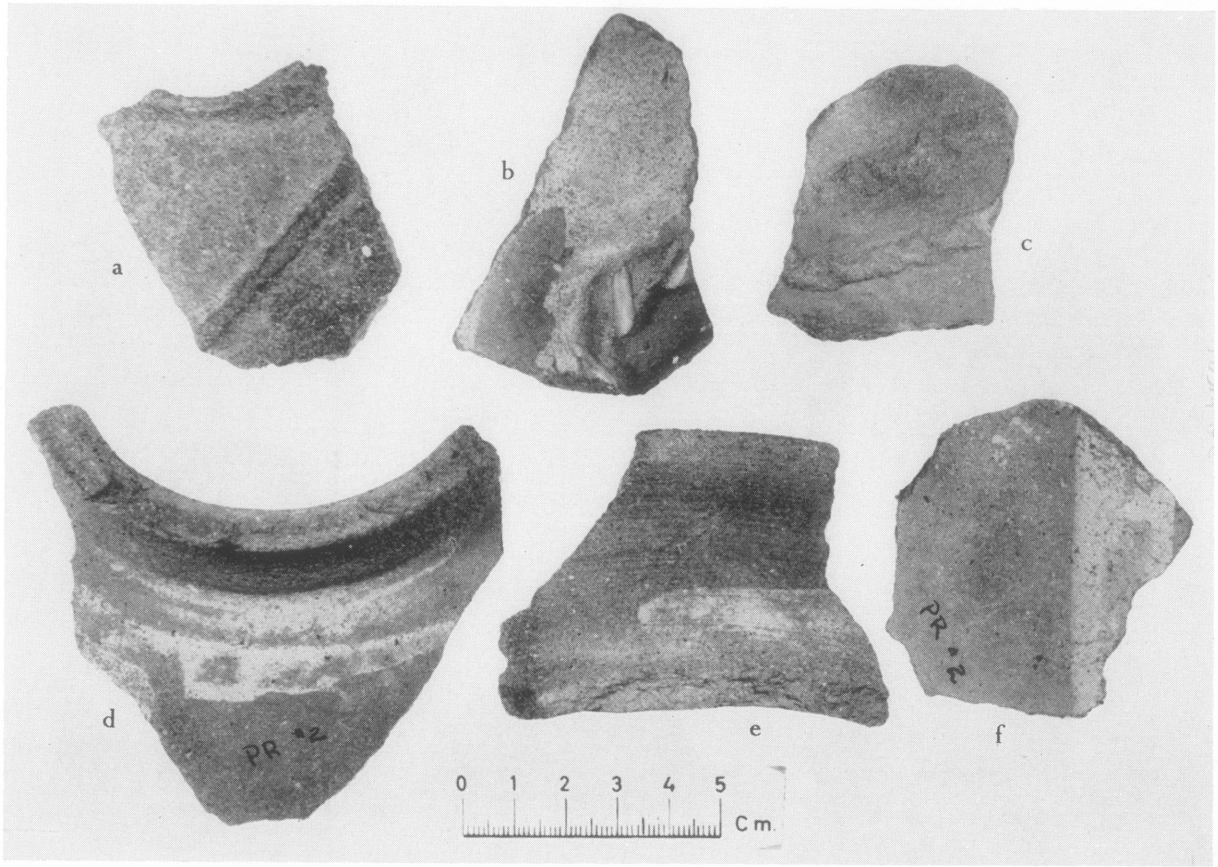
Piura phase A, Colán.



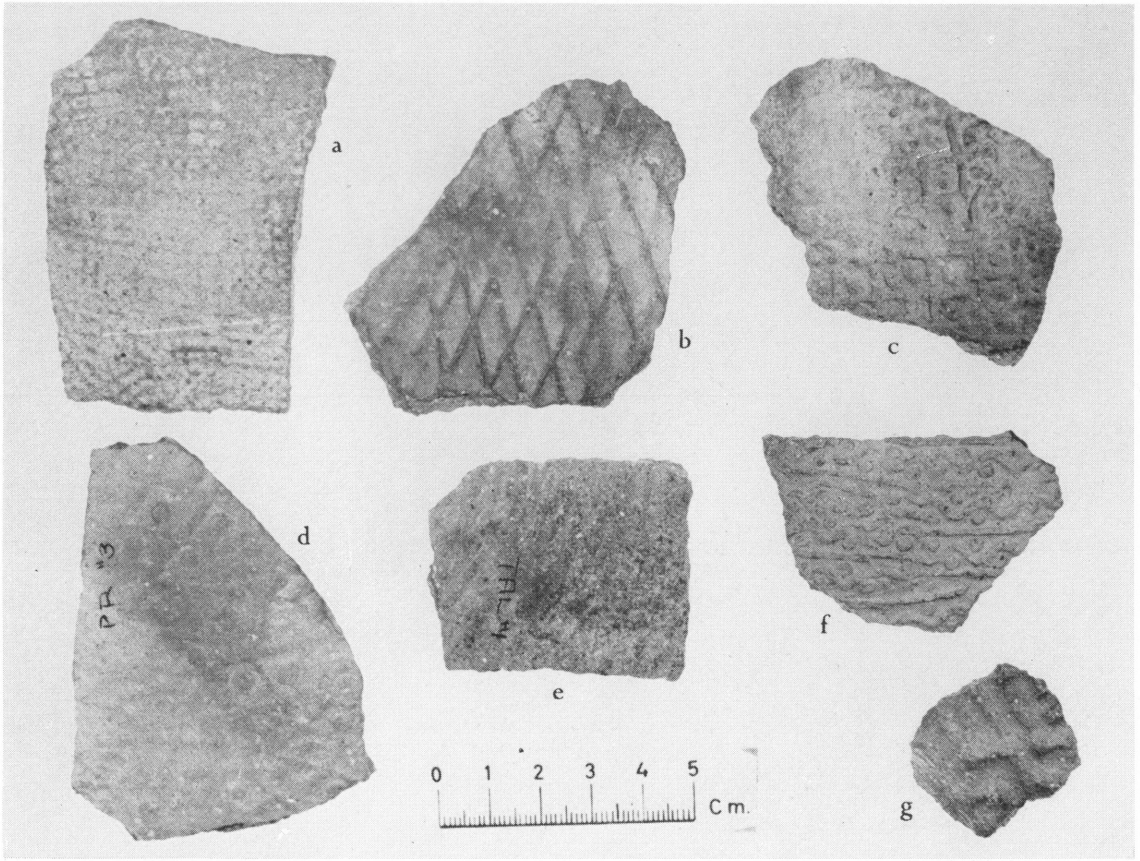
Piura phase A, Colán.



