AN ARCHAEOLOGICAL STUDY OF THE ILLESCAS-JUBONES COAST
OF NORTHERN PERU AND SOUTHERN ECUADOR

by
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A Thesis
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(abstract of a doctoral thesis, Department of Anthropology
University of Arizona)

A field survey extended from the Illescas peninsula northward along the coast of Peru to the Jubones River valley in southern coastal Ecuador. Stratigraphic excavations were practiced in refuse deposits at Chusís, an ancient ruin near Sechura in the lower Piura valley.

Remains of apparently pre-ceramic cultures were found in the Illescas peninsula and the Cabo Blanco zone.

Attenuated Chavin, Mochica, and Tiahuanacoid influences were seen in the ceramics of the far north coast of Peru. Abundant evidence of the following Chimu period was found, notably in the Chira valley and the upper Piura valley.

The excavations at Chusís revealed a peasant-type culture extending back to an estimated beginning date of 1000 A.D., although in its ceramics it shows affinity with the earlier Negative and White-on-Red traditions. This isolated Chusís (or Sechura) culture seems to have preserved certain archaic traits after they had died out elsewhere. It continued with little change apparently into the Colonial period.
Coastal El Oro, as well as presenting a striking geographic contrast to the desert coast of Peru, contains an equal contrast in culture type. Here, the Manteño culture of Manabí and Guayas appears in full force.
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PREFACE

In July, 1948, I made application for a "Pan-American" fellowship to Peru. The fellowship program for United States graduate students provided for under the Convention for the Promotion of Inter-American Cultural Relations, signed in Buenos Aires in 1936, had only very recently been resumed following the interruption occasioned by World War II.

In September, 1949, I received my letter of award. The greater part of the year 1950 was spent in Peru under an arrangement whereby the United States government furnished transportation to and from Lima, while that of Peru furnished a monthly maintenance allowance and certain other expenses. My abiding gratitude goes out to each for cooperatively making possible that which would otherwise have been for me impossible. Particularly helpful were Dr. Thomas E. Cotner, specialist in the American Republics Section, Division of International Educational Relations of the United States Office of Education, and Sr. Eduardo F. Indacochea, secretary general of the Ministry of Public Education of Peru. These 2 gentlemen, the former by correspondence and the latter largely by face-to-face contacts, served as the agents for their respective governments in facilitating the necessary arrangements.

The title of the original research project on the
basis of which the fellowship was granted was, "A Study of Middle American-Andean Culture Correlations." I had hoped to find evidence bearing on a theory of Andean origins which derived the latter civilization at least in part from that of the Archaic horizon of Mesoamerica via marine navigation, along the Pacific Coast. Experience in the field, however, convinced me that the excavational approach on such a theme was premature, at least in Peru. The theme was accordingly modified to that found in the present thesis, which is an attempt at reconstructing the cultural history of a selected portion of the coast of northern Peru and southern Ecuador. The latter task, however, may be thought of as preparatory and prerequisite to the more inclusive problem of Mesoamerican contacts.

Numerous persons and institutions have contributed to whatever merit this thesis may possess. It is not of course possible to acknowledge all of them by individual mention. A listing of those who have made contributions of unusual importance must suffice. Nevertheless, my gratitude to all, whether listed or not, is heartfelt.

Prior to my departure for Peru, Wendell C. Bennett of Yale University, Donald Collier of the Chicago Natural History Museum, Gordon R. Willey of the Bureau of American Ethnology, and Richard P. Schaedel of the National University of Trujillo furnished invaluable guidance during the
initial setting up of the research project.

At Lima, Peru, the American Embassy exhibited a constant sympathetic interest in my well-being as a student, particularly as represented by the cultural attaché, Eugene Delgado-Arias; also, the civil attaché, Albert A. Giesecki, who incidentally had been among the delegates who originally framed the Convention under which the fellowship was granted.

The Peruvian government was represented by Coronel Mendoza, Minister of Public Education. Eduardo F. Indacoechea, secretary general of the Ministry of Public Education, and his assistant, Carlos Alvarez Moreno, greatly facilitated necessary arrangements. José Ricardo Respaldiza, chief of the Section of Museums and National Monuments of the Ministry of Public Education, among other helpful acts, was perhaps foremost among those who assisted in obtaining legal permission for me to excavate. Rebecca Carrion Cachot, director of the National Museum of Anthropology and Archaeology (Magdelena Vieja) and the museum staff, particularly Julio Espejo Núñez, extended to me the facilities of that institution in an enthusiastic and hospitable manner.

The Supreme Resolution of the government of Peru (No. 1204, published September 10, 1950) which granted the required permission to excavate, declared me attached to the Museum for that purpose.

The Enrique Chang family of Lima were most kind in
taking me in as a house guest for an extended period of time shortly after my arrival in Peru. This friendly act was an extension of the kindness of their son, Eugenio Chang Rodríguez, who had assisted me in my preparations before my departure from the University of Arizona. The Stanley G. Moore family and the Donald H. Biery family also extended to me the hospitality of their homes at times which were essential to the progress of my research. D. W. Fraser Snook rendered great service by the loan of a camera at a time when I had lost my own.

It was possible for me to chat with Wendell C. Bennett, then engaged in his Wari research, on 2 or 3 occasions in Peru, thus continuing the instruction in Andean archaeology which I had so appreciated receiving from him at Yale University. Of crucial importance was his recommendation to the National Archaeological Patronage made in support of my request for permission to excavate.

At the National University of Trujillo, the administration graciously admitted me as a special student during a period of study and orientation in North Coast archaeology prior to the beginning of my work in the Illescas-Jubones coast. José Eulogio Garrido, director of the Museum of Archaeology, and Richard P. Schaedel, director of the Institute of Anthropology, were unusually helpful.

Constante Larco Hoyle, a proprietor of the Hacienda
Chiclán, near Trujillo, extended the hospitality of his home to me during a week spent in a study of North Coast archaeological types at the Rafael Larco Herrera Museum, of which he was the assistant director.

In the Piura valley, Lucio Espinosa Vasi, proprietor of the Hacienda Chusís, and his able administrator, Roberto Panta Ójeda, received and cared for me as a guest during more than 3 months. Their kindness and sustained enthusiasm were factors of incalculable value in the successful completion of my field investigations in the region of Sechura.

Particular mention should be made of the workmen who performed most of the manual labor during excavations at Chusís. Daniel Chunga, Claudio Galán, and the Belupú brothers, Guadalupe and Carmen, served over considerable periods of time. The following served during lesser periods: Félix Cortez Chunga, José Santos Zeta González, Victor Belupú Purizaca, Pedro Chiroque Morales, a son of Claudio Galán, and Gregorio. Their work was diligent and careful and gave evidence of a sustained, intelligent interest in the success of the project.

William White and his petroleum exploration crew representing the Robert H. Ray Company of Houston, Texas, shared with me for a few days the hospitality of their desert
campsite, near Sechura, and showed many other kindesses during my sojourn in the Piura valley. In addition to Mr. White their names are: Will Borgland, Carlos Molina, Bud Havelik, Jess Hensley, Jack Cagle, and Humberto Morán.

Alejandro E. Zapata Benites of Sechura availed himself of every opportunity to assist me in my activities. Particularly, I remember the kindness with which he and his uncle, Augusto Benites, conducted me to the site of Chuchal, near Chulliyachi.

Comandante John Bell-Taylor, Director of Fishery and Hunting of the Peruvian Ministry of Agriculture, was my host during a visit to ruins on the remote and isolated Illescas peninsula. Leon Kostritsky, head of the Division of Commercial Fishery of the same ministry, and Robert O. Smith, chief of the United States Fishery Mission to Peru, accompanied the expedition. Mention should also be made of the helpful collaboration of Medardo Temoche and Rodolfo Urízar of Sechura.

Georg Petersen and Fernando Nieri of Zorritos, technical experts in the Peruvian government Fiscal Petroleum Enterprise, conducted me to a number of archaeological sites in the Tumbes zone, also to Los Órganos in the Cabo Blanco zone. Dr. Petersen, on several occasions at his Lima home and elsewhere, furnished invaluable guidance by way of orienting me in a field in which he had had years of
experience. In particular, he first brought to my attention the existence of the Chusís site.

In southern Ecuador, Ernesto Witt A. and his son-in-law, Sergio Romero G., extended the hospitality of the Hacienda La Esperanza and other kindnesses and facilities on the occasion of my reconnaissance in the Province of El Oro.

Upon my return to the University of Arizona (as also previous to my arrival in Peru), a number of persons connected with the institution showed themselves to be unusually helpful in bringing the present project to a successful completion. My Thesis Committee, Edward B. Danson (chairman), Emil W. Haury, and Clara Lee Tanner, labored with me during much of the planning, during a 2-month period spent on the campus in library research and writing, and during the subsequent task of revision. The staff of the University of Arizona Library have been most helpful and courteous in meeting numerous unusual research requirements. Edward H. Spicer of the Department of Anthropology and David L. Patrick, dean of the Graduate College, lent their encouragement and support at a crucial moment in the development of the study.

At Brigham Young University, my colleagues of the Department of Archaeology, M. Wells Jakeman (chairman), John L. Sorenson, and Gareth W. Lowe (graduate assistant), have greatly assisted by helping me in planning, advising
me of important titles, tracking down difficult references, and criticizing manuscripts. Particularly magnanimous were Dr. Jakeman and the administration of the university in making released time available for writing, also, in furnishing funds for the purchase of photographic supplies and on occasion secretarial aid. Mrs. Hattie M. Knight and other staff members of the Heber J. Grant Library have shown a constant readiness to facilitate the bibliographic aspect of my research. Dr. J. Keith Rigby of the Department of Geology loaned me photographic equipment and instructed me in the photographing of sherds and other specimens.

At the University of California (Berkeley) a considerable number of persons in the Department of Anthropology, the associated museum, the general library, and the Bancroft Library, were helpful during a brief visit en route to Peru, as well as during a 10-day period of research subsequent to my return. John Howland Rowe in particular should be mentioned.

Gordon R. Willey of the Peabody Museum of Archaeology and Ethnology of Harvard University, G. H. S. Bushnell of the University Museum of Cambridge University, and Donald Collier of the Chicago Natural History Museum read and criticized a paper of mine (Christensen, 1954) in manuscript form which treated of an excavation in the Province of El Oro, southern Ecuador. Since this paper is summarized in
Section III, below, these gentlemen assisted indirectly in the production of the present thesis.

Junius B. Bird of the American Museum of Natural History identified the mammal bones and many of the plant remains removed from the Chusí's excavation. At his request, many of the shells were identified by Fred Weir.

William C. Root of the Department of Chemistry of Bowdoin College cleaned the metallic specimens reported in the present study and analyzed them as to chemical composition. It is expected that a more complete description of these objects will be included in a future study of the metals of the North Coast of Peru (Root, n.d.).

Samuel K. Lothrop of the Peabody Museum of Archaeology and Ethnology, Harvard University, supplied 12 photographs of vessels from Piura included in the collection of that institution (see Plate III).

Toward each of the above persons and institutions, and many more, I am deeply grateful. But to 3 my thankfulness goes out more than to any others:

To my parents, who not only supplied financial and moral support to the field work upon which the present study is based and paid for its typing, but also whose support throughout the years has meant everything—parents who never saw anything strange about my childhood desire to become an archaeologist, or if they did, never said so.
To my wife, who has worked beside me during these 9 years, who at great sacrifice sent me on my way to Peru, and who might have said "come back," but would not.
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I. INTRODUCTION

The problem to be considered in the present paper may be stated in simple terms: to discover the archaeological past of the west coast of South America between the Illescas peninsula in northern Peru and the valley of the Jubones river in southern Ecuador.

The "Illescas-Jubones coast" is an area some 400 km. long between the Illescas peninsula and the Sechura desert on the south and the valley of the Jubones river on the north, and about 50 km. wide between the seashore and the western slopes of the Andes mountains; except that the upper Piura valley has also been included, which extends the width to as much as 150 km. (see Fig. 1). This area includes the westernmost portion of the South American continent and is roughly coterminous with the Peruvian departments of Piura and Tumbes and the Ecuadorian province of El Oro.

The Illescas-Jubones coast affords extreme contrasts in precipitation, which produces not only the complete barrenness of the Sechura desert but also the excessive dampness of much of the littoral around the Gulf of Guayaquil. Nowhere within the area is intercommunication difficult.
The prehistory of the area itself is of genuine interest. The descendants of the ancient builders dwell to this day among the ruined villages and temples of their pre-Christian ancestors and at the same time constitute an integral and functioning part of modern society.

In addition, the area lies in a key position with reference to wider problems of diffusion and interrelationship between cultures. It stands as a logical stepping stone, a link in space, between the Tumaco-Esmeraldas-Manabí type of culture in the damp northlands and the Cupisnique-Mochica-Chimu type in the dry lands to the south. Here we might expect to find an archaeological record of the transition between the two.

Still other problems arise in connection with Illescas-Jubones archaeology. For example: Is there a coincidence between environment and culture as one crosses the border from desert to tropical savannah, or does the culture continue from one zone to the next unaffected by any change in climate? Does the classic chronology of the "North Coast" lying to the south of the Sechura desert apply to the Piura-Tumbes region as well?

The Illescas-Jubones coastland remains unknown to the archaeological profession. Luis Humberto Delgado (1936, p. 97), an historian and journalist and a native of Sullana, speaking of his homeland, says, "The origins of our
autochthonous race have not yet been discovered. . . . up to the present there has been no one to investigate. . . . This is a void in the history of Peru that remains to be filled."

Such a statement is perhaps not surprising from a non-archaeologist, but when trained scholars whose life's work is in Andean prehistory profess the same lack of knowledge after three-quarters of a century of systematic investigation in their field, it may not be too early to inquire into the reasons for it and to seek a remedy.

Tumbes, Paita, and Piura were cities of signal importance in the conquest of Peru and centers of much attention during the early colonial period, but with the passing of the sixteenth century that part of Peru lying to the north of the Sechura desert seems to have passed into obscurity (Delgado, 1936, pp. 100-103).

The celebrated naturalist Alexander von Humboldt, traveling through Peru in 1802, did not even visit the Illescas-Jubones coastland. Rivero and Tschudi, in their Antigüedades Peruanas (1855) completely bypassed the area. Means (1931, p. 180) declared, "There has been practically no archaeological work done in the Chira and Piura valleys so far as I know." Bennett and Bird in their Andean Culture History (1949) include a series of maps with the subdivisions of the Andean area demarcated by brackets on the side. The
upper end of the bracket designating their "North Coast" consistently terminates in an arrow pointing to the top of the map, suggesting that the authors cannot define its northern limit. Horkheimer, in a guide to Peruvian ruins (1950), does not list a single site north of the Lambayeque valley.

Among the factors which have discouraged archaeological research in the Illescas-Jubones coast have undoubtedly been (1) the partial isolation of the area; (2) the excessive erosion of parts of the area (see "Climate" under Section II, below), which must have destroyed many sites and so reduced others as to make them more difficult to locate than the more spectacular ruins to the south; and (3), perhaps the most important, an attitude of complacency, as exemplified in the following quotation from the pen of Max Uhle. The "father of Peruvian archaeology," who more than any other individual is responsible for the discovery of Andean prehistory, had just visited the Piura and Chira valleys between April and July, 1919. It is surprising to read (1920, pp. 166-167): "All this, aside from being interesting in determining the character of the civilization in the region, does not seem sufficient to invite more extensive archaeological studies ... based on excavations ... the historical character of all of it is absolutely known, the only conclusion being that the inhabitants of this immense
arid region were either Chimus or else the Chimus dominated in such a manner that the original indigenes, savages still, had no influence in the formation of any new style. . . ."