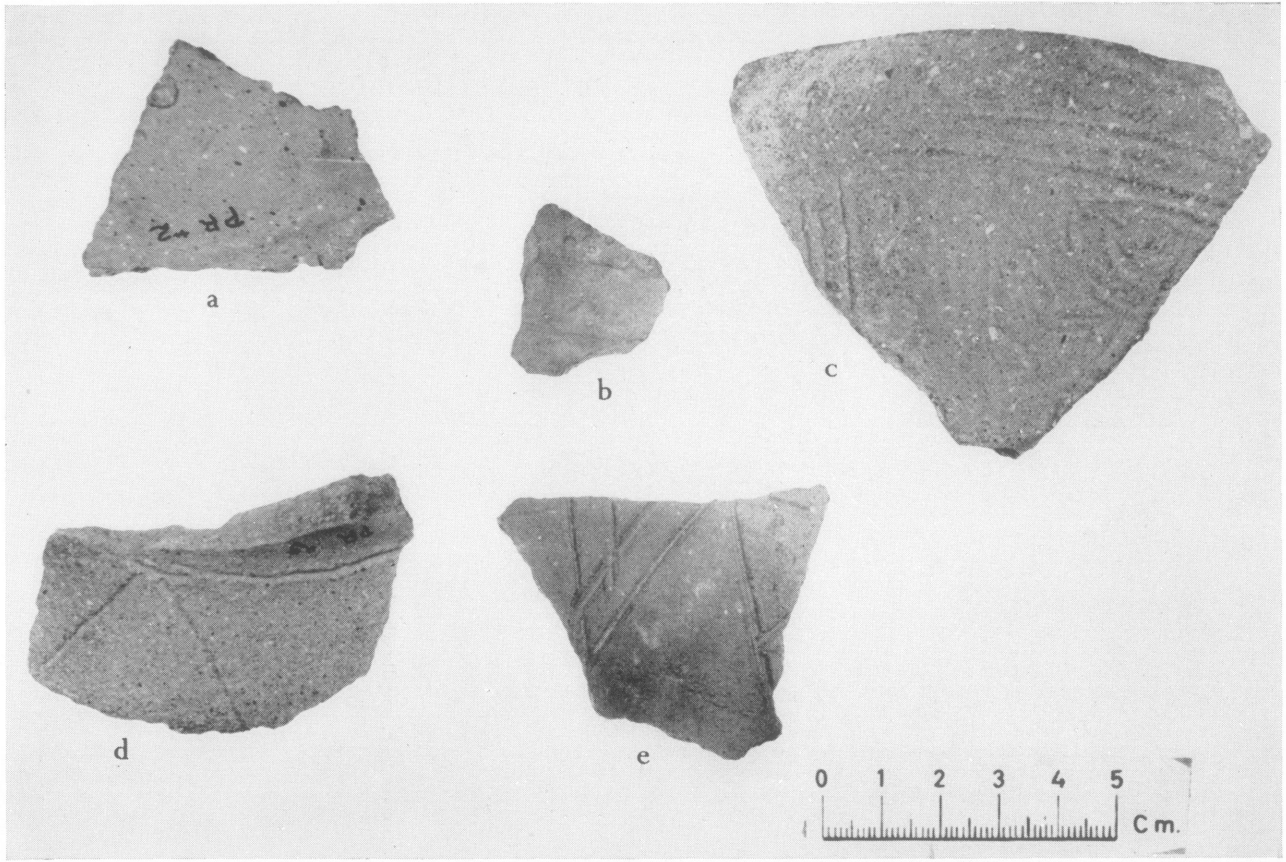
Piura phase B. *a, c, d, f,* Puerto Rico 1; *e, g h,* Puerto Rico 2; *b,* Puerto Rico 4.