The reader may question such a statement before putting down these pages. It is possible, however, since it was written in a personal letter to one of Dr. Uhle's colleagues of the Ecuadorian Society of American Historical Studies, and since he was at that time involved in Ecuadorian investigations, that he deemed it unnecessary only for his institution to carry on "more extended study" in the sector referred to. In any event, I strongly doubt that the "historical character" of Illescas-Jubones prehistory has ever been well known to any man, either before or after Max Uhle, certainly not to the archaeological profession at large.

Within the pages of this thesis, investigations into the archaeological history of the Illescas-Jubones coast, carried out in 1950, are reported.

Section II is a discussion of such background factors as geology, topography, climate, and resources.

A reconnaissance journey brought me into contact with the archaeology of El Oro in southern Ecuador and nearby Tumbes in northern Peru, while another took me to sites located in the quebradas (ravines or canyons) of the Cerro Illescas. These more extended trips have been combined with library research and museum study to form Section III of the
present paper. An attempt has been made in this section to compile a digest of all available information on the archaeology of the Illescas-Jubones area, exclusive of the lower Piura valley.

Three and one-half months were spent in excavation and related activities at and near the ancient site of Chusís, about 4 km. north of Sechura. Included were various reconnaissance trips to sites in the lower Piura valley between the Sechura bay and the city of Piura. Except for investigations at Chusís, these are set forth in Section IV.

Three weeks were spent at Chusís in the actual digging of 3 trenches and 4 stratigraphic test blocks in refuse deposits as much as 3 m. deep, in clearing a domestic structure and storage cists, and in cutting through the village boundary wall. These excavations are reported in Section V.

In view of the restrictions placed by the Peruvian government on the exportation of archaeological specimens, it was considered necessary to complete laboratory studies of excavated materials before leaving the field. This was done at the Hacienda Chusís and was brought to a conclusion during the 3½-month period. Sections VI and VII are based primarily upon the analyses made at that time.

Up to Section VII, cultural and chronological interpretations are avoided in favor of description, but in
II. THE NATURAL SETTING

Geology. T. O. Bosworth (1922) has written in detail concerning the geology of the coastal strip between Tumbes and Paita. Iddings and Olsson (1928) enlarged on certain aspects of the same territory and extended the scope of their observations southward to include the Sechura desert. The present discussions on geology and topography depend heavily upon these two sources.

The Illescas-Jubones coast, geologically speaking, is a portion of a belt of Cretaceous and Cenozoic sedimentation between 2 major fault lines running approximately north and south from Chile to Colombia (Oppenheim, 1950, p. 528). The position of the Pacific fault is marked by the edge of the continental shelf, which lies westward from Punta Pariñas and the Illescas peninsula 5 to 8 km, a distance which, between and beyond these points, increases to 50 km. or more. To the east of this coast land the second fault line divides it from the Cordillera Occidental (including the Amotape range) of the Andean mountain system.

These fault lines seem to have come into existence at about the beginning of Tertiary times and are probably coincident with the rise of the Andean mountain system. From
that time until the present, although there have been a
number of emergences and subsidences, the usual condition
has been that of a shallow, quiet sea in a state of gradual
subsidence.

In the Illescas-Jubones sector of this sedimentation
belt, Cretaceous deposits are not common, apparently having
been largely eroded away. By far the most common deposits
belong to the Tertiary and have a total thickness of about
7,600 m. The Tertiary, in turn, has been overlaid almost
everywhere by Pleistocene and Recent deposits, which are
generally found in nearly horizontal layers lying uncon-
formably over the planed-off surface of the highly faulted
Tertiary strata. To the south of the Chira river, the older
Tertiary deposits are not ordinarily exposed; but to the
north of the Chira, intense faulting has taken place,
especially during Eocene times, while subsequent erosion has
been more severe than it has been to the south of that river
such that across about one-fourth of the territory the Ter-
tiary lies exposed on the surface.

Recent deposits consist of alluvial plains in valley
bottoms, gravel fans around the base of the Amotape and main
Andes mountains, sometimes more than 30 m. thick in places
and extending outward as much as 13 km., sand dunes, which
are very common around the coast lines, and saline deposits,
which result from the drying up of sea water which enters
places of low elevation during the high spring tides.

Pleistocene deposits consist largely of marls, calcareous sandstones, conglomerates, and shell limestones containing pebbles. These take the form of raised beaches or terraces topped by pebbly plateaus (tablazos), which vary in height from a few meters to more than 370 m. near the Cabo Blanco (Iddings and Olsson, 1928, p. 28).

The Tertiary deposits include shales, sandstones, conglomerates, and rarely limestones. They are generally exposed by erosion through the overlying Quarternary beds. Innumerable gorges and ravines cut through the tablazos, generally from the coast eastward, often well into the mountains. Such quebradas are much more common to the north of the Chira river, where much of the surface is exceedingly rough and dissected into endless rugged hills.

Pre-Tertiary deposits compose the Amotape mountains, which are a spur of the main Andean range; the Cerro Illescas, reaching the sea at Punta Aguja; and the Silla de Paita, which juts into the sea at Punta de Paita. These consist largely of Pennsylvanian slates, together with igneous intrusions.

Topography. The Illescas-Jubones coast land consists of a series of terraces running north and south between the Andes mountain (including the Amotape range) and the Pacific Ocean. The elevation rises gradually from sea level on the
southern edge of the Sechura desert to about 450 m. in the
north (Iddings and Olsson, 1928, p. 4). To the north of the
Quebrada Máncona as far as the vicinity of Tumbes, what was
once the tablazo is eroded into an area of badlands known as
the Tumbes desert, beyond which the surface smooths out into
a low coastal plain in the vicinity of Machala. Also, the
land slopes gently from the mountains to the sea, where the
waves have cut escarpments of nearly 300 m. in height in
places.

The area is thus composed of 5 main topographic ele-
ments (Bosworth, 1922, pp. 148-149): (1) The Amotape
mountains, which are a spur of the Cordillera Occidental of
the Andes mountain system, extending south 50 degrees west
to within 27 km. of the shore at a point east of Negritos.
Although not very high, they are fairly rugged. The high-
est point may be Cerro del Viento at 1600 m. (Bosworth,
1922, Folder No. 1). (2) The gravel or breccia fan of
Recent formation around the base of the mountains. (3) The
tablazos, for the most part of Pleistocene origin, which
appear to the eye to be perfectly level, deeply dissected
in places by numerous quebradas. South of the Chira valley,
however, the surface is relatively low and little interrupt-
ed by quebradas. (4) The badlands, where the mantle of the
Pleistocene beds has been denuded away. This is especially
characteristic of the stretch between Máncona and Tumbes.
Wind-swept, sandy plains at about sea level near the shore. These are embayments in the tablazos carved out by waves and wind action and contain active dunes. Some are called salinas, particularly that between Negritos and the Chira valley, and are filled with ocean water at spring tide, following which evaporation leaves a layer of salt covering the surface.

Four major streams flow from the Andes mountains westward into the sea. The Jubones river in the north courses through much of the Province of El Oro. The Tumbes issues into the sea from the Peruvian department of the same name. The Chira flows westward in the central part of the area. To the south is the Rio Piura. Beyond this, for some 150 km, in a southeasterly direction, the Sechura desert is uninterrupted by any stream. The Jubones, Tumbes, and Chira rivers are all sizable, perennial streams, but the Piura gradually loses itself as it progresses into the desert until it disappears altogether. However, during February and March its water often reaches all the way to the ocean (see below).

There are also a number of minor valleys extending from the sea to the mountains, such as the Calaguro, Boca Pan, Máncona, and Pariñas, and many more which contain tributary streams between the Tumbes and the Chira. But these are dry as a rule (except the Calaguro), being filled only a few
months of the year.

South of the Sechura bay and west of the Sechura desert, the Cerro Illescas stands as a solitary outlier from the Andean mountain system. Rising to a height of 517 m. above sea level, it is a prominent landmark, surrounded on 3 sides by the Pacific ocean and on the remaining side by more than 100 km. of monotonously flat sand and gravel of the Sechura desert. Radiating outward from the summit of the mountain are a series of dry quebradas, while many of its slopes are cut up into rough badlands, one section near Punta Aguja being known as Los Infernillos.

South of Paita is located a group of hills similar to the Cerro Illescas. These are also outliers from the main Andean system.

Climate. Murphy (1926), Posner (1954), and Ferdinand (1950) have been the principal sources for the present discussion of climate. Murphy (1923) and James (1950) have also been helpful.

The Illescas-Jubones coast embraces portions of 2 distinctive climatic zones: a cold desert on the south, and a tropical savannah on the north. The transition from one to the other is abrupt, the line of separation running from Tumbes southward to the Amotape mountains (Murphy, 1926, pp. 52-53).

The cold desert, which extends along the narrow coastal
strip of western South America between the Andes mountains and the sea from northern Chile to Tumbes, is a direct result of the cold Peru, or Humboldt, current. Beginning at about Valparaiso, Chile, it flows northward against the coast to approximately the Cabo Blanco, from which point it swings westward to the Galápagos islands and disappears as a separate entity. It consists of a vast body of cool water some 250 km. in width, which flows at an average rate of 1.5 km. per hour. Its temperature ranges close to 16 degrees centigrade and remains remarkably constant from one end to the other and from month to month. The water is very rich in nutrient minerals, which make possible the development of a populous and varied marine life. Microscopic marine organisms obtain their nourishment directly from the minerals in solution. Larger forms of life including fish consume the micro-organisms, and are in turn consumed by still larger fish, the micro-organisms thus eventually providing the food basis for a tremendous population of fish, birds, and seals in great variety.

The prevailing winds traverse the Peru current and the coastal strip from the south or southwest. Because they are chilled by their contact with the current, no precipitation takes place upon reaching land. Moreover, their ascent over the mountain mass is sluggish, which causes the formation of a heavy mist. Thus, while no actual rain ordinarily
falls on the coastal strip, the mist (garúa) provides sufficient moisture to sustain a limited plant growth on the western slopes of the Andes, including the Amotape range, and rarely waters even portions of the lower plain. As viewed from the desert, this mist appears to be a thick, cloudy overcast. Thus, the land is deprived of both sunshine and rain, and never reaches extremes of either hot or cold.

That portion of the Illescas-Jubones coast lying to the northeast of the Tumbes river is included within a zone labelled by Ferdon as tropical savannah (Ferdon, 1950, separate map, "Climatic Map of Ecuador"). The general description of this type of climate according to the Köppen system of classification is given as follows (Bissell, 1950, p. 79): "Pronounced dry season in 'winter,' with one or more months having less than six cm. of rain. Vegetation dominantly tall grass with scattered trees and shrubs, or mixed open forest and grassland."

The vicinity of El Oro falls under the influence of 2 distinct ocean currents which alternate in their supremacy in an annual cycle: The Peru current and the El Niño current. From January to May, the El Niño, a warm current flowing from the north, brings heavy rains, reaching to an average of 209.6 mm. in the month of February, as observed at Máchala (Ferdon, 1950, p. 74; Fig. 17). The average temperature for
the same month stands at 26.2 degrees centigrade (loc. cit.).

Between June and November, the territory is under the influence of the Peru current, and the climate is not unlike that of coastal Peru to the south. The precipitation decreases to around 10 mm per month and results principally from heavy deposits of moisture from the garúa. The sky becomes overcast with a dense cloud-cover, which drifts inland with the winds (Ferdon, 1950, p. 55). The temperature drops to its annual low, 22.9 degrees centigrade for the month of August, which, however, is only 3.3 degrees below the annual high (see above).

Just as the El Oro coast comes under the annual influence of the El Niño current, so does the coast between Tumbes and the Piura valley to a much lesser degree, for between December and March, light rains are recorded occasionally as far south as the city of Piura. I have observed light sprinkles at Chusís, near Sechura, in early December.

Thus, the normal course of events brings a definite annual rainy season to the Illescas-Jubones coast to the north of Tumbes, with less dependable light rains as far south as Piura. However, at intervals of usually 7 years, although this duration may vary a year or 2 or the interval may be doubled, the El Niño current advances to the south far beyond its customary limits, and the accompanying rains are fairly heavy.
At irregular and unpredictable intervals, placed in the popular mind at about 3 times in a century, this sabbatical advancement of the El Niño current brings catastrophic consequences. The temperatures rise to as much as 20 degrees above normal. The rains are prolonged and very heavy. The wattle-and-daub huts of the villagers, built for an arid climate, melt away. The rivers fill the entire valley bottoms, while every quebrada becomes a torrent, and the llanos (flatlands) become swamps. Course gravel covers fertile fields, while bridges, reservoirs, dams, and highways are swept away. At sea, the increased temperature and the chemical alteration of the water kills off, or drives out, the fish; and the marine birds, which depend on them for sustenance, migrate south or fall victim to malnutrition and a debilitating pulmonary disease. Vultures gather in great numbers to feast upon the carcasses cast up in continuous heaps upon the beaches. The desert plains, between rains, blossom forth into solid masses of verdure from seeds which have remained viable through years of drought. Enormous swarms of insects hatch in the numerous lakes and swamps spread out upon the desert flats. Disease, both insect-borne and originating in malnutrition, assumes epidemic proportions among the homeless people.

The damage is greatest toward the north of the coastal desert strip. The surface of the tropical savannah country
is of course protected by a mantle of vegetation. But the surface of the desert has no such protection. It is for this reason that the Pleistocene layers between the Quebrada Máncona and the Rio Tumbes have been completely eroded, while large, deep canyons dissect the tablazos from Máncona south to the Chira, doubtlessly carved out for the most part during the flood years. The Sechura desert, however, being a relatively flat surface and only slightly elevated above sea level, shows less evidence of such violent erosion. The effect is also felt as far south as Chile in ever diminishing degree.

These rain-floods have been recorded in recent times for the years 1878, 1884, 1891, 1925, and 1953 (Murphy, 1925; Posner, 1954; Merriman, 1955). The first rain of the 1891 flood inundated the entire plain near Talara to a depth of 60 to 90 cm. and made a quicksand of its soil. In the 1925 disaster, the Piura river is estimated to have discharged its waters into the sea at the rate of 70,000,000 cu. m. every 24 hours (Murphy, 1926, pp. 36, 48).

My informants told me that the channel of the Boca Virrilá (see Fig. 1) was carved out on the occasion of the 1925 disaster: that it represents the overflow of the Piura river, the regular outlet of which could not accomodate the flood. The channel now curves across some 80 or 90 km. of utterly barren desert and was gouged so deep that the lower
reaches are still filled with brackish sea water to a
distance of some 25 km. upstream.

These unpredictable catastrophes are a factor of special
importance, not only to the ancient inhabitants themselves
and the cultures whereby they lived but also with regard to
the natural preservation of archaeological remains. Such
violent rain-flooding must have severely damaged countless
sites and completely annihilated many others. Structures
which have survived, especially if built of adobe, are
likely to be badly eroded and difficult to detect. From
sites such as Chusís (see below), the rains have undoubt-
edly removed the uppermost layers, thus leaving the strati-
graphy incomplete. The fact that a great many sites still
remain for the excavator suggests the density of population
which must have prevailed formerly.

Man and the Natural Environment. The variety of ways
in which men in the Illescas-Jubones coast have adjusted to
their physical environment is not great. Most of them have
depended for their livelihood either on irrigation agricul-
ture or marine fishing, or both. As a rule, man has
not lived in places where neither occupation has been
possible.

A partial exception appears in Province of El Oro, for
while agriculture is the basis of economy, irrigation is of
secondary importance. I understand, however, that it is
practiced in some quarters for the benefit of certain crops which need additional water during the dry season from June to September. Bananas are the principal cultivated crop.