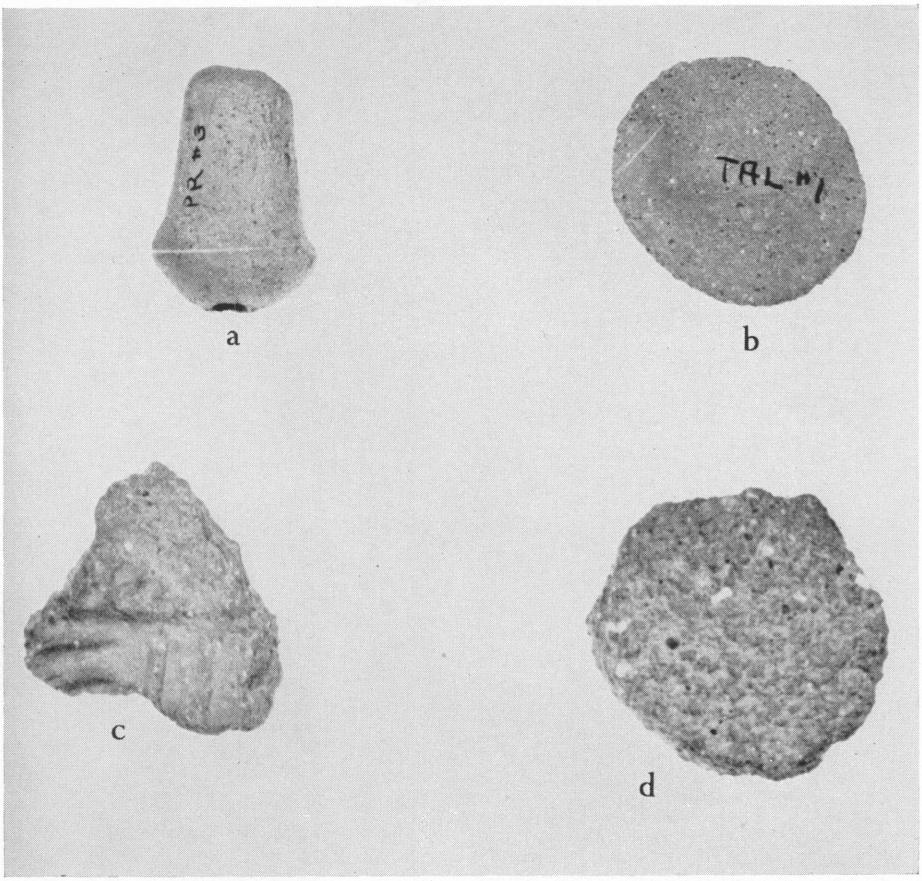
Piura phase B. *a, c, e,* Puerto Rico 1; *d, f,* Puerto Rico 2; *b,* Puerto Rico 3.



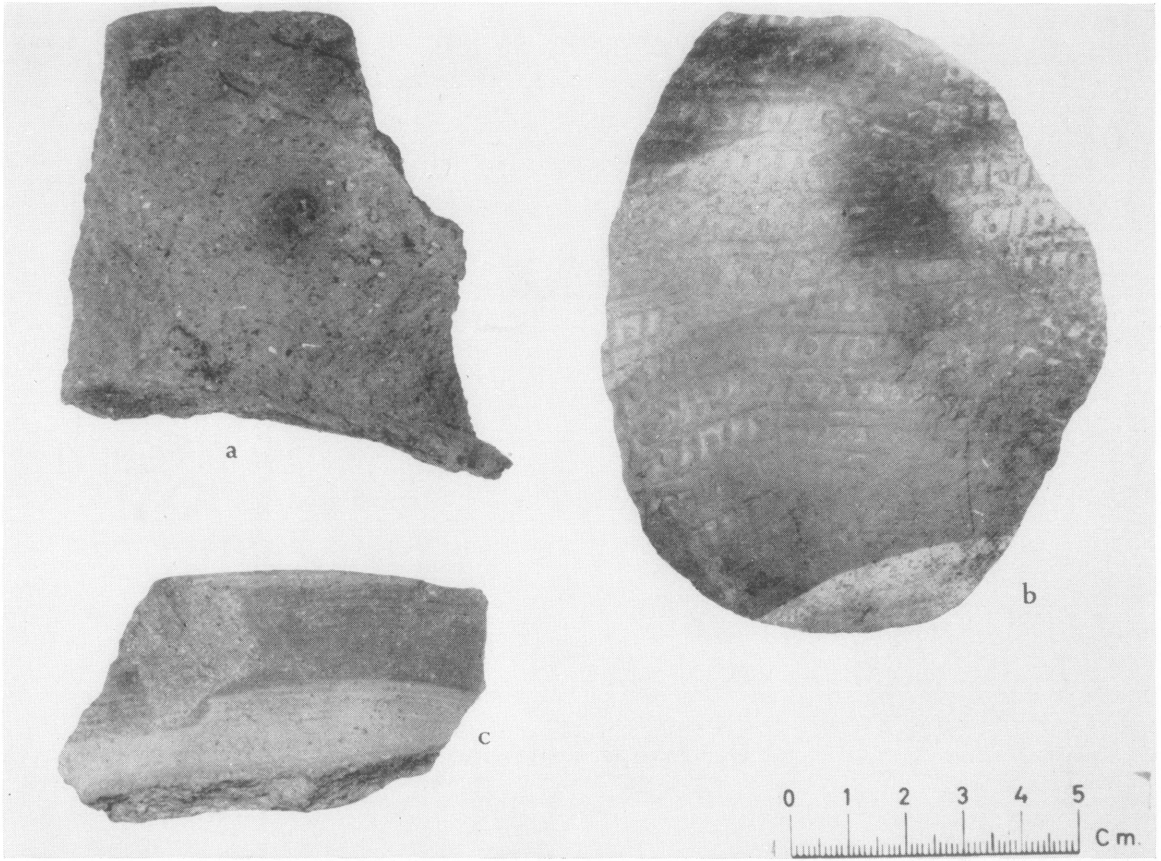
Piura phase B. *a, g,* Puerto Rico 2; *b,* Tacalá; *c, d, f,* Puerto Rico 3; *e,* Puerto Rico 1.



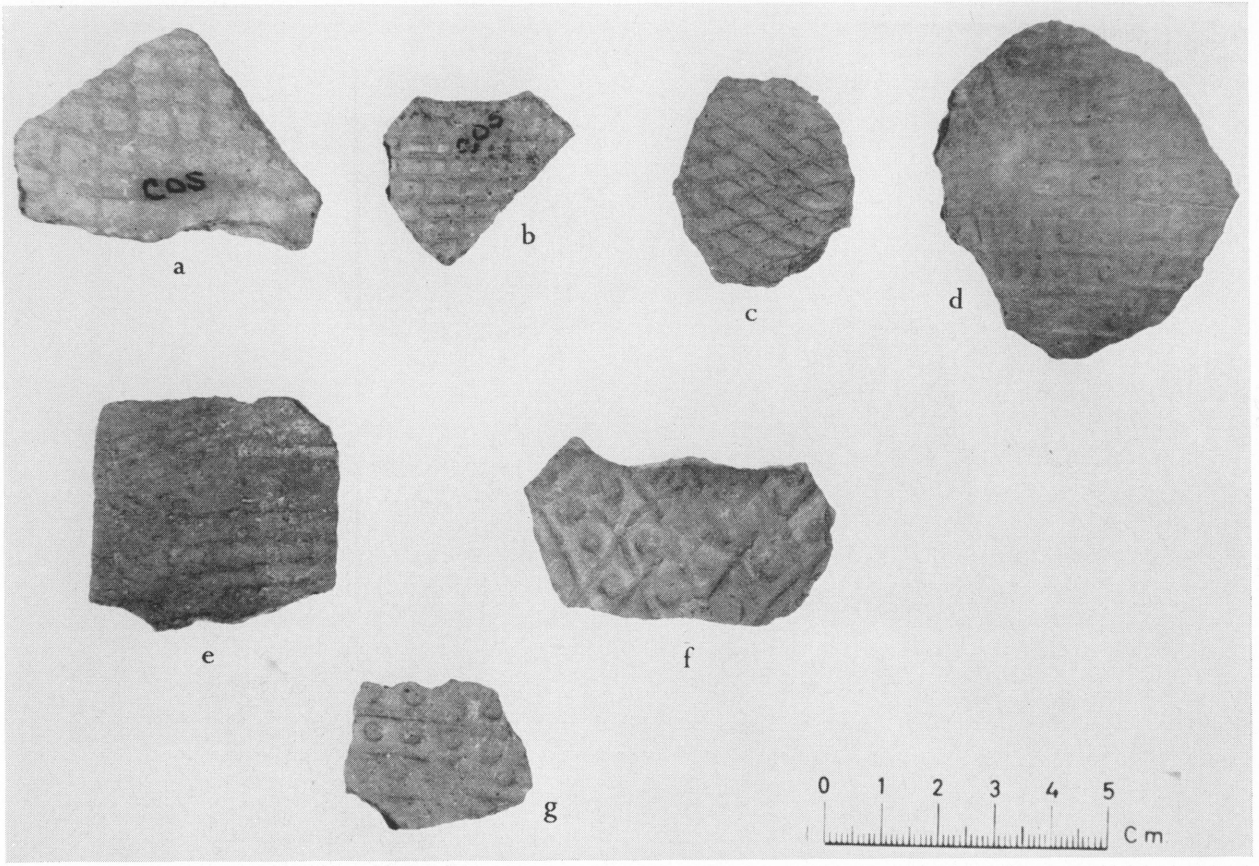
Piura phase B. *a*, *c*, Puerto Rico 2; *b*, Tacalá; *d*, Puerto Rico 3; *e*, Puerto Rico 4.