South of El Oro, irrigation is normally essential to agriculture. The limiting factors, of course, are (1) the quantity of water available, and (2) the quantity of flat terrain which can be reached by the water. Large-scale irrigation has been practiced from prehistoric times in the Tumbes, Chira, and Piura valleys, where the combination of ample, flat surfaces and abundant water is found. Smaller-scale projects have been practiced in a great many other places, such as the Quebrada Máncona, and the Quebrada Pariñas.

The desert has figured as the great negative factor in the agricultural economy of both ancient and modern times. Yet, even the desert has been put to use. At various places near the shore, principally east of the Boda Virrilla and between Punta Pariñas and the mouth of the Chira river, are located salinas. These are flat areas only slightly elevated above sea level which are filled with a shallow layer of water during high tide. The water evaporates, leaving behind a deposit of salt. These are exploited under government control. Also, there are localities in the desert where algarrobo trees are found in some degree of abundance. These form the basis for a kindling and charcoal industry, the
charcoal having been marketed as far away as Lima (Stiglich, 1918, p. 47).

The edges of the desert have been widely utilized for a variety of constructions, as well as for burials. Settlements and cemeteries are not ordinarily located on land which can be made to grow a crop. On the other hand, neither is it practical to place them far away from the cultivated fields, which are the principal source of livelihood. The borders of the desert, just beyond the limits of cultivation, are therefore utilized, as are any rocky outcrops or arrested dunes or other eminences within the valley itself. This applies to modern, as well as ancient, constructions and burial grounds.

The desert has still further usefulness during the rare years when any appreciable amount of rainfall reaches it. Large tracts of it are planted by those living nearby, both small land-holders and laborers in the employ of plantation owners. Rich harvests are often reaped (Stiglich, 1918, p. 341). In some cases the moisture endures for 2 or 3 years beyond the flood-year, making possible repeated plantings. In some localities more suitable for grazing, large droves of cattle are brought down from the highlands to feed upon the temporarily luxuriant forage.

Cotton is the principal commercial crop of both the Chira and the Piura valleys (cf. Spruce, 1864). James
(1950, p. 163) states that long-staple Egyptian cotton is
grown in the Chira valley, while a hardier Peruvian cotton
is cultivated in the Piura valley.

The course of the Piura river below Catacaos is subject
to frequent change as a result of filling by sand (Stiglich,
1918, p. 109; cf. James, 1950, p. 163). But the failure of
water, except during January and February and often even
during those months, is doubtlessly related to other causes.
The maintenance of large canals even as far south as Sechura
is evidence that abundant water reaches that point at least
during some seasons. As a matter of fact, the lower Piura
valley contains an elaborate system of canals for surface
irrigation. Means (1936, p. 12) says that since before 1740
the Piura river has been a seasonal stream, as at present,
in its lower course. The local people explained to him that
formerly the western slopes of the Andes were heavily for-
ested, but that the vegetative covering was removed during
early colonial times, with the result that the watershed can
no longer hold enough moisture to guarantee a continuous
flow.

Whatever the situation in former times, water at present
is a treasured item in the coastal desert. Raimondi (1940,
pp. 269-272) comments at length on its scarcity between the
upper Piura valley and Paita. Except for villages located
near flowing streams, all water, whether for culinary or any
other use, must be drawn from wells. A steady traffic by donkey-back and via animal-drawn, wheeled vehicles supplies the need of those who do not have immediate access to a well. Piura, a departmental capital, now enjoys piped water, but the farther one departs from this urban center, the more costly becomes the precious liquid, which is peddled in containers. At the capital itself, I was informed, a 5-gallon tin sold for one centavo; at Catacaos, 8 centavos; and at Sechura, 25 centavos; while at Tambo Grande to the north it went for 10 centavos. The administrator of the Hacienda Chusís daily sent a peon (laborer) into Sechura with a mule-drawn, wheeled tank of well water for sale at the market place. These wells are dug with sloping sides through the soft soil of the valley bottoms and generally strike water within a few meters. In the lower Piura valley, for instance, because of its flatness and low elevation, no great depth need be penetrated to reach the water table. According to data supplied me by surveyors of the Robert H. Ray Company (petroleum exploration), the Hacienda La Isla, 13 km. inland from the shore, is only 5.03 m. above sea level.

In additional to culinary purposes, the water is used for the stock and even for vegetable and flower gardens. Such a small garden existed beside the well at the Hacienda Chusís.
The chief difficulties encountered in the use of these wells are that often the water is found to be too salty, or becomes salty as the dry season progresses, and that elaborate precautions have to be taken against befouling by vultures, but human occupancy of the terrain between seasons of the river's flow depends largely upon them.

At the Hacienda Chusí some 6 or 8 peones were employed ordinarily five days a week throughout the dry portion of the year, tending the stock, making repairs, cleaning the ditches, plowing the land, and putting all in readiness for the coming of the water in the river—in the hope that it would come. During January and February, and perhaps March, if the water came, there was feverish activity for seven days a week. The number of peones was greatly increased, and they worked long, full hours to plant the cotton in the ample fields of the hacienda. These fields were prepared for surface irrigation.

Other fields, generally marginal, had been deeply grooved with furrows as much as a meter deep. By planting in the bottom of the furrows, advantage could be taken of the subsurface moisture. There were many such fields on ground a little higher than the rest, which lay abandoned and which I judge were used only in exceptional years. Thus, the dwellers in the lower Piura valley were prepared to take full advantage of whatever moisture came their way, whether
surface or subsurface.

The second great source of livelihood in the Illescas-Jubones coastland is the fishing industry. Fiedler (1944, p. 114) states that there were in 1941, 6508 fishermen on the coast of Peru. Of these, 47% or 3102 lived in the northern region (not defined but presumably from the Illescas peninsula northward), and 18% or 1183, at Sechura, making it the second of 36 ports on the coast of Peru in point of fishing population. Commandante John Bell-Taylor, Director of Fishing and Hunting of the Peruvian Ministry of Agriculture, cited figures in 1950 which approximately confirmed the above (personal conversation).

Fiedler (1944, p. 102) places Sechura as the third port on the coast of Peru in point of tonnage of commercial fishery products for 1941, with 2,600,000 pounds or 10% of the total.

Commandante Bell-Taylor believed that the Sechura fishermen were perhaps the best of their trade now living on the west coast of South America; that they were descended from an ancient ancestry of fishing folk; that the Sechura bay probably offers the best fishing possibilities of any portion of the coast; and that the reason that its prosperity is so limited is that it is far removed from population centers. Piura is the closest, but neither a railway nor even a graded road exists between those two points. No processing plant
exists at Sechura, nor is refrigeration ever used for storage or transportation, to my knowledge. However, Sechura bay fishermen salt limited quantities of their fish and ship them by boat to Chiclayo and Trujillo.

An occasional dweller in Sechura and the other villages of the bay is prosperous enough to own his own fishing boat. Others work as their employees. A great many men living in the lower Piura valley take to the sea in the employ of the owner of a fishing vessel during times of slack on the farms in order to supplement their livelihood.

Several other means of exploiting natural resources also exist in the Illescas-Jubones coast. The guano deposits provide a concentrated fertilizer said to be 33 times as effective as ordinary barnyard manure (Galarza, 1945, p. 3). These consist of the accumulated droppings of countless millions of sea birds, notably the guanay (cormorant), the brown pelican, and the piquero, at their nesting places on rocky capes and offshore islands. The government exercises strict control over the exploitation of this resource. (See Coker, 1920; Galarza, 1945; Murphy, 1925, and 1936, for further discussion.)

Petroleum is another important resource. Peruvian oil fields, with minor exceptions, are located within the Illescas-Jubones coast. The La Brea, Negritos, Lobitos, and Zorritos fields have all contributed substantially to the
wealth of Peru. (See Bosworth, 1922, pp. 321-420; and Iddings and Olsson, 1928, pp. 36-39, for further discussion.)

Both the guano and the petroleum were known and exploited in prehistoric times. (Garcilaso de la Vega, 1943, Vol. I, pp. 230-231; Cieza de Leon, 1864, 191-192, 265-266; Rivero and Tschudi, 1855, p. 77; Markham, 1864, p. 266, footnote).
III. THE ARCHAEOLOGICAL SETTING

A History of Archaeological and Related Research on the Illescas-Jubones Coast

In 1930, Philip Ainsworth Means observed that the Piura-Tumbes region was "... still a part of Peru practically unknown to archaeological science" (1936, p. 145; cf. p. 180). Bennett (1946, p. 76) has commented on the almost total lack of information on the adjacent Ecuadorian province of El Oro, an absence confirmed by Collier (1947, p. 780), Willey (1946, p. 72), and Kroeber (1948, p. 140), the last-named author also including the Chira and Tumbes valleys. What was true a quarter of a century ago has continued to be true up to the present writing: The Illescas-Jubones coast is still practically unknown to the archaeological profession.

Despite this apparent lack of scholarly inquiry, there exist in the literature several small papers and brief commentaries included within larger works, devoted to the archaeology... of the Illescas-Jubones coastland. The sources are widely scattered, and many of them are obscure.
None of the contributions, moreover, makes any attempt at a synthetic or comprehensive treatment of the whole area; all of them treat specialized subjects.

Nevertheless, the published sources, taken together with my own field and museum studies, furnish the materials with which to make a tentative statement as to the archaeology of the Illescas-Jubones coast. Section II will begin with a discussion of the history of archaeological and related research in the area. This will be followed by a survey of the known sites and collections.

The first report on record of archaeological reconnaissance in the area under consideration seems to be that of the chronicler Pedro Cieza de León, who traveled through portions of Ecuador and Peru in 1547. He mentions in his writings (1945, p. 180) the numerous ruins located in the Chira valley between Sullana and Pocheos, which he believed pertained to the indigenous civilization that prevailed until the coming of the Spaniards 15 years before his journey.

The Yorkshire naturalist, Richard Spruce, who traveled in the Piura and Chira valleys in 1863 and 1864 (Spruce, 1908, Vol. 2, p. 314) collected a short vocabulary of native words spoken in Piura (Lothrop, 1948, p. 55) and observed certain antiquities in the Chira and Máncona regions (Markham, 1912, pp. 207-208).
The Italian-born Peruvian naturalist, Antonio Raimondi, studied the Department of Piura, including Tumbes, during three different extended visits in 1858, 1868, and 1869 (Raimondi, 1940, pp. 109, 268-285). Some of the antiquities of the area fell under his keen observation.

The Peruvian geographer, Ricardo García Rossell, writing in 1903 on the history and geography of the Department of Piura, treated prehispanic times and the Spanish conquest at some length. He clearly recognized the distinction between the Inca and the pre-Inca cultures, thus reflecting a trend which by that time had been established in Peruvian research in general.

In 1917 Philip Ainsworth Means made a "hasty archaeological survey" of the Chira and Piura valleys (Means, 1919, pp. 6-8; 1936, pp. 179-181). His principal attention was directed to pottery collections in Morropón and the city of Piura. He also did "some digging" at a huaca (ancient temple pyramid) on the Hacienda Sojo in the Chira valley. As a result of this investigation, he recognized a strong Chimu influence as far north as the Chira valley, but beyond that limit he regarded whatever control was exercised by the Chimu kings to be feudal, rather than direct.

In 1919 Max Uhle made a similar survey of the same region, and studied the same collections, and came to essentially the same conclusions (Uhle, 1920).
Between 1911 and 1921, C. Barrington Brown, a British geologist of a number of years experience in northwestern Peru, discovered and examined seven lithic sites of apparently paleo-Indian affinities located near the coast between Zorritos and Paita (Brown, 1926).

In 1936 Rodrigo A. Chávez González, son of a Guayaquil Antiquarian and director of the Municipal Library of Machala, Province of El Oro, founded a small museum affiliated with the library, which specialized in the archaeology of southern coastal Ecuador (Chávez González, 1936). This continued to exist until the Peruvian invasion of August, 1941. The collections may have been carried away by the invaders, or perhaps destroyed. (On the occasion of my visit in 1950, a librarian told me of finding pieces of figurines in the plaza in front of the library shortly after the invasion.)

An important source concerning the contents of the Museum of Machala is a series of six articles, with the general title, "Arqueología," from the pen of Chávez González, appearing in the Revista Municipal of Guayaquil during 1939 and 1940 (Chávez González, 1939 a, b, c, and d; 1940, a and b). Nine groups of objects, largely from the Province of El Oro, are described but not illustrated. Most of them are ceramic, a great many being figurines.

Georg Petersen of Lima and Zorritos, a geologist of the Empress Petrolera Fiscal of the Peruvian government, has
investigated the archaeology of the vicinity of Tumbes as an avocation since about 1935. In addition to considerable excavating, he has reconnoitered, mapped, and plane-tabled more than 120 sites, and worked out a chronology for the area. Most of the sites lie within the sector from the Ecuadorian border southward to and including the Chira valley above Sullana, and a few are found to the south of the town (Rowe, 1950, p. 191).

My gratitude is due Dr. Petersen for having first brought to my attention the site of Chusís (see Section V below).

Unfortunately, very little of Petersen's archaeological research has appeared in print. A brief report on a paleo-Indian site at Punta Sal Chica, in the vicinity of the Brown sites (see below), based on information and materials submitted by Petersen, has been published by Wetzel (1939). An article on gold lip ornaments of Tallan women (Petersen, 1955), presumably based on his excavations at Los Órganos, was recently published in Lima (personal correspondence). A personal letter of mine, in which Dr. Petersen's investigations are briefly summarized, has been cited in the "Notes and News" section of American Antiquity (Rowe, 1950, p. 191). But to my knowledge his principal work has never been submitted for publication. It is a manuscript of something like 200 pages, with numerous
illustrations. His research has been undertaken and reported in a thorough and orderly manner and constitutes an important scholarly production. Its early publication is much to be desired.

In May, 1941, Samuel K. Lothrop made an archaeological reconnaissance covering the Pariñas valley and the lower Chira valley and ceramic collections at the city of Piura. Apparently, no excavation was undertaken, but surface collecting only. His brief, well-written report (Lothrop, 1948) is enlightening, but a more definitive treatment is to be desired. Among other things, significant new information is presented on the distribution of paddle-stamped wares.

In the fall of 1942, Kalervo Oberg, a member of the El Oro Rehabilitation Project of the Coordinator of Inter-American Affairs, which was in southern Ecuador soon after the Peruvian invasion, discovered a number of large shell mounds in the mangrove swamps off the coast of El Oro between Puerto Bolívar and Zarumilla, some of which, at least, are pottery-bearing habitation sites (Willey, 1946, p. 72).

During 1933 or 1934, in connection with the construction of a bridge over the Chira river at Sullana, workmen dredged up a curious vessel which seems to combine Mochica and Coast Tiahuanaco ceramic traditions. In September, 1942, John H. Rowe described and commented on this and similar specimens which had come to light (Rowe, 1942).
Late in January, 1950, Prof. Toribio Mejía Xesspe, Julio Espejo Núñez, and 4 students of the Institute of Archaeology, National University of San Marcos, Lima, Peru, undertook an archaeological inspection of sites in coastal valleys of the Departments of Piura, Lambayeque, and La Libertad. Included were huacas near Sullana and La Huaca in the Chira valley; the Huaca Narigualá, near Catacaos; and huacas near Chulucanas in the Piura valley above Piura. (Espejo Núñez, 1951, p. 136). I am not aware of any published account of the results, however.