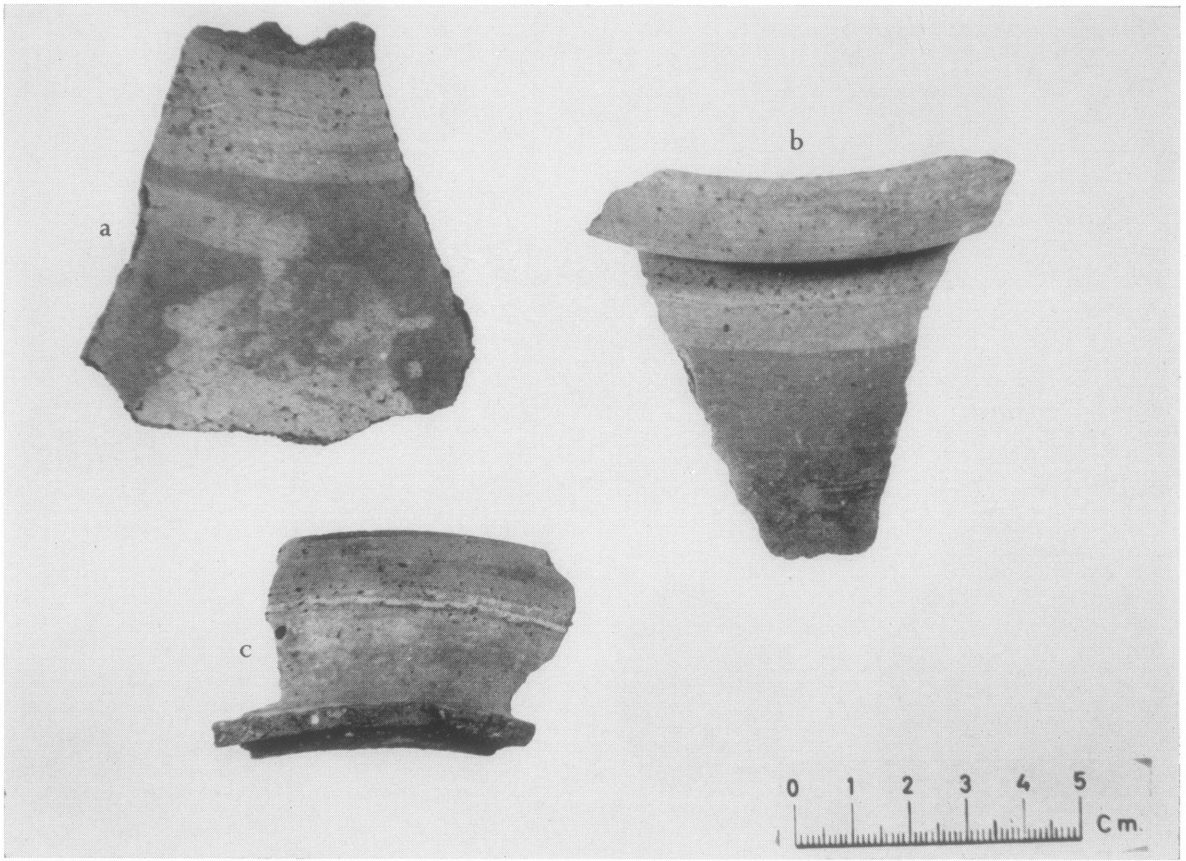
Piura phase B. *a*, spindle whorl, Puerto Rico 3; *b*, *d*, Puerto Rico 1; *c*, fragment of mold, Tacalá.



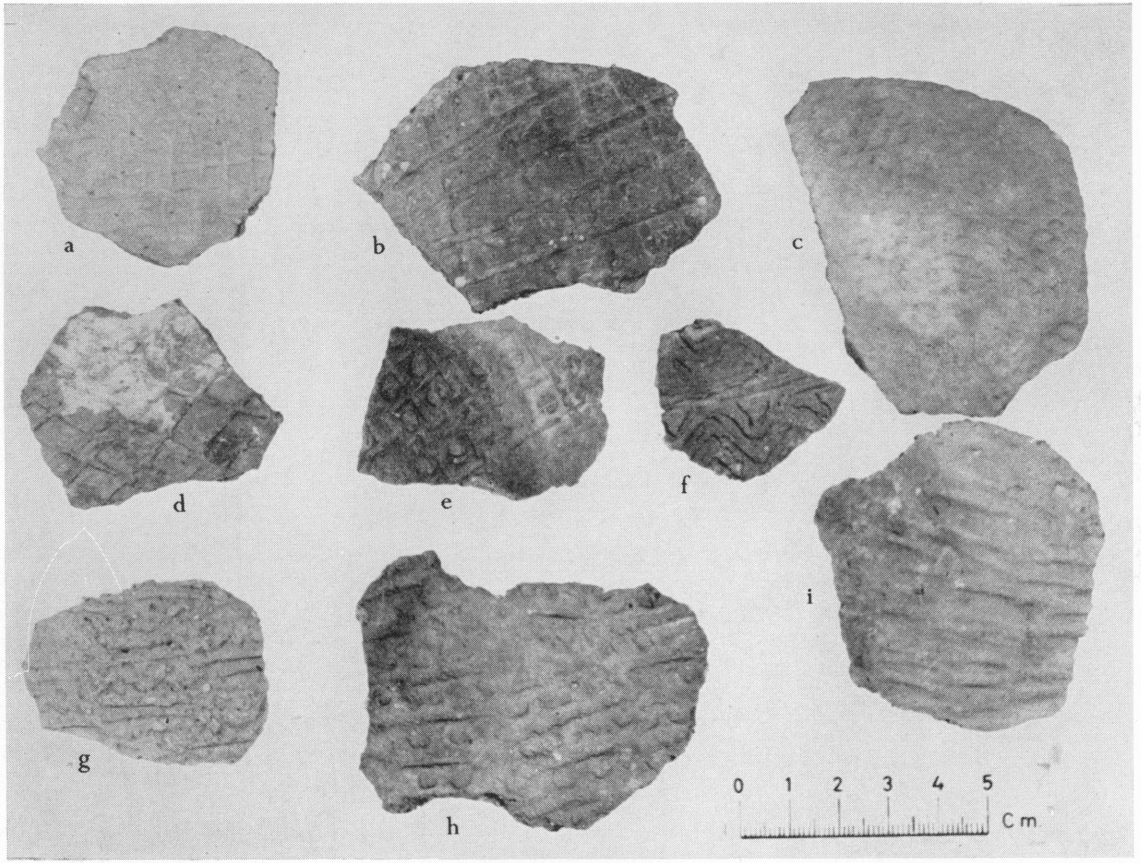
Piura phase C. *a*, San Pedro North A 14; *b*, *c*, Coscomba.



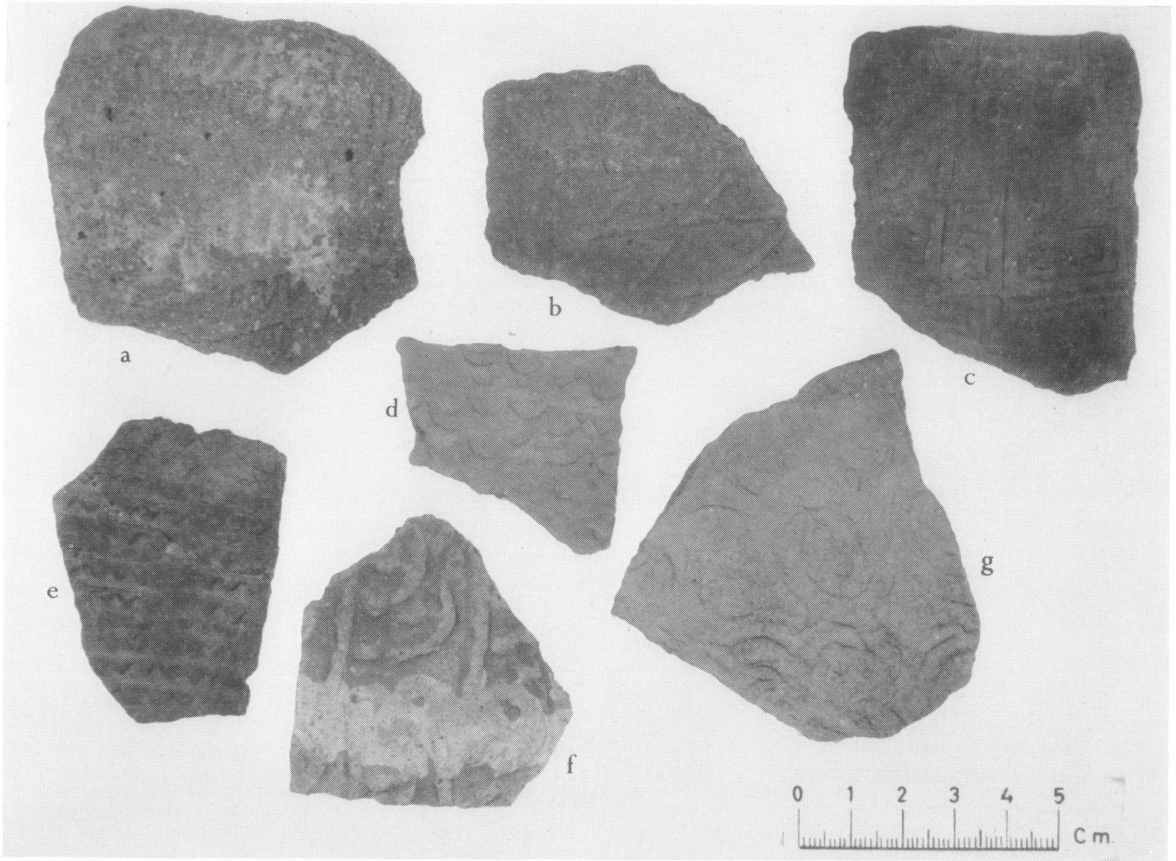
Piura phase C. Coscomba.