During June, 1950, I visited 6 sites in the Peruvian Department of Tumbes and the Ecuadorian Province of El Oro (cf. Rowe, 1950, p. 191), as well as the site of Los Órganos, north of the Cabo Blanco. An excavation on that occasion of a tola (ancient mound) on the Hacienda La Esperanza, near Machala, El Oro, has received extended treatment (Christensen, 1950-51, 1954; cf. Bushnell, 1952). During November of that year, I visited sites in the Quebrada Nunura on the Illescas peninsula, which seem to range in time from a pre-ceramic level to Chimú. Only brief mention of the latter reconnaissance has been published (Christensen, 1951, pp. 44, 46; Rowe, 1951). These materials from El Oro, Tumbes, and the Quebrada Nunura are included in the present section, below. At various times during 1950, I visited some 18 sites in the lower Piura valley between the capital and the Sechura bay. These are
Between September and December, 1950, I carried out stratigraphic excavations at the ancient village site of Chúsís in the lower Piura valley. In addition to a preliminary report (Christensen, 1951), these investigations are discussed in detail in Sections V, VI, VII, and VIII, below.

In August, 1951, a paper on the Tallan culture, native to the desert portion of the Illescas-Jubones coast, was read before the First International Congress of Peruvianists, held at Lima, by Josefina Ramos (Ramos, 1951).

In 1953-54, Victor Wolfgang von Hagen headed the Inca Highways Expedition, which searched out several thousand kilometers of roads constructed under the Inca empire. Included was the sector of the coastal highway from Tumbes, its point of origin, southward to Serran in the upper Piura valley (von Hagen, 1955, pp. 276-284).

An Areal Survey of Illescas-Jubones Archaeology

The archaeological sites and collections of the Illescas-Jubones coast included in the present study may be grouped into seven geographical zones (see Fig. 1): coastal El Oro,
Tumbes, Cabo Blanco, the Chira valley, the Piura valley, the Illescas peninsula, and the Sechura desert. These are summarized below in the present section, except that reconnaissance notes on the lower Piura valley are reserved for Section IV, and that excavations at Chusís are reported in Section V. The present section results from a combination of field reconnaissance, library research, and museum study.

Coastal El Oro. The province of El Oro is declared to be "rich" in remains of pre-Columbian civilization (Chávez González, 1936, p. 106). In several articles in the Revista Municipal, published in Guayaquil, Ecuador, from 1936 to 1942, Chávez González gives some general information concerning the abundance, distribution, and typology of antiquities in the El Oro coastland. He mentions (1936, p. 107) as districts of archaeological interest "... the banks of the Calaguro, various beds of the Jubones, the Jambellí archipelago, the flats of Machala, the sandy stretches north of Pasaje, [and] the hills of Santa Rosa ..." Everywhere, he asserts, are to be found antiquities, while tolas (ancient artificial mounds) "... rise before our eyes on every farm, road, and river bank ..."

As well as the tolas, the following types are explicitly mentioned: vessels, spindle whorls ("beads"), figurines, and whistles of baked clay; monoliths; small sculptures in stone; metal beads; and skulls.
FIGURE 2. Map of the southern coast of Ecuador
Aside from such generalities, Chávez' contribution consists of descriptions of 9 groups of specimens contained in the Municipal Museum of Machala before its destruction. These descriptions are summarized below. The greater part of the antiquities were unearthed by official museum expeditions under his direction (1937, p. 76), although gifts from private individuals are also mentioned. There is no discussion of excavation methods, stratigraphy, or chronology, nor are any of the sites or objects illustrated. Often the provenience of a specimen or group of specimens is given with reasonable precision, but sometimes the author states only that the group includes objects from El Oro, Manabí, and Esmeraldas, or El Oro and Esmeraldas, etc. The assertion that the antiquities of the three coastal provinces are closely similar is repeated often.

In the following summary, however, such groups of specimens of mixed provenience are disregarded. Only those groups which came exclusively from the Province of El Oro are included. Although these notes are not a verbatim translation, they nevertheless preserve in general the original sequence and tenor of thought. Comments and terms which are not found in the original sources are inclosed in brackets:

Group 1: Puná Beads [spindle whorls]. Eighteen "Puná beads," are so called by local collectors because of their first having been noted from the island of that name. This group was found mostly on the Jambelí
archipelago, also near Machala and in the Guano parish of the canton of Machala.

Five of them show pelicans in a continuous pattern around the circumference. On one, upper and lower borders are clearly indicated, but the other 4 are too worn by wave action on the beach to preserve this feature.

Three more show stylized pelicans, but, although larger than the first 5, they are finer and have little grooves on their bodies.

Five of them portray pelicans or perhaps storks or herons. (A stork-like bird was formerly common on the Jambelí archipelago.) Two depict monkeys, one bead with 2 faces placed inversely, the other with 2 frames of 2 monkeys each, but showing both faces and bodies placed inversely. One bead contains a repeated spiral element, which ascends from left to right. Another contains two rows of punctates inclosed by two broad, plain bands.

Finally, one large bead, 5 cm. tall by 3 cm. in diameter, was found on the Jambelí archipelago opposite Puna. It is divided into 4 quarters, each containing two concentric circles.

Group 2: Simple Beads [spindle whorls]. Three beads which were found in the environs of Machala possess neither engraving, bas-relief, nor painting. One is made of common stone, is highly polished, and has the usual perforation from end to end. The second, a small bead of metal encircled by a groove, seems to be a part of a larger piece. The third is manufactured of crude clay and has a fissure around the circumference as if to divide it in 2. The hole does not go clear through but consists of a pit on either end.

Group 3: Little Idols [figurines] Having Whole Bodies and Human Heads. Sixteen examples of baked clay from Esmeraldas, Manabí, Guayas, and the Bajoalto district of El Oro are similar.

[Only the last of the clay figurines and one of stone are definitely stated to have come from El Oro.] The last clay idol, perhaps a whistle, was found on a beach of the Jambelí archipelago. It has 4 holes, one atop the head, another between the legs and vertical to the first, and 2 on the sides above the hips. It represents a
The mouth is straight like a letter-drop, the face round, and the nose long, sharp, and upturned. From the septum hangs a nose-ring. It is pot-bellied, with short hands placed on the hips; the left hand is actually missing, however, while the right has only 3 fingers. A breechclout hangs from a girdle beneath the belly. A sort of band encircles the neck, falls over the shoulders, and hangs in 2 parts almost to the buttocks, like stoles placed backwards. The lower extremities are broader than the upper portion and are decorated with squares having little holes in the middle. Similar decorations are to be seen near the neck also. The idol stands upright, but has only 3 toes on each foot. Only one ear is to be seen. The clay of which it is made seems like stone, due to contact with sea water.

An idol of greenish stone, perhaps marble, found in the Santa Rosa zone, portrays the whole body standing erect. It is \(4\) cm. tall by \(2\) cm. broad. The hands are at the sides. It wears a sort of jacket decorated with lines, and at the bottom of the pantaloons are other lines that resemble stitches.

Group \(4\); Gods [figurines] with Human Bodies and Animal Faces. [Of 4 ceramic figurines, the provenience of only one, described below, is given. However,] all 4 have puma faces with disproportionately large mouths, enormous teeth, and curved fangs. The eyes are large, some of them round, with holes punched in the center giving them an aggressive aspect. A ribbon hangs from the chin almost to the stomach. They range in height from \(6\) to \(9\) cm.

One which was discovered in the Bajoalto zone possesses features which stand out in perfect relief. It is a sort of Egyptian priest with the face of a puma or jaguar. It is seated; the left hand is on the knee and the right hand is raised with the elbow bent, as if signaling. The headdress resembles that of an Arab trader. Picturesque ear covers, apparently with fringes on the borders, hang to a point below the shoulders. Over these fringes is a square with an inverted T in the middle. On each sleeve there are 2 lines. From underneath the jutting chin hangs a ribbon which terminates on the breast. In the middle of the ribbon is a circle. From a small abdomen hangs a capacious breechclout, which also displays a circle in the center. Each hand has 4 fingers and each foot 3 toes. Two lines on the legs give
them the appearance of wearing pantaloons with broad stitches.

Group 9: Separate Human and Animal Members. Nine limbs and other parts of humans and animals, 8 of clay and one of stone, come in their entirety from the cantons of Machala and Pasaje, Province of El Oro. [All are apparently detached fragments of larger artefacts.]

The first is the hollow leg of an animal. It lacks the calf and appears to be a hind limb. It has 3 toes, held in a grasping manner, and may have possessed claws. There is hardly any heel. A perforation in the palm opens into an interior cavity. It measures 11 1/2 cm. long by 3 1/2 cm. in diameter at the widest part.

The second is the slightly bent right leg of a human, probably a corpulent woman. It is beautifully fashioned, the knee and the calf with pleasing curves, as also the outer ankle and heel. The toes are hardly noticeable. The specimen includes the upper thigh and measures 11/4 cm. in length by 4 cm. in diameter.

The third is also a slightly bent human leg, but is broken off closer to the knee and is more muscular. Four toes are plainly noticeable. It measures 4 3/4 cm. long by 1 3/4 cm. in diameter.

The fourth is a left human hand, handsomely executed but broken at the wrist. The thumb is fashioned separately, but the fingers are not clearly distinguished from one another. It is half closed, as if to grasp lightly some instrument, such as a spear. The hollow of the hand is plain. This specimen is 5 cm. long by 4 cm. from thumb to little finger.

The fifth is a human trunk with hands on the waist.

The sixth is the trunk of either a human or an animal.

The seventh and eighth are phalli with the borders of the glandes well pronounced and with performances extending the full length. They could easily have served as whistles.

The ninth appears to be a phallus deliberately fashioned of stone, although it is possibly a mere water-worn pebble.
In addition to the above nine groups of specimens, Chávez comments at another point (1942, p. 191) on certain ceramic vessels also contained in the Museum of Machala. This may be summarized in the following paragraph:

Clay vases and flasks, both single-lobed and double-lobed, have been found in El Oro. Various examples were on display in the museum. A larger handsome jar with a lid and a smaller, reddish jar with lateral designs in blues and yellows, apparently portraying the maize signs of Yucatecan codices, were unearthed, together with other objects, in a tola of old Machala.

Such information as is available to us concerning the archaeological investigations of Rodrigo A. Chávez González in the Province of El Oro is presented above. It is far from satisfactory on many points, but on the other hand it does much to fill the void remarked upon by Bennett, Collier, and Kroeber (see above).

One more item of information on El Oro archaeology is contributed by Kalervo Oberg (Willey, 1946, p. 76). In the coastal mangrove swamps between Puerto Bolívar and Zarumilla, Dr. Oberg observed a number of large shell mounds standing "... several meters above the surrounding tidal swamps." One of the largest was an island of about five acres. The surface was "... broken by numerous small hummocks and rises." A previous excavation had brought to light a large
quantity of sherds, some decorated by painting. The mounds were ancient habitation sites, as was made clear by the presence of ash, animal bones, and other debris.

Edwin N. Ferdon, Jr., visited these sites at the request of Dr. Oberg (letter from Ferdon dated July 27, 1953). A large mound near the Peruvian border "produced only a few sherds of plain, red-slipped ware." A smaller midden, near Puerto Bolívar, produced at least a few sherds which he considered to be Mantelio in style.

Georg Petersen told me of large midden deposits near Zarumilla.

The name Huaquillas (little huacas), applied to an Ecuadorian settlement across the border from Zarumilla, may have archaeological significance.

In the Province of El Oro I am aware of only one excavation which has been adequately reported: that of a tola on the Hacienda La Esperanza, 15 km. inland from the sea coast, which I visited while the digging was in progress. The excavation itself was small and was not rigidly controlled, but I took notes and photographs and studied the specimens removed.

Since this excavation has been fully published elsewhere (Christensen, 1950-51 and 1954; cf. Bushnell, 1952), it will be sufficient for the present purpose merely to summarize them and include certain of the
illustrations. (These illustrations were clipped from extra sheets recovered from the press during printing of the 1954 paper.)

The Hacienda La Esperanza contained 2 tolas, which, however, seemed of quite different type, nor did they appear to be in any way related to each other. The smaller mound, an earthen structure measuring about 18 by 12 m. by about 2 m. high, consisted of an upper and a lower platform. Perhaps intended as a building platform, it was laid out on precise, rectangular lines, suggesting some degree of skill. I noticed no associated sherd material.

The larger mound, located in a dense jungle growth at a distance of some 2 or 3 km. from the smaller, was also an earthen structure. In this case, however, it was roughly kidney-shaped, rather than rectangular, nor did any architectural feature, such as a wall or floor level, come to my attention. It was approximately 46 m. long by 18 m. broad and 3 m. high. An excavation about 2 m. wide was cut into its eastern flank, extending from the edge for about 3 m. toward the center and maintaining a depth about equal to the level of the surrounding terrain. At the bottom of this cut a test pit was sunk to a point well below that level to check for stratigraphic features.

At a depth of approximately 1.3 m. below the surface an irregular layer, some 5 to 10 cm. in thickness, of dark, coffee-colored earth having a sandy texture was exposed.
Associated were 3 whole vessels (Fig. 3). Immediately below were a large quantity of fragments of adult human bones, all completely disarticulated and with the appearance of having been violently broken. Associated with the bones and removed for further study were 77 sherds, 9 ceramic spindle whorls, and at least 16 small metal objects.

The color of the pottery (Figs. 2 and 3) generally ranged about brick red. The temper was of sand, although a small amount of mica was generally present. Jars with out-flaring mouths, open bowls, pedestal dish, and vessels with vertical necks were represented. The jars, including measurable sherds, ranged from 78 to c. 200 mm. in height and from 111 to c. 225 mm. in maximum diameter. The bowls varied from 32 to c. 55 mm. in height and from 131 to c. 200 mm. in diameter. The surface was generally smoothed, and usually, though not always, polished. Decoration was observed only on the interior of bowls. Alternating sets of straight and wavy lines were combed or incised in the central area, which was inclosed by a wide border consisting of a red or brick-red slip. The sherd representing a pedestal dish bore an over-all red slip.

The spindle whorls (Fig. 4) varied in color from light brown to very dark brown. If temper was present it was generally very finely ground. With one exception (No. 1), the whorls were either spheroid with incised and punctate
FIGURE 3. Sherds and whole vessels excavated at the Hacienda La Esperanza. Exterior of rim sherd sections is to the right
scroll designs (Nos. 4, 5, and 9), or barrel-shaped with champlevé, incised, and punctate life forms (Nos. 2, 3, 6, 7, and 8). The height was generally about equal to the maximum diameter, and this was approximately 21 mm. The perforation extending from end to end varied from 4 to 5½ mm. in diameter. No slip was apparent, but all were well polished before the designs were applied. The life forms were commonly stylized pelicans, although one (No. 8) was a continuous, many-footed serpent.

The metal specimens (Fig. 5) included a gold-plated nose ring, ten light, thin rings of some 15 mm. diameter, 2 pairs of tweezers, 2 small bells, and a spiral wire ear ornament. The material was essentially pure copper, although the ear ornament was an alloy of copper, silver, and an as yet unidentified metal, perhaps gold. The nose ring was gilded by hammering. (The Hacienda La Esperanza specimens will receive further consideration, it is expected, in a forthcoming publication by Dr. William C. Root of Bowdoin College on the metallurgy of northern coastal Peru; see Root, n.d., in Bibliography.)

Tumbes Zone. According to Fiedler (1944, p. 105), "... The great heaps and causeways of shells in the region of Tumbes and Puerto Pizarro indicate that oyster fishing there is of great antiquity and was probably carried on with intensity during pre-Columbian times."
FIGURE 4. Spindle whorls from the Hacienda La Esperanza excavation. (No. 10, after Saville, 1907-10, Vol. II, Plate CXIV, 4 and 5, is from the island of Puná and is included for comparison.)
FIGURE 5. Metal objects from the Hacienda La Esperanza excavation
Between Tumbes and Zorritos to the southwest, on a strip of smooth, sandy plain between the shoreline and the sea-cliff about 3 km. inland, Bosworth (1922, pp. 233-234) noted prehistoric remains, including a raised, stone-lined canal from the Rio Tumbes and branch ditches extending to within a few hundred meters of the present high-water line of the shore.

Georg Petersen is undoubtedly the foremost authority on the archaeology of the Tumbes zone. His investigations have included excavation but this has resulted, he reported, in little stratigraphic evidence, due to the riflings of pot-hunters. The sites of the Tumbes zone discussed below were pointed out to me by Dr. Petersen, and I visited them as his guest.

The Huaca (or Loma) del Sol de los Incas, also called Cabeza de Vaca, is the site of the original Tumbes where Pizarro first entered Peru, the northern terminus of the 4055 km. coastal highway of the Inca empire (Anonymous, 1955, p. 60). It is situated on the road going south from the present town of Tumbes, about a kilometer to the south of the village of Corrales (or San Pedro de los Incas), in the District of Corrales. (The modern town of Tumbes is not to be associated with the account of Pizarro's conquest, although Dr. Petersen thought it probable that an aboriginal settlement had existed at that site, also.)
This original Tumbes consists of a large rectangular pyramid completely surrounded by a double wall, although both walls and pyramid are much eroded and difficult to follow. The structure may have been built in part of puddled clay, but at least in some places where it had been opened by huaqueros, individual adobes appeared, some measuring about 25 x 20 x 15 cm. and others about 30 x 25 x 18 cm. I observed no potsherds on the surface and learned afterwards that Dr. Petersen had gathered them up entirely and presented them to the National Museum of Anthropology and Archaeology at Magdelena Vieja, Lima. At some distance from the main structure there stood what appeared to be a fortress-like structure of stone.


A dweller on the slope at the base of the main structure possessed a double-lobed jar, presumably from the huaca itself (Fig. 6). It was of polished blackware. The lobes were spheroid with flat bottoms and vertical spouts and were attached together. The spouts were attached by a bridge of about 13 mm. thickness decorated with champlevé latticework,
FIGURE 6. Blackware vessel observed at the Huaca del Sol de los Incas, Tumbes zone
that is, a pattern of recessed squares and triangles, not cut through, interspersed with diagonal ridges crossing at right angles.

Along the same road going south from modern Tumbes, at some distance south of Cabeza de Vaca, was the site of La Garrita. It consisted of a series of terraces on the hillside above the road, formerly lined with stone and probably a fortress. It was situated at a place which overlooked a large and important irrigation canal, it was explained to me, from the point where it left the Tumbes valley proper to the end of the canal, a distance which I understood to be about 17 km. The total length of the canal was about 34 km. A reinforced bend in the canal was visible near-by, also a portion of a branch line. At one spot the canal was built of adobes bonded with clay and chinked with small, roundish gravel stones.

A little to the north of La Garrita and perhaps to be considered a part of the same complex, was a small, truncated, rectangular pyramid located beside the road.

Just north of Corrales our party entered a portion of the ancient canal in an automobile and drove down it in the direction of the Tumbes river for a considerable distance.

Vaquería is an ancient habitation site located near the Tumbes river, south of La Garrita. I inspected a refuse deposit of perhaps a foot in thickness and collected a small
sherd sample. One grey sherd (Plate II, C) is of particular interest as showing an unusual type of exterior bowl decoration, the entire surface is covered with sets of parallel incised lines.

Rica Playa is an ancient site 21 km. south of Corrales. Von Hagen identifies it as an Inca tampu (way station) (1955, p. 282). It occupies an elevation overlooking a bend in the Tumbes river. There are wall stumps of large, rectangular buildings constructed of rough-cut stones. The thickness of the walls varies from about 75 up to 102 cm.

Cabo Blanco Zone. At Punta Pico, a small headland 42 km. southwest of Tumbes and 75 km. northeast of Cabo Blanco, Brown (1926, p. 97) discovered a lithic site. Flake tools were found on the "... sandy surface of an ancient raised sea floor, now about 60 feet [18.2 m.] above sea level. They are flakes of the simplest type and of various materials, showing in every case one side as a single fracture, with typical bulb of percussion."

At Punta Sal Chica, 70 km. southwest of Tumbes and 46 northeast of Cabo Blanco, Georg Petersen has reported a lithic site (Wetzel, 1939). An abundance of flakes of dark flint (silex) were found over a large area on the surface of an extensive terrace 50 to 60 m. above sea level, probably the remains of a pleistocene peneplane. The majority of the flakes may have resulted from weathering, but many of them
are unquestionably artifacts.

Most of the 5 specimens submitted by Dr. Petersen for megascopic and microscopic examination exhibit bulbs of percussion (conos de golpe), while one is definitely a plano-convex scraper. The plane side has no retouching, but the opposite side is considerably retouched in places and by means of "an excellent technique," such that a uniform outline has been produced, approximately round and with a sharp and efficient edge. A study of the published photograph suggests retouching by pressure. Also illustrated are 2 specimens which appear to be a knife and a graver.

The 5 specimens are housed in the museum of the Geological Institute of the University of Kiel.

The botanist Richard Spruce, writing on his observations along the coast of Peru from the Chira valley northward, but particularly in the Mánscora sector of the Cabo Blanco zone, states (Markham, 1912, pp. 207-208) that

...there are ancient aqueducts all the way down the valley from near its source. Water is conducted across ravines and along the faces of steep declivities. There was also provision for collecting rain water in the años de aguas by canals along the base of the Mánscora hills and cliffs of the valleys, and for storing it in reservoirs made by throwing strong dikes across the outlets of ravines. The whole valley was then under cultivation with a dense population, proved by the middings sometimes miles in extent, strewn with fragments of shells and pottery...

In the Caña Dulce hills near the hamlet of Fernández in the Quebrada Mánscora is another lithic site (Brown, 1926,
...Many flakes, some large cores and hammer stones were found."

At La Breita in the Mancora drainage, Bosworth (1922, p. 339) reports prehistoric pits into natural oil seeps for collecting the petroleum. This product seems to have been used as an ingredient for the mortar of some of the ancient buildings (p. 340).

El Estero is a lithic site located 6.5 km. southwest of the Quebrada Mancora (Brown, 1926, pp. 97-99). It is located a short distance east of a small pond from which it takes its name, which, however, is usually dry. The pond is situated 300 m. above sea level at the summit of a low pass through the Buitre hills by means of which a trail connects the hamlet with the coast.

The site occupies about a thousand square meters and at one place is at least 1.2 m. thick. Even though axe heads and other artifacts lie exposed along a few meters from the trail, and although pot-hunters have pillaged most ceramic sites in the area, this one has not been disturbed.

There was observed no trace of stone or adobe construction, pottery, or bones (except a fragment of human tibia and a charred piece of human parietal). A few marine shells (Arca, Conus) were observed. Brown (1926, pp. 98-99) describes a number of specimens, some of which are also illustrated on two plates. References to illustrations
below are to these plates. The following is a condensation of Brown's article:

Thirty-one axe heads, 4 of them complete, were collected (Plate F, Figs. 1 and 2). Of uniform type, they were fashioned of a wide variety of materials: fine-grained igneous rocks, andesites, rhyolite, and quartzite, many specimens showing striking grain patterns and colors.

The specimens vary in weight from 75 to 710 grams, while most of them range between 100 and 250 grams. The ratio of width to length varies from 1.0 to .67, the commonest being .77, while the ratio of thickness to width varies from .49 to .21.

The cutting edge of the axes is round in outline. The sides and butt are flat or slightly convex and nearly straight. In every case but that of one questionable fragment, the butt is elongated laterally into 2 ears, thus often giving it greater width here than at any point below. In 3 cases there is a distinct constriction beneath the ears for hafting.

All axe heads were first ground smooth over the entire surface, then polished, with rasp lines sometimes showing through. A number of the fragments show signs of secondary uses, such as hammering. A very few bear marks of deliberate blows resulting in breakage. The 4 perfect specimens show little sign of wear on the cutting edge.

Two complete pestles and 11 fragments are included. They are of either fine-grained or course-grained igneous rock, although one example is of quartzite. Cylindrical in shape, they sometimes taper from one end to the other. One of the whole specimens is 18 cm. long by 3.3 cm., tapering to 5.1 cm., diameter and weighs 680 grams. Both ends have been put to use.

Also found were some small fingers of slate showing ground facets at the end.

Fragments of at least 12 stone bowls were collected. Sandstone is the usual material, but granite and limestone are also included. One bowl, of which two fragments are illustrated (Plate G, Fig. 4), must have originally had a diameter at the mouth of about 30 cm.,
a maximum thickness of at least 6.1 cm. and a weight of about 14 kilograms. Some are more delicate in structure. Two show broad, shallow grooves beneath the rim. Internal diameters vary from 20 to 36 cm. There is no sign of exposure to fire. The nearest source of granite was at a distance of about 11 km.

Countless flakes of a great variety of stones were scattered widely over the site (Fig. 6). The majority of them were scrapers, showing a clean fracture and bulb of percussion on one face. Some bore secondary chipping on the edges. In addition, there were chisels, drills, gravers, small cores, and blunt-ended fingers.

Also included among the artifacts were hammer stones, a flat grinding stone, a polisher, and an ornament (?) of shell.

At Los Órganos, on the shore about 12 km. north of Cabo Blanco, I inspected a site including house walls, graves, and ceramics. A multi-branched quebrada broke the continuity of a high cliff and opened onto the sandy beach. A little to the northeast of the mouth of the canyon, a modern fishing hamlet stood on the sand of the beach. Inland a little from the shore and separated from the quebrada and hamlet by the cliff or mesa, were modern buildings belonging to the Empresa Petrolera Fiscal.

Two components of the site were noted: a habitation area and a cemetery. Atop the cliff and not far from the heads of the quebrada, were wall stumps of several small, rectangular houses about 3 m. square with walls about 25 cm. thick. They were built of small, rough-cut stones. Orientation and spacing of the structures were irregular, and they were distributed on both sides of the present highway.
Down below, just within the canyon on either side of the mouth were areas where burials in slab-lined cists had been unearthed. Between the two areas were patches of dark earth, as if refuse accumulations. A small sample of sherds was collected.

It is to the Los Órganos site that Dr. Georg Petersen's 1955 article, "On Golden Lip Ornaments of the Tallan Women" (see above), refers.

Quebrada Honda (distant from a site of the same name mentioned by Lothrop; see below) is the name given to a prehistoric village of considerable extent situated near the junction of that canyon with the Quebrada Faiquillal, 32 km. northeast of the mouth of the Pariñas river (Brown, 1926, p. 100). The remains of some 20 houses of stone were discovered. A great many stone flakes, some showing "secondary working," were mingled with the "debris of pottery and kitchen middens." The time relationship between lithic and ceramic remains was not apparent.

Quebrada Pozo Siches is a canyon which heads into the high tableland known as the Tablazo de Máncona, 18 km. south of the Cabo Blanco (Brown, 1926, pp. 99-100). Near this head, on the flat, gravelly surface of the tableland, is an area of reddish grey soil containing charcoal.

A number of flakes were found at the Quebrada Pozo Siches site, also 3 stone artifacts worthy of particular
mention. One is a phallus of spotted slate, circumcised but without urethra. Traces left by grinding are present (Brown, Plate G, Fig. 5). The second is a disc 9.5 cm. in diameter by 3.2 cm. thick with a slight convexity in the middle of either face. "The bosses and rims are polished, but the rest of the surface is roughened" (Brown, p. 100). The third stone, judging from Brown's description, seems to be a fragment of a mano with hooked end "... such as those from Nicoya, Costa Rica" (p. 100). No pottery whatever was present.

A short distance away from the lithic site, however, were two semi-circles of stone, with which pottery was associated (Brown, p. 100). (Brown mentions finding similar semi-circles "... in all sorts of situations--on the Tablazo, on valley floors and hill sides. Pottery is often found nearby...". They are built of boulders, or of upright slabs to a height of about 4.6 m. and about 5 m. in diameter. The convex side of the semi-circle always faces southwest. He is presumably speaking of northwest Peru, particularly the Cabo Blanco sector. The constructions, he believes, are doubtlessly shelters erected by prehistoric herdsmen.)

Pariñas valley sites, explains Lothrop (1948, p. 55), are generally either burials or refuse accumulations, architectural remains being rare.
The Nicaragua site was the largest which Lothrop's reconnaissance revealed (1948, pp. 55-56; Fig. 45, C). Located a little west of the Pan-American highway, about 2.4 km. north of the village from which it takes its name, it is in the drainage of the Quebrada Honda, tributary to the Quebrada Pariñas. Refuse consisting of sherds, shells, and a little stone extends over an area of at least 450 m. in diameter with a thickness of at least 4.5 m. in places.

Individual graves were distributed across the Nicaragua site. Fragments of human bones lay scattered about the open pits, also sherds, slabs of sandstone, and sometimes fossils. Pieces of wood suggested internal funerary constructions. Fragments of large, thick-walled jars showing signs of intense heat were present at some of the graves, though not all. Conical adobes, usually burned to brick, Lothrop believes may have served as fire-dogs.

By far the most abundant variety of decorated sherds was of a paddle-marked ware, which Lothrop illustrates (Fig. 51, p. 61).

Quebrada Honda (distinct from the site so named by Brown; see above) is the designation given by Lothrop (1948, p. 57) to a cemetery located in the drainage of that name west of the Pan-American highway. Natural mounds of about 2.5 by 30 m., situated on a level plain, contain graves. Badly rotted logs suggested interior construction. Sherds
were found only near the open grave shafts and included paddle-marked specimens.

Cerro Huaco is a site north of Talara and west of the Pan-American highway (Lothrop, 1948, p. 57). A natural, sandy eminence about 30 m. high runs east and west. Traces of walls of rectangular adobes were found along the east and south crests. On the southwest and east edges of the top of the hill, the remains of graves were encountered. One was a small, subterranean, rectangular construction built of adobes, but the others were merely conical holes in the soil. Sherds, shells and other refuse covered the entire top and partway down the slopes. Paddle-marked and simple painted specimens were found among the sherds.

At Lobitos, on the sea shore about 8 km. north of the mouth of the Pariñas, on a hill top, Brown (1926, p. 100) found a cuboid stone of black pitchstone, approximately 5 cm. to a side, containing straight, V-shaped grooves on three faces, which formed rough triangles. From the illustration (Brown, Plate F, Fig. 3) it was highly polished. Brown suggests its identity as a bola stone.

Lothrop (1948, p. 57) was unable to reach a presumably important site called Málaca, which was reported to him as located somewhere between Nicaragua and the sea. Numerous complete pottery vessels had been removed during the sinking of an oil well. Lothrop examined some of these in local
collections. One which he illustrates (Lothrop, Fig. 50, p. 61) is a stirrup-spouted effigy of a seated human. It may be, he suggests, a local imitation of a classic Mochica model.

At Punta Málaca, reports Lothrop (1948, p. 57), is a hamlet of modern fishermen built over an ancient refuse deposit. Located between Talara and the mouth of the Parinás, it can be reached only by sea and was apparently not visited by him.

Just east of the Talara harbor, an ancient refuse deposit of about 100 m. diameter may be seen at the first point of land north of town (Lothrop, 1948, p. 57). Sherds and shells are included. One paddle-marked specimen and one with white paint are reported.

At oil seeps a short distance south of Negritos, Bosworth (1922, p. 339) reports prehistoric pits for the collecting of petroleum.

At oil seeps at La Brea, 20 km. due east of Negritos and 3 1/2 km. west from the foot of the Amotape mountains, Bosworth (1922, pp. 378-380; Figs. 125, 139, 140) reports ancient diggings for petroleum exploitation, together with related structures. The diggings occupy an area approximately 600 by 150-300 m. located on a great alluvial breccia fan. Long, wide trenches 5 or 6 m. deep are arranged in orderly sequence, the bottom of each divided
into a series of basins for collecting the oil, which still
fills many of them. Beside the pits are rows of stone ovens
upon which the natural oil was reduced to a sticky or solid
substance in large ceramic boiling pots. Surrounding the
works is a stockade, a large part of which is constructed of
thousands of these pitch pots, discarded after the tarry
residue had rendered them unserviceable.

Chira Valley. Means (1936, p. 179) asserts that the
Chira valley contains many adobe pyramids, as well as other
evidences of an intensive Late Chimu occupation. Uhle
(1920) claims that there are numerous huacas everywhere in
the Chira valley, some of which are tombs similar to the
smaller Ecuadorian tolas and others of which, now much de-
formed, have the proportions of large temples. In that
valley, he states, although the pottery is generally within
the range of Chimu style of the latest periods, minor vari-
atations indicate the beginnings of an independent development.

Spruce refers to midden deposits, "sometimes miles in
extent," attesting to the intensity of cultivation and
occupation of the Chira valley in prehistoric times (Mark-
ham, 1912, pp. 207-208). In these northern valleys he
observed dams and reservoirs, and aqueducts leading from
near the sources down to the mouths of the valleys. (Cf.
Markham, in 1864a, p. xl, Footnote 1; Markham, 1864b, p.
1vii.)
Uhle and Means mention having inspected ceramic collections in Piura and Morropón which contained specimens from the Chira valley. (These collections, however, will be considered hereafter in the section on the Piura valley.)

Cieza de León (1945, p. 180) describes the ruins between Poechos and Sullana in the upper Chira valley which he observed during his journey of 1547. Many great ruined buildings, he writes, attested to the prosperity and density of population in the valley before the arrival of the Europeans. The Incas had held the valley in great esteem, for it contained supply depots, royal palaces, and other lodgings belonging to them. Nothing of the former greatness could be seen on the occasion of his visit, however, except the numerous and very great sepulchers of the dead who had once cultivated the fields.

Cieza (1864, pp. 217-218; 1883, p. 185) also makes mention of the royal highway built by command of the Inca, extending southward (along the coast) from Tumbes (cf. von Hagen, 1955, pp. 283-284).

Delgado (1936, p. 34) refers to Poechos as being the population center of the ancient Chira valley.

The geologist Thomas Owen Bosworth, (1922, p. 313) writing of the lower reaches of the Chira valley, says that there are no ancient structures of stone. "In a number of places, however, there are shell mounds marking the burial
grounds of a prehistoric race. These contain old pottery and occasionally primitive beads of stone and shell, and rarely, small gold or copper ornaments. The pottery is said to indicate a pre-Inca civilization, some six centuries older than the time of the 'conquest.'

Uhle (1920, p. 167) mentions particular details concerning the vicinity of Sullana. He writes of huacas in the form of "natural tombs," 60 m. across by 10 m. high and completely covered with vegetation. On them, he found sherds with lines in relief, such as are found at Chimu sites of the Santa and Piura valleys. In connection with the same huacas, he also observed conical adobes with rounded ends, which he illustrates (Plate XLVII).

Lothrop illustrates 14 ceramic vessels and a copper chisel from Sullana which he examined in the D. L. Frizzell collection (1948, Figs. 52-54). Included are two stirrup-spout jars, one plain and one slightly decorated; bird, animal, and pumpkin effigies; double-lobed jars with bridges; whistling jars; a jar with dots in pressed relief panels; a cursive-style house effigy with stirrup spout; a jar with simple white-line painting; and what appears to be a large, globular, flaring-mouthed jar, plain except for an applique band about the neck. These are nearly all monochrome, either black or red.

Rowe (1942) describes and illustrates a double-spout-
and-bridge vessel dredged from the river bottom at Sullana. Made of a fine, red paste, it bears a red-orange slip, over which a Mochica-style scene of beans and messengers is painted in white, black, grey, yellow, and maroon. The spouts taper to small orifices, are tilted at a wide angle, and are connected by an upward-arching bridge. Rowe (p. 33) suggests that the vessel represents a merging of Mochica design style with Coastal Tiahuanaco form and color scheme.

José R. Respaldiza, according to Rowe (1942, p. 31), saw two other vessels of this same variety in the collection of Sr. Seminario in Piura. The Hacienda Garabato at Sullana was said to have been the provenience. Respaldiza afterwards examined low ruin-mounds at the latter place and recovered a single sherd of the same ware.

At the Museo Rafael Larco Herrera, Hacienda Chiclín, I also examined a vessel which was closely similar to that described by Rowe. The provenience was given as Sullana.

On the highway northwest of Sullana in the direction of Capilla, Lothrop (1948, p. 59) reports several adobe pyramids, 2 of which he saw from the road. Another was visited at Capilla a short distance south of the road, located on a bluff overlooking an abandoned channel of the Chira river. Refuse, both ancient and modern, was observed on the slopes. Other smaller huacas and a large one were located above the bluff. Pottery and a little goldwork had
been found in the last-mentioned construction.

Kroeber (1944, pp. 138-139) describes 3 vessels in the University of California collection which were acquired in 1891 at Tangarará, 15 km. west of Sullana on the north side of the Chira river. This location is purported to be that of the first Spanish settlement in Peru, a city founded by Pizarro in 1532, which, after several changes of site, is now Piura. The vessels, as well as the name Tangarará, indicate that the location must also have had an aboriginal population.

One vessel is a plain red jar, 191 cm. high, with a strap handle and a face on the spout. Another is a flattish red bottle jar, 165 cm. high, with crosshatched triangles on the shoulder painted in pale black, flaring mouth, and strap handle on the side. The third vessel, illustrated by Kroeber on his Plate 41, A, has a red paste with a black slip. Measuring 266 cm. from end to end, it represents either a duck or a penguin (Kroeber says, "possibly a seal"). It appears to be in a supine attitude. The hole on top, in the middle of the belly, is broken all the way around and appears to mark the location of a spout. Or the vessel may never have had an opening; rather, it may have served as a rattle, for the head now contains a loose pellet.

At the Hacienda Sojo, overlooking the south bank of the Chira river 15 km. west of Sullana, is located a large
pyramidal structure which is described by both Means (1936, pp. 179-180) and Lothrop (1948, pp. 56-60, Fig. 47), the former investigator also having excavated the site. A discrepancy in the location of the huaca (Means places it hard by the mansion-house," while Lothrop puts it "about "two hundred yards west of the main house") may perhaps be accounted for by the lapse of a quarter of a century between the visits of the 2 archaeologists, during which time a new hacienda-house could have been erected on a different location. But other details are also at variance in the 2 accounts. According to Means (p. 180):

The structure was found to measure 280 feet east and west, 360 north and south. At its northern side, overlooking the broad and fertile Chira Valley with the Hills of Amotape or La Brea in the distance, was a platform or terrace 280 feet by 220 feet and some 10 feet high; behind it came a second terrace, 280 feet by 80 feet and about 30 feet above the ground-level; finally, at the southern end of the structure, there was a third terrace measuring 280 feet by 60 feet and between 50 and 60 feet high. The material of which the huaca is built is adobe mixed with earth. Within the mass of the third terrace some traces of walls were found, very strange in shape, being ten feet or more broad at the base and tapering to a point. In height they were not more than fifteen feet. Although they had originally been neatly finished with plaster or fine clay upon which a few vestiges of bluish paint appeared, they had later been submerged by new masses of rough adobes so that, ultimately, the third terrace, like the rest of the huaca, was solid adobe-and-earth. My finds of artifacts in the huaca were few, but interesting, consisting of several sherds of pottery of Late Chimu type and of a small fragment of yellow woolen cloth with Late Chimu figures worked in it. I believe that, later on, the Messrs. Checa did some further digging in the huaca and recovered other fragments of pottery all of the same general character.
Lothrop assumed that he visited the same site as Means, but his description is as follows:

The height is hard to estimate as it stands on the crest of a small hill but it is at least 20 feet. The outline has been destroyed in order to secure adobe for bricks, but this has revealed at least two building periods (Fig. 47, C). It is constructed of conical adobes, which are not elongated and tapering like the conical adobes in the southern part of the Chimu area but are short and roughly shaped. The adobes were laid in mud and chinked with small stones. The outer walls were mud plastered. In the walls we found paddle-marked sherds, fragments of burial urns, and a late Chimu blackware sherd.

Whether the 2 investigations have actually described the same pyramid is hard to say from this distance. Lothrop, however, was aware of Means' visit, although he apparently overlooked the latter's account published in 1936. The much smaller size of the huaca given by Lothrop and his failure to mention the 3 terraces may be due to the adobe-quarrying to which he refers.

The same bluff upon which the huaca stands continues to the west for 200 or 300 m., according to Lothrop, and on it many graves had been opened. Quantities of sherds, including fragments of burial urns and paddle-marked vessels, surrounded the grave-pits. Near the western extremity of the bluff, a grave with a subterranean wall of rectangular adobes was observed. Another area of burials, similar to the first, lay to the south of the large huaca.

Means asserts that the ancient name of the Sojo site was Chira and that it was the seat of one of the 13 lords of
the Chira valley. Lothrop, adds that the conqueror Pizarro spent the night at Sojo, after leaving Tangarará in search of the Inca.

La Huaca, located 32 km. west of Sullana on the south side of the Chira river, is locally understood to be an ancient site. Stiglich (1918, p. 186) states that it was built upon the ruins of a pre-Inca temple, in the vicinity of which dwelt a numerous and prosperous people. This seems likely, considering the etymology of the name and the fact of its mention in the chronicles of the Conquest. Espejo Núñez (1951) mentions visiting the huacas in that district.

Lothrop (1948, p. 59) mentions Tamarindo, on the north side of the river 32 km. west of Sullana. Just west of the village, on either side of the highway, open grave-pits were observed. Sherds of paddle-marked vessels and large burial urns were noted among the refuse. East of the village, adobe pyramids were seen but not visited.

Georg Petersen mentioned several burial areas and midden deposits west of Amotape, a village located north of the Chira river 37 km. west of Sullana, "some of considerable size" (letter of May 21, 1950). One large one is located on the highway at one km. north of the village.

A short distance west of Amotape, Lothrop (1948, p. 59) noticed a cemetery with open graves on either side of the highway and refuse extending over many acres (cf. Markham,
1864a, p. xxxix, where he refers to middens near Amotape examined by Spruce). Paddle-marked sherds and pieces of large burial jars were observed, some of the latter painted red with a black line following around the lip. A freshly-dug grave was examined which had contained 3 adults in flexed position. One was dressed in a brown poncho, around which was wrapped a white cotton cloth. A large carved gourd lay nearby, also sticks with forked ends, possibly for winding yarn in the opinion of Lothrop.

Kroeber (1944, pp. 138-139) describes 4 pottery vessels from Amotape in the University of California collection. Two of them are redware, stirrup-spouted jars painted in faint black lines and small elements. The first, 19.7 cm. in height, has 2 fruits at the edge and from these, 2 loops connecting them with the stirrup. At the base of the spout, a perforated lug occupies the corner. The other, 16.2 cm. high, is plainer, having neither lug nor monkey at the base of the spout. A third vessel is a red globular jar, 156 cm. high, with short cylindrical mouth and (pressed?) relief designs of triangles filled with stipples. The fourth is a blackware jar 154 cm. high portraying a squatting man with a stirrup-spout coming out of his back and a large lunate headgear. Except for arms and legs, the body is decorated with relief stipples. The vessel possesses an annular base.

(My own examination of the museum labels at the
University of California indicate that two of the vessels in the preceding paragraph, the first and the fourth, came from Nomara, located on the south of the river 24 km. west of Sullana, not from Amotape.)

Vichayal, located 43 km. west of Sullana on the north of the Chira, is a site reported but not visited by Lothrop (1948, p. 59). A great deal of pottery has been discovered near the Talara water system intake, some of which is found in local collections. Lothrop illustrates 2 examples (Fig. 51; 52, D). The first is a squat, round-bottomed, globular jar, 20.3 cm. in diameter, with a short neck and a pair of strap handles. The entire surface, except neck and handles, is paddle-stamped with small squares. The second is a polished, stirrup-spouted effigy of a plump bird, with a flattened bottom.

Between Paita and the mouth of the Chira river, it was reported verbally by Alejandro Zapata B. of Sechura, lay a prehistoric highway at least 12 m. wide, discovered by his father. I had no opportunity to verify this report.

About 800 m. west of Paita, on a small raised beach along the shore, Brown (1926, p. 100) found "... a few simple worked stones of black quartzite."

Thomas J. Newbill, Jr., a geologist, reported verbally having seen shell mounds along the eastern slope of the mountain known as the Silla de Paita, which lies to the south
of the town of that name. I had no opportunity to verify this report.

Piura Valley. Writing of the Department of Piura in general, Stiglich (1918, p. 368) mentions the "marvelous hydraulic works" of the pre-Incaic Tallanes. Delgado (1936, p. 97) refers to the quipus which are frequently found in excavations in this northern region.

Serrán, Las Huacas, and Chanrro were reported to me as ruins situated upstream from Salitrál in the upper Piura valley (cf. von Hagen, 1955, p. 284), while it is locally understood that the vicinity of Morropón contains a number of ancient sites.

Max Uhle (1920, p. 166) includes the region between Chulucanas and Pabur, together with the Chira valley, in the statement (see above) that huacas are to be found everywhere, some of which are tombs reminiscent of the smaller Ecuadorian tolas, and others of which appear to be large temples.

Espejo Núñez (1951, p. 136) mentions huacas in the suburbs of Chulucanas, particularly a group called Lalco, from which one may look out upon the hills of Nañañique, Nacara, and Vicús, a setting for legends and traditions. Delgado (1936, p. 34) states that the ancient population of the Piura valley was concentrated in Chulucanas, which was an extensive city judging from the ruins still in existence. Uhle (1920, p. 166) designates the Hacienda Chapica on the Río Yapatera
I find no further reference in the published literature to sites in the Piura valley (aside from a brief notice in my own preliminary report of 1951, pp. 43-45, which, however, is reported in full detail in the present thesis; see below, "Reconnaissance Notes on the Lower Piura Valley"). Nevertheless, there exist 3 ceramic collections in the Department of Piura which have received notice in the writings of Means, Uhle, and Lothrop. Also, Piura vessels in the Harvard Peabody collection have been described by Kroeber, while pertinent materials in Lima were examined by myself.

None of the published reports indicate that the individual vessels of any of the first 3 collections mentioned above are labelled according to site provenience. Nevertheless, the collections are located in Morropón and the city of Piura. They are herein described under the heading of the Piura valley on the assumption that their contents come predominantly from that locality, although it is realized that some vessels also come from the Chira valley.

Uhle (1920) and Means (1919, p. 6; 1936, pp. 144-145, 180-181) both describe a pottery collection in the possession of Luis Elías y Elías at Morropón. Means (1919, p. 6) believes that this collection represents the sector between Morropón and the head of the Piura valley, but Uhle seems to suggest that the entire territory between Morropón and
Catacaos in the Piura valley and Sullana in the Chira valley is represented. In any event, both authors are convinced of the Chimu character of practically all of its contents. The Uhle article includes 2 photographs showing the vessels on their shelves (Plate XLVII), while Means (1936) illustrates 21 individual vessels in his Figs. 79, 120, and 121.

One vessel in the Elías collection (Means, 1936, Fig. 79, pp. 144-145) stands out as unique in Peruvian archaeology. Of highly polished fine black clay with a reddish tinge, it stands about 30 cm. high. Atop a tall, slender body is a stirrup-spout with a flange on the rim. The upper part of the body carries 12 protuberances in 4 vertical rows of 3 apiece, each of which resembles the terminus of a female mamma. The base contains a band of incised beaks and eyes of birds in a highly conventionalized, curvilinear style. Means, as well as subsequent authors, identifies this piece as Chavín.

Most of the collection are monochrome red or black effigy vessels representing humans, animals, plants, houses, etc., executed in a manner typical of the Chimu style. Two pieces (Means, Fig. 120, D and H), however, suggest Tiahuanaco II and the Cursive art, respectively (p. 181). The first shows a strange animal with its tail in its mouth and a painted step design around the base. The second is
composed of globular and rectangular lobes connected by an arched bridge, with a vertical tapering spout atop the globular lobe and 2 birds perched atop the rectangular lobe. The latter compartment is also painted in Cursive style.

In the city of Piura, Uhle (1920), Means (1936, pp. 144, 160-161; Figs. 110-119), and Lothrop (1948, p. 61) report on the collection of the late Senator Victor Egüiguren y Escudero. Uhle understood this collection to represent the Chira and upper Piura valleys, while Means believed it to derive from the "lower reaches" of the 2 valleys. Lothrop, writing a quarter of a century later, mentions a "pan-Peruvian" collection of perhaps 1,000 pieces, including copper artifacts, a few of which, however, are of local provenience. The reason for the discrepancy between Uhle and Means is not apparent; but by the time Lothrop came onto the scene, much of the original collection may have changed hands, so that his description of its contents may understandably differ from that of the former investigators.

In any event, Means illustrates 13 vessels from the collection. Five of them (Figs. 110-114) are "possibly" Mochica, but "more probably" Chimú. Fig. 110, however, depicts a stirrup-spout effigy jar which I would say is almost certainly Mochica. Two men are shown sculptured in the full round as the 2 lobes of the vessel. One appears to be an elegantly-dressed ruler with flowing headdress and
scepter in hand. The other is a naked prisoner on bended knees, hands bound behind the back and rope about the neck. Means also portrays 2 white-slipped redware vessels from the collection painted in dark brown in "cursive" style (Figs. 115, 116). Finally, 6 "typical" Chimu vessels are depicted in Figs. 117-119. All are dark red, monochrome, and highly polished. Fig. 118 shows 2 double-lobed jars, each illustrating the manner in which important persons were borne on the shoulders of 2 men in hammock-like litters. Fig. 119, A, shows a stirrup-spout, rectangular jar, on the sides of which are panels of pressed relief and atop which lies a well-modelled llama, its feet bound together.

Lothrop calls attention to 5 paddle-marked vessels among the local pieces included in the Eguiguren collection; also, a number of tall, grey, dull-surfaced jars, oval in cross section, which were "perhaps" local. One example of the latter which is illustrated (Fig. 48, B) is 91 cm. in height. (Cf. large vessels of the Chusís site, Section VI, below; also, Lothrop, 1948, Fig. 54, C, which is a vessel from Sullana.)

Speaking in the light of his then-recent examination of the Elías and the Egueguren collections, Uhle (1920) makes significant comments regarding the pottery of the Piura and Chira valleys collectively:

.... Among the huacos of the [Piura-Catacaos] district
are found Proto-Chimu—[Mochica—] type bottles; other black ones of the most ancient variety of Eten; numerous examples of the most recent Chimu type; small Incaic vessels; and jars with relief decoration in the form of crossed lines [paddle-stamped?], which belong to the final period... according to a cemetery of similar vessels which I discovered near Chimbote in 1897, as well as other little jars of the same character that are found in a half-Chimu, half-Inca cemetery outside the north wall at Pachacamac... Of the Proto-Chimus [Mochicas] themselves there seems to have remained very little evidence... Only one vase reminded me of the Tiwanaku style, in certain decorations that seemed Epigonal... The latest types of Chimu pottery, as well as Incaic, are found in the entire region between Catacaos and the valleys of Chira and Piura, their original variations occurring more frequently in the valley of the Chira and in the upper portion of the Piura valley between Chulucana and Pabur. In these last-mentioned districts, one notes the beginnings of a development somewhat independent of the original style of the Chimus of the last period, although nowhere did it go so far as to constitute a new style... the collection of Sr. Elías at Morropón gives a complete idea of the Chimu character of all known remains of the region between Morropón, Catacaos, and Sullana...

The third collection in the Department of Piura is that purchased by the city authorities of Piura and housed in the Municipal Building of that city. This collection apparently did not exist in 1917-19, for Uhle and Means make no mention of it. Lothrop (1948, p. 60), on the occasion of his visit in 1941, understood that most of the perhaps 1,500 pieces came from the Piura valley, although some came from the Chira; and that most if not all of them had once borne labels, later badly damaged by insects. One can do no better than to quote from his summary of types:
1. There were several paddle-marked bowls similar to Figure 51 [a paddle-marked, two handled jar from Vichayal, Chira valley], some with and some without handles.

2. A second local style is represented by carafes with tapering necks of the type illustrated in Figure 48, A [horizontal, lenticular, body; rounded bottom; tall, straight-sided, out-flaring spout; 20.3 cm. high]. We have seen no examples except from the Piura valley.

3. The Inca period was represented by aryballoids and by a pedestal bowl with a single horizontal-loop handle.

4. As might be anticipated in a collection of selected pieces, there were many Chimu specimens. These, as is the case with the Chira and Parinas examples we illustrated [see above], tend to be relatively simple in form and provincial in style. There is no reason to think that they were imported rather than manufactured in the vicinity. A few Chimu vessels were glazed. This is a very rare ceramic type, dating from a time when Spanish technique had been introduced but indigenous shapes still existed.

5. Of an earlier period were a number of vessels with red, black, and white geometric decoration. Also there were examples of cursive black-line adornment, a type also found in the Chira Valley.

6. The Mochica or Early Chimu period were represented by three groups. One of these consisted of blackware spouted jars of the type seen in Figure 49 [human effigy seated with stirrup-spout in sagital position originating in the cervical and lumbar regions; believed to have come from near Piura]. There also was a vessel with white-on-black decoration representing an old man. Thirdly, there was a white stirrup mouth jar with black geometric decoration. The stirrup had angled shoulders, a form which is characteristic of Cupisnique or coastal Chavín culture, found in quantity further south in the Chicama Valley.

In June, 1950, I called at the Municipal Building in Piura for the purpose of examining this collection, but found it in storage. There were 2 wooden boxes as tall as a man. But a smaller box containing the "best specimens" was
fortunately open, thus making it possible for me to view some of them briefly. Certain vessels evidenced a Mochica influence, while others appeared Chimú. A few effigy vessels were of a cream, or light pink, paste with a chalky texture. One figurine was closely similar to the Gallinazo style. I understood that the greater part of the collection came from the vicinity of Morropón.

An exhibit depicting the Tallan culture was on display at the National Museum of Anthropology and Archeology, Magdelena Vieja, Lima, in March, 1950. Its usefulness for the present purpose is compromised, however, for the "Tallan culture," judging from the explanatory statement with which the exhibit was labelled, covered the Department of Piura and much of Lambayeque, that is, from the Rio Leche northward. Neither was it possible to learn the site provenience of any of the specimens. Nor does there appear to exist any published reference concerning this Tallan collection. Thus, while many of the specimens undoubtedly do come from the Sechura desert northward, it is probably unwise to utilize this material in the present study.

Kroeber (1925, p. 228; Plate 69) briefly analyzes and illustrates representative examples of a collection of 104 vessels in the Peabody Museum of Harvard University, all catalogued "Piura." (Whether from near that city or from various places in the whole department, is not stated.) The
...essentially a Late Chimu pottery done two-thirds of the time in red with an occasional minor Proto-Chimu [Mochica] (or Middle Chimu) persistence.

Of the 104 vessels, 38 are black, 66 "red." The red comprise: all red, 37; red burned grey, 7; red with some white, usually stripes, 10; red with some black, usually fine lines, 9; white with some red, 1; all white, 2. All of the ware has a creamy smoothness...

Form and ornament show the following occurrences—the first figure given being the "red" and the second for blackware.

Aryballoids (pl. 69o), 1-0; relief stippling, 3-8; stirrup mouths (pl. 69d, 1-1), 21-12 (square or flattened stirrup, 5-6, monkey, etc., 5-7); double-jars, whistling type, 4-3; double spout (pl. 69l, 0-1; fabric marking (pl. 69n), probably an imitation made with a paddle, 4-0; jars with a long, flaring neck, with or without handle, a local type (pl. 69k-m), 5-0.

Shape of the body of the vessel: human figure, 7-5; monkey or other quadruped, 4-2; cat head, 0-3; bird, 1-5; fish, reptile, lobster, 1-5; squash or fruit, 5-3; cube, 1-2; cylinder, 2-0; lens, 2-1; cone (pl. 69a, 1), 6-1; crescent (pl. 69g), 2-1.

The proportionate occurrences in the two series suggest that the red ware may average a little earlier than the black, or carry somewhat stronger Proto-Chimu [Mochica] persistences; but the difference is not certain, and seems not serious. In the main, then, the known Piura pottery is a prevailing red local variant of Late Chimu, under some slight but positive Inca influence, unaffected by any direct Tiahuanaco or central Peruvian influences.

In his Plate 69, Kroeber illustrates only 13 of the 104 vessels. However, Dr. Samuel K. Lothrop has kindly sent for my examination photographs of 11 vessels of the Peabody collection (Plate III), 2 of which are among those illustrated by Kroeber (Plate 69, k and l). Nine of them, however, have
never previously been published to my knowledge.

The 2 which Kroeber illustrates are called carafes by Lothrop (1948, p. 60; cf. above), who indicates that there are 4 of them in the Peabody Museum. A photograph of one of the 2 unpublished examples (40031) shows an oval body with a partially flattened bottom and a tall outflaring neck. On the reverse side of the picture it is noted that the vessel is 23.5 cm. high; that the paste is red-brown; that it bears traces of a cream slip, over which a black-line pattern is drawn. Polishing marks are plainly evident, also fire clouds. The workmanship is generally somewhat crude.

Four of Lothrop's photographs are of globular vessels (39964, 40009, 40015, and 40023), paddle-marked over nearly the entire surface. These vary from spherical to somewhat squat in form and possess medium-high, outflaring necks. The bottom is given no special treatment, and the paddle marking is present there, as well as over the whole surface, except the neck and a little below. On an area on one side of 40015, however, the marks have apparently been smoothed out, but for what reason is not clear. Three of the vessels possess pairs of perforated vertical lugs, while 39964 also has a long cylindrical handle from side to spout. The paddle-marked motifs are variations of squares (or diamonds) and dots in relief, although 40009 has no dots. Two of the jars carry a row of punctates around the base of the neck.
The height varies from 16.5 to 19 cm. The color varies from grey-brown through brown to red-brown.

Nos. 39836 and 39846 are stirrup-spout, globular, red-ware jars, 23 and 19 cm. high, respectively. The former carries the head of a monkey in the corner between arch and vertical spout; the body is divided into about 12 vertical sections, alternately polished and mold-pressed in a design of relief lines and dots. The latter is entirely plain except for a cream slip and a flanged lip; also the bottom is partially flattened.

No. 40005 is a polished, brown, cone-shaped vessel with vertical spout and flattish bottom. Two vertical, perforated lugs were originally placed at the base of the neck, although one is now missing. Grooved pellets have been applied at about the same level as the lugs. Two broad horizontal grooves, as if pressed with the finger tip, encircle the middle of the vessel, which stands 16.5 cm. high.

No. 40036 is a red spheroid jar, somewhat flattened vertically, with a vertical spout which flares outward a little at the top. At least the spout has been polished. The body bears a black-line design consisting of a broad band of triangles containing crossed, wavy lines alternating with triangles containing large-beaked birds facing to the right. Below the band are 2 fine lines and one broad one. The style may perhaps be considered cursive. The total
height is 18.4 cm.

**Illescas Peninsula.** A number of ruins of ancient settlements, it was reported to me, are to be found around the slopes of the Cerro Illescas. At the old railway station at Bayóvar, quantities of paddle-marked sherds have been observed. At one place 17 km. south of Bayóvar on the old road to Reventazón many fine **huacos** have been unearthed.

A short distance west of Bayóvar, at the base of a cliff overlooking the Sechura bay to the north, I observed an area of pitted burials with potsherds laying about the surface. A golden bell, it was reported, had been removed from one of the graves. In the cliff above this area was a cave.

On an eminence immediately to the west of the Quebrada Baío (Bápon), the ruin of a square building, constructed of rough, angular stones was inspected. (The Bapo is a ravine draining northward into the Sechura bay about 2 km. west from Bayóvar.) The ruin was located on a flat which commands a view over a wide expanse of sea and land, perhaps 2 or 3 km. inland from the shore. Measuring 9 m. to a side, the walls stood in places about 1.2 m. high. The building was aligned with one wall to the windward, that is, facing south-southwest. On the windward side of the building a curved windbreak of stone had been constructed with a chord equal to about twice the width of the house. To the northeast of the
building perhaps 10 m. stood what appeared to be the corner of another rectangular construction.

There were 3 varieties of sherds in the vicinity: (1) a sand-tempered redware (one sherd appeared to be corrugated), (2) a lusterless, paddle-stamped blackware, and (3) a fine-pasted, polished blackware (one rim sherd indicated the characteristic shape of a Chimú lenticular canteen, while another sherd depicted an incised hand with 5 parallel lines representing the fingers).

Along the trail from the Quebrada Bapo in a westerly direction toward the Quebrada Nunura, the existence of similar ruins about 2 km. to the south was reported, also other ruins some distance to the north, but these were not visited.

I inspected several sites near the mouth of the Quebrada Nunura, the first important ravine to the south of Punta Aguja on the northwestern tip of the Illescas peninsula. Rectangular house walls of uncut, angular stones were observed, usually on sloping surfaces. Sherds were widely scattered over the flat area at the mouth of the quebrada. Caves in branch ravines had been put to a variety of uses. Some with rough walls in front of their mouths had evidently served for storage of food. Others appeared to have been domiciles. At least 3 had been sepulchers for the dead, all of them vandalized.
At one of these mass burial caves, 20 or more skulls were either in the cave or scattered down the slope. Most of them were adults, although at least one was a child. Both sexes were present. Mingled with the bones in a heap at the mouth of the cave were an abundance of cloths, fish nets, and sherds, a few wooden spindles, and fragments of essentially pure copper sheet (analysis by Dr. William C. Root of Bowdoin College).

At least 15 skulls were present at another, similar cave. Sherds and cloth were mingled with the bones. Without actual measurement, the skulls appeared to range from mesocranic to dolichocranic. Both sexes were present, the males being characterized by heavy supraorbital ridges and a strikingly acute frontal angle.

Three varieties of pottery stand out in the sherd samples which were collected from the Quebrada Nunura sites (Plate II, D-I): (1) typical Chimu blackware, particularly in association with the burial caves, (2) paddle-stamped redware, and (3) mold-pressed redware.

In loose, gravelly soil around the base of a rocky outcrop near the Quebrada Nunura, a cemetery was visited. A very few sherds, similar to those found in the quebrada, were observed lying on the surface, but within the soil itself neither sherd, cloth, nor metal was seen. The burials encountered were flexed. The bones were fragile, as if of great antiquity. With them were beads and bone awls.
The length and breadth of 4 adult skulls from this non-ceramic cemetery were measured, without fully satisfactory equipment, however. Three males had cranic indices of 76.3, 81.5, and 83.3. One female had an index of 71.0.

It had been reported that stone bowls were to be found covering the faces of the dead at this non-ceramic cemetery (one informant said, one bowl over the head and one underneath), but none were found on the occasion of my visit. Later, however, one from this cemetery was examined at Sechura. It was of the black stone (a Pennsylvanian slate?) native to the Illescas peninsula. Although the specimen was not complete, it would have had an original diameter of about 18 cm. and a height of about 5 cm. It was between 3 and 4 mm. thick and evenly worked. The final smoothing left striations as if of sand. No decoration was present on the inside, but the outside was encircled by a broad band containing faces (?), pendant alternately from each of the 2 borders and executed in straight, incised lines and dashes. Another specimen from the same cemetery, it was reported, was in the possession of Comandante John Bell-Taylor of Lima.

At Sechura a pottery vessel recovered from the Quebrada Nunura was shown to me. It was a spheroid jar with small mouth and short, recurved neck and stood about 20 cm. high. The paste was a dull grey-black. The decoration consisted of an all-over (except neck) paddle-stamped design of small
Sechura Desert. Employees of the Robert H. Ray Company of Houston, Texas, engaged in a geophysical petroleum survey of the Sechura desert, reported 2 archeological sites in the vicinity of Belisario. One lay 4 km. south of that hamlet; the other 16 km. to the northwest (see map, Fig. 1). In each case many thousands of sherds lay strewn over the surface in the middle of the desert.

Pampa Huaquillas (Prairie of Little Huacas) is a place name which occurs a few kilometers west of Belisario.

Another informant reported a site somewhere between Belisario and Minchales in the Sechura desert where there lay a great many large ceramic vessels scattered about over the surface, disinterred by the wind. Nearby, walls of adobe stood to a height of about 3 m. The informant, presumably afoot, wanted to carry some of the vessels with him but could not, as they were too large.

A woman living at the hamlet of Chusís possessed a jar from Minchales (see Plate X, E, right), found as she said "at the summit of the ruin." Standing 21cm. high by 20 cm. in diameter, it was nearly spherical, with outflaring mouth and a pair of perforated, vertical lugs at the base of the neck. Except for the neck and a little below, and an area on the bottom, the surface carried an all-over paddle-stamped design consisting of relief dots and rectangles.
The color was irregular, varying from brick red to grey. The tempering was coarse sand. No slip was detected, but a broad band of faded white paint occupied the area from a little below the rim down to the beginning of the paddle-stamping.

A petroleum man at Piura told me of a large sherd deposit south of the Alto de Roque in the Sechura desert. The Alto is an elevation located eastward from Minchales in the direction of Olmos. From the field camp of the International Petroleum Company a little east of Minchales one traveled south across a chain of hills, then turned eastward until reaching a spot to the south of the Alto de Roque, having covered about 16 km. after leaving the camp.

Summary of Archaeological Types. The information contained in the foregoing discussion of the several archaeological zones of the Illescas-Jubones coast is briefly recapitulated, below:

The coastal zone of the Province of El Oro in southern Ecuador contains a number of ancient mounds known as tolas. Besides burial mounds are midden deposits and one case of what appears to be a raised house platform.

The ancient inhabitants of coastal El Oro possessed rather advanced ceramic techniques and artistic imagination. Modelling, painting, slipping, combing, incising, punctuation, and champlevé are all in evidence. A variety of vessel
shapes were produced. Particular emphasis was placed upon figurines and spindle whorls, which were undoubtedly important media of artistic expression. The figurines were freely sculptured in the full round and portrayed humans or animals or sometimes features of both in combination. The whorls typically portrayed pelicans—sometimes other life forms or scrolls—in low relief as repeated elements.

The metal-working skill of the ancients of coastal El Oro found expression in rather complex ornaments of copper, gilded copper, and tumbaga (alloy of copper, gold, and sometimes silver).

The whorls suggest spinning and weaving, and by extension, the cultivation of cotton. The entire evidence, in fact, points to a sedentary-agricultural economy, probably dependent upon rainfall.

The Tumbes zone presents a large, rectangular adobe pyramid, the Huaca del Sol de los Incas, which was evidently a combined temple and fortress, with at least one smaller supporting fortification, La Garrita, located nearby. The remains of an extensive irrigation system including large canals are found in association. Large shell mounds are found near the shore. A shallow midden deposit and the remains of large rectangular buildings of stone are found upstream beside the Tumbes river.

Little can be said about the pottery of the Tumbes zone other than to mention a double-lobed, polished blackware jar.
from the Huaca del Sol de los Incas and a fine incised sherd from Vaquería, which suggest diverse and sophisticated origins of the ceramic tradition.

The Cabo Blanco zone contains a considerable variety of archaeological types. There are a number of sites from which only stone artifacts are reported, some of them containing tools worked by fracturing only, others also containing tools worked by abrasion and apparently pecking. At least one site (Brown's Quebrada Honda) presents lithic together with ceramic materials. Windbreaks of stone associated with ceramics, dams and canals, numerous graves and refuse accumulations, and diggings and constructions at natural oil seeps are all present.

No pyramids or other buildings of adobe are reported from the Cabo Blanco zone. Domestic structures of stone are reported from Los Órganos and Quebrada Honda (Brown), however.

Paddle-stamped pottery is common in the Pariñas sector. Burials in large urns, in some cases probably involving cremation, are found in the same locality.

The Chira valley contains a considerable number of rectangular adobe pyramids. Some appear to be large temples, while a good many of the smaller ones are reported to be tombs. Numerous burials are also found in natural hills and in extensive midden deposits. Dams and canals are among the
ancient constructions.

The pottery of the Chira valley which has been reported is predominantly modelled monochrome specimens of Chimu affinity. Although generally red, black is also common. Large amounts of paddle-stamped sherds and vessels are also present. White-on-red painted ware and remains of large burial urns are often found. A fine painted ware combining Mochica design style with Coastal Tiahuanaco form and color range, is localized in the Sullana zone.

Some evidences of goldwork and textile weaving have come to light in the Chira valley.

The Piura valley, like the Chira, contains a considerable number of rectangular adobe pyramids, which vary in size from those which appear to be large temples to smaller ones which are believed to be tombs. Large-scale irrigation works are mentioned.

Most of the Piura valley pottery which has been reported is of Chimu affinity. It is modelled monochrome ware, commonly red, though often black. Paddle-stamped vessels have been found in considerable quantity. Certain types, such as the carafe, seem to be unique to the Piura valley. One clear example of the Chavin style comes from near Chulucanas. Gallinazo-like, Mochica-like, and possible Tiahuanacoid ceramics are also reported. A considerable number of definitely Inca materials have been discovered.
The Illescas peninsula contains rectangular domestic structures with rough stone walls, a rectangular stone building which appears to be a military outpost, caves used for habitation, storage, and burial, and cemeteries.

Ceramics of the Illescas peninsula include typical Chimu pottery, paddle-stamped wares, both red and black, and plain redware. Copper, cloth, fish nets, and spindles are associated with the pottery.

A non-ceramic cemetery on the Illescas peninsula contains flexed burials accompanied by beads, bone awls, and thin, finely-carved dishes of stone.

The Sechura desert, according to verbal reports, contains a number of refuse deposits at which large quantities of sherds are scattered over the surface. Large, whole vessels are present in some cases. Redward predominates over blackware at one site. Paddle-stamped redward is included at another site. One site contains high adobe walls.

The Illescas-Jubones coast thus presents archaeological remains: (1) which appear to represent a time range extending from the paleo-Indian to the Inca; (2) which give evidence of shell fishing, rainfall agriculture, irrigation agriculture, and petroleum exploitation on the part of its prehistoric populations; (3) which include highway and canal systems, pyramidal temples and tombs of adobe, domestic
structures of rough stones, extensive refuse deposits, natural and
midden hills used as burial mounds, inhumed burials, caves used for
burial, occupation, and storage; and (4) which give evidence of a
variety of crafts, such as stone tool making, ceramics of
considerable skill and variety, metallurgy, and weaving. The
implications of the foregoing body of evidence, as also of the
reconnaissance and excavation reports which follow in Sections IV and V,
will be discussed at length in the final interpretative sections of the present study.
IV. RECONNAISSANCE NOTES ON THE LOWER PIURA VALLEY

The lower Piura valley has heretofore been practically unknown to archaeology. In fact, the published sources utilized in the present study contain no mention whatever of any site south of Catacaos. Reconnaissance effected in 1950 between the city of Piura and the Sechura bay is reported below in Section IV. Eighteen sites are described, proceeding from north to south (see Fig. 7). Most of them, I visited personally; the remainder were reported to me verbally, as indicated.

One important site in the lower Piura valley, however, is not described in the present section: Investigations at Chusís, near Sechura, are reserved instead for detailed treatment in Section V.

**Castilla.** On the eastern slope of the river bed between Piura and Castilla (formerly Tacalá), approximately opposite the Piura municipal market building, are located the remains of what appears to be a dam (Plate IV, A). Built of unhewn stones and bonded with what seems to be some sort of cement, it extends diagonally upstream into the river for several rods from the Castilla side. At one point it protrudes above the surface about the height of a man. In
FIGURE 7. Archaeological map of the lower Piura valley, northern Peru
the upper portion are to be found a few burned bricks, but
the rest appears to be ancient. It is locally referred to
as an "Inca" dam.

Delgado (1936, p. 95) mentions a dam as being present
when the city of Piura was founded in its present location
in 1588. This structure would have functioned in an irri-
gation system giving service to the southern portion of the
lower Piura valley, including the vicinity of Catacaos.

**Chiclallito.** To the left of the paved highway leading
from Piura to Catacaos, at a place called Chiclallito (cf.
the name Chiclayo in the Lambayeque valley, south of the
Sechura desert) between Castilla and Puyuntalá, is located
an earthen mound. From a distance it appears to be an arti-
ficial structure, in fact resembles the temple pyramid at
Narigualá (see below), except that it is smaller.

**Puyuntalá.** About 5 km southwest of Castilla, to the
east of the highway, is situated the Hacienda Puyuntalá.
The hacienda-house, built about 50 years ago, was placed atop
a mound which, as the workmen were shaping it, yielded
huacos.

Nearby is another mound where pot hunters always used
to dig and find huacos finos (fine vessels), until the owners
prohibited it a number of years ago, it was reported to me.
About 1946-48, excavation produced a skeleton, but it could
not be found on the occasion of my visit. Sherds of a thick
red ware were lying about the surface. Formerly, I was told, an ancient adobe structure, since disappeared, had stood atop this mound. (The present structure is not ancient.)

It appeared from a rapid inspection of these mounds, that they were both natural sand dunes utilized for burial.

A small, globular vessel of intense black color, having shallow, vertical fluting, as if in imitation of a pumpkin, a pair of small, vertical, perforated lugs near the neck, and a Chimu-type outflaring spout, had been found at the 'latter mound.

**Simbilá.** The contemporary ceramic industry of the modern village of Simbilá is described in some detail, and reasons for assigning it to a pre-Columbian origin discussed, in Christensen, 1955. Also, judging from conversations with local people, there exist dozens of lomas (sand dunes) in the vicinity in which the ancient dead were buried and from which fine pottery can be recovered.

**Narigualá.** Three km. south of Catacaos there stands a large temple pyramid, around the base of which is clustered the village of Narigualá. Actually, there appear to be 2 pyramids, although the ravages of the weather and the pot hunters have made it impossible to visualize clearly their original form. Atop the larger mound is located a Catholic chapel, a small cemetery, and a metal station marker set in concrete. The mound appears originally to have been flat on top.
There were places where construction in adobe bricks had been exposed by clandestine diggings. Presumably, the entire structure was composed of such material. Also, one spot was visible where refuse was stacked in layers against a wall.

The surface presented an abundance of sherds, a small sample of which was collected. Examples comparable to each of the 4 series found at Chusís (see below, Section VI) were included. One, similar in composition to the Sechura Red series, carries a painted design in red on dull white, not skillfully executed (Plate V, A). It is curvilinear in part (a serpent?). The exterior is well-polished; while the interior carries a heavy incrustation of charred matter. Across one end are a series of notches suggestive of triangular windows or scallops which were present when the vessel was fired. Another sherd of similar composition (Plate V, B, top) is from the rim of a globular jar with a very short neck. A vertical handle terminates against the lip in a pattern of 3 deep vertical incisions, as if to represent the fingers of a hand. Another horizontal incision marks what may be the wrist. The exterior bears a whitish slip (Cf. the Chuchal sherd illustrated in Plate V, H.)

A sherd from the tall, vertical neck of a jar (Plate V, C), comparable in composition to the Chusís Red series, shows 6 horizontal flutings.
Two sherds of composition similar to the Chusís Red series (Plate V, D) bear paddle-stamped designs of small contiguous squares. The 2, however, are from different paddles.

A sherd of material comparable to the Sechura Black series (Plate V, B, bottom) carries a mold-pressed design consisting of raised bumps and lines and 2 parallel ridges at right angles to 2 other such ridges, with a large circle at the point of contact; the ridges and circle rising to a higher relief than the bumps and lines.

Santa Clara. From various informants, I learned that the village of Santa Clara, some 25 km. southwest from Castilla, is the site of ancient refuse deposits; that well-made black-ware vessels have come from the vicinity; and that a local huaquero is interested principally in finding metal objects.

Also, 2 ceramic vessels from that locality came into my hands for study. One was a Chimú-style, blackware canteen. The other was one compartment of a double-lobed, spouted jar.

The latter specimen was of a ware comparable to the Sechura Red series (see below). The exterior had been lightly polished. The 2 halves had been clearly pressed into matching molds and subsequently united before drying and firing. A line where evidence of the union had been nearly rubbed out was visible on the outside in a vertical plane parallel to long axis of the double-lobed vessel; while the inside preserved markings on the same plane where the 2
halves had been pinched together. The specimen was bi-conical except that the bottom was flattened and the top carried a vertical spout. Around the line where the bases of the 2 cones meet was a relief band consisting of a series of scrolls between 2 lines. On one side of the specimen a tube projected to meet its companion lobe.

Tablazo. Informants gave me to understand that ancient huacas exist in the vicinity of Tablazo, some 4 km. southeast of Santa Clara. Specifically, some were mentioned to the west of the north-south road that passes through the village.

At Tablazo, I once observed from the bus window a large conchal (shell-mound) situated perhaps one km. to the east of the road.

The village of Tablazo, as well as the sites mentioned in connection with it, are located atop the cliff or bluff which bounds the Piura valley on the northwest.

Chalaco. About 2 km. south of Tablazo and just northeast of the village of Chalaco is situated a point of the cliff similar to the one on which Chusís is located. From a distance it appeared to be unoccupied at present. It must, however, be the site of an ancient occupation, for I was informed that it is a favorite spot for treasure-diggers. Boys frequently find corales (coral beads?) and small objects of gold.
This cliff site is just opposite an iron bridge in the valley below, I was told.

**Vice.** About 2 km. southwest of Chalaco is the village of Vice. Ancient huacas are to be found nearby, it was reported to me. Another informant indicated that there were caves nearby which appeared to be habitation sites and that he had seen shell mounds in the vicinity.

**Chuchal.** Ancient refuse deposits were reported to me at Chuchal, about 2 km. south of Muñuela.

This is not the same as the site near Chulliyachi (see below). The name chuchal, it was stated, is a local generic designation having approximately the same meaning as huaca.

**Cerro Amarillo.** About midway between Becará and Yapato (distinct from a village of the same name near Santa Clara), and about 5 km. north of Chusís, is located a natural hill named Cerro Amarillo, against the western slope of which lies an ancient refuse deposit and cemetery (Plate IV, B). An area of perhaps 50 m. square is covered with marine shells.

Pitted graves were to be seen, and a few human bones lying about the surface. I was informed that huacos had been removed from the site. Quantities of sherds were in evidence, a small sample of which was collected.

Examples comparable in composition to the Chusís Red, Sechura Red, and Sechura Black series (see below) were
included. A sherd similar to the Sechura Red series (Plate V, E, top) bore a pressed relief pattern consisting of raised lines meeting at an acute angle, the space between being filled with raised elliptoid stipples. A large sherd similar to the Chusís Red series came from a globular jar with a vertical handle; the wall