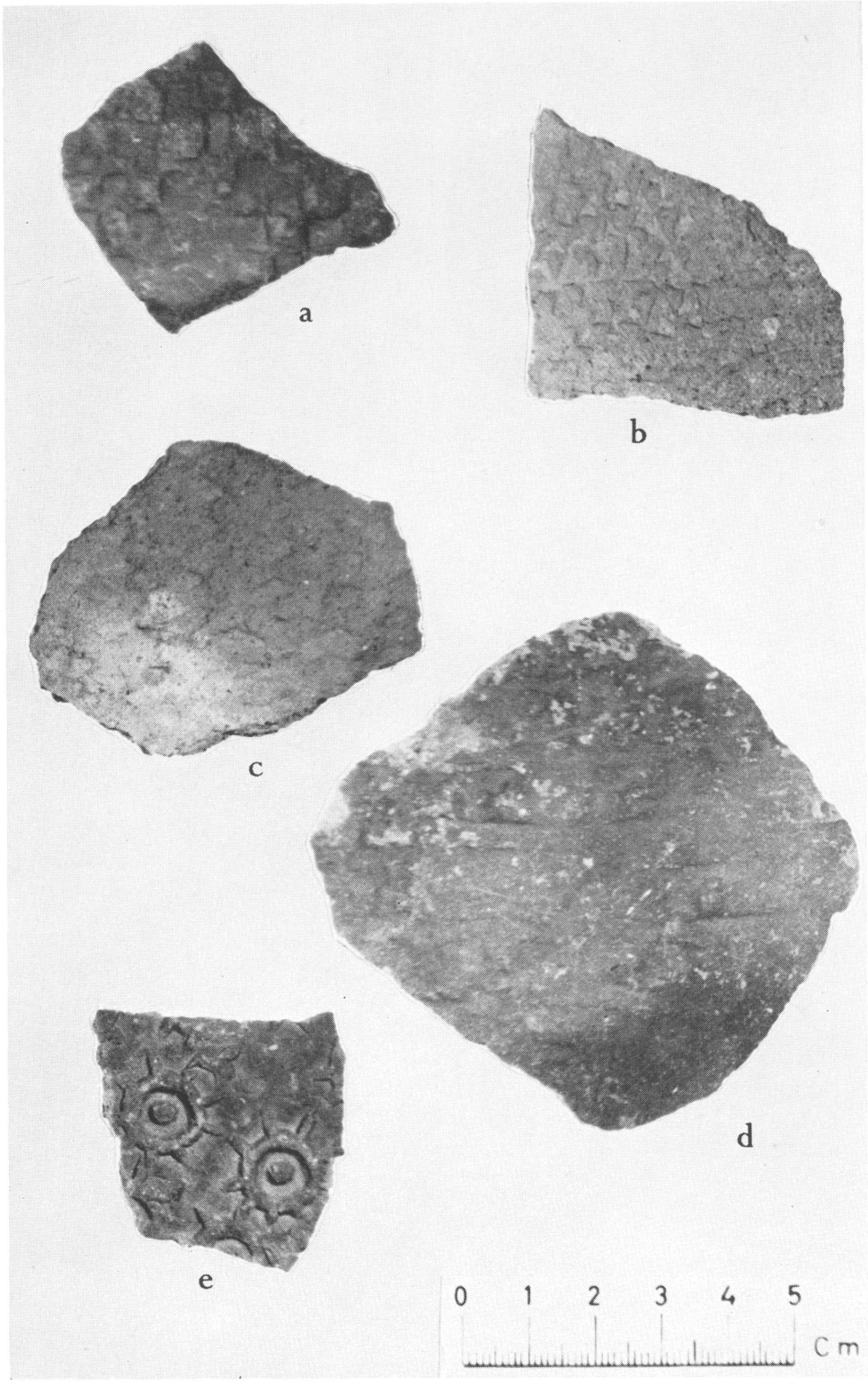
Piura phase E, Nunura 1.



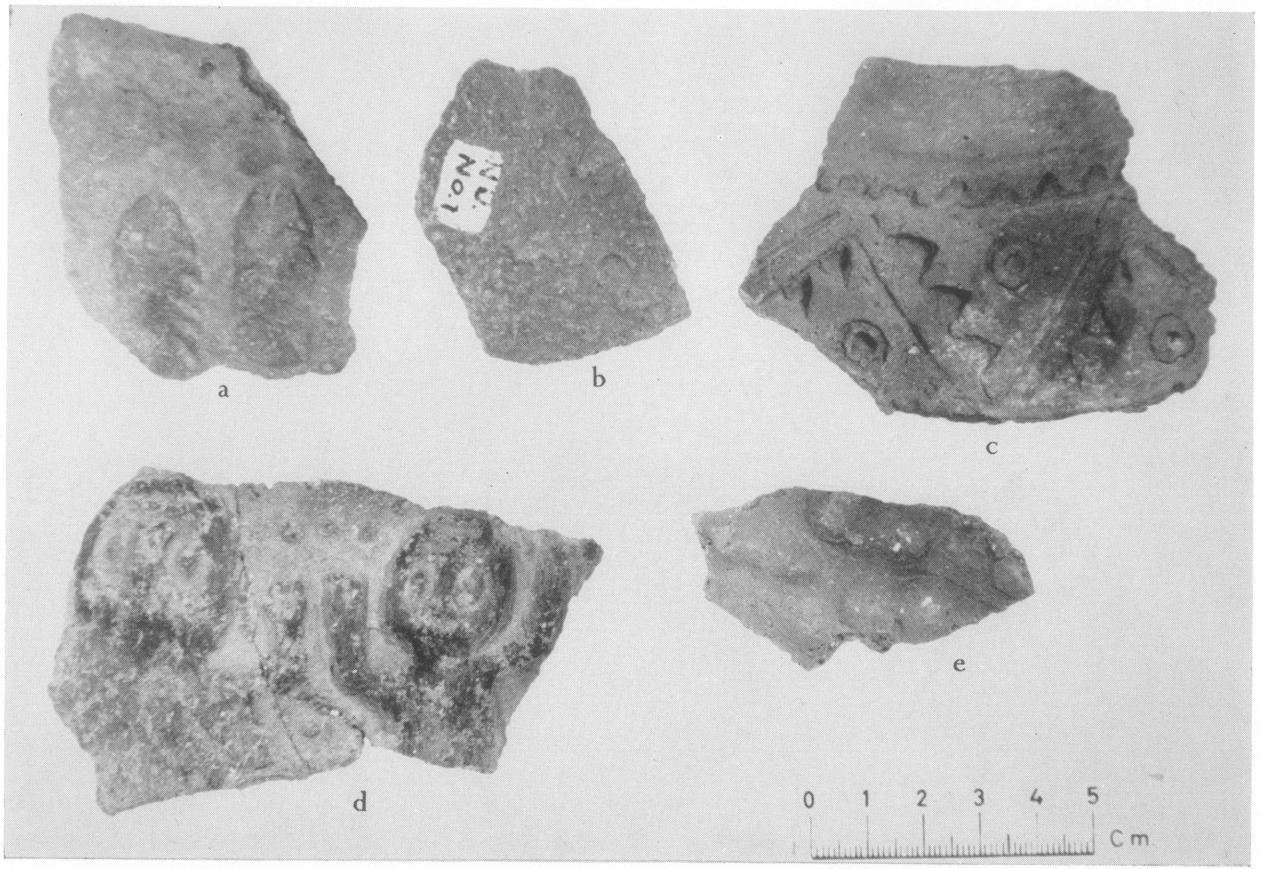
Piura phase E, Nunura 1.



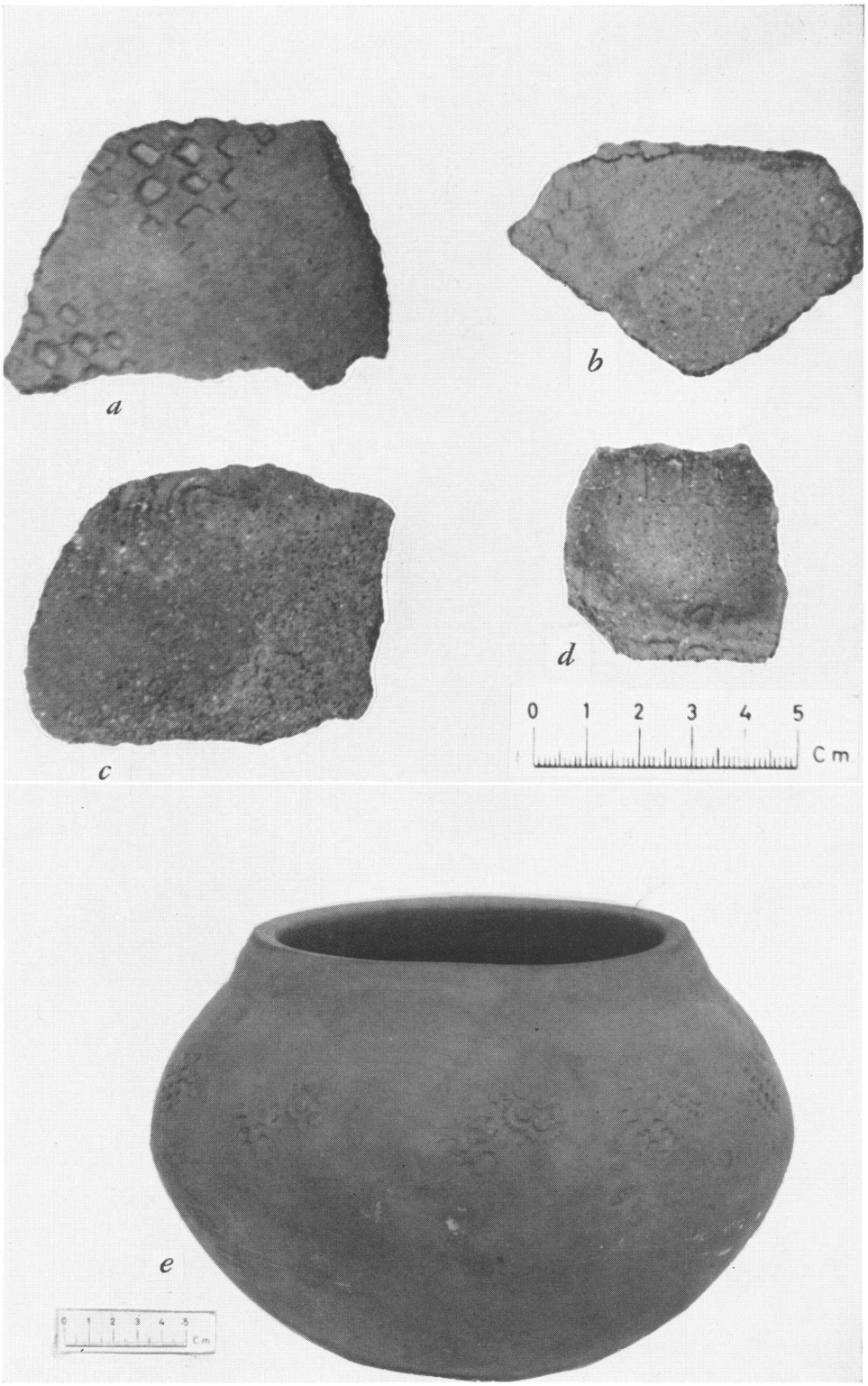
Piura phase E, Nunura 1.



Piura phase E, Nunura 1.



Piura phase E, Nunura 1.



a–d, Simbilá style, Sechura 2; *e*, Simbilá style, *olla de comeda* purchased in the Sechura market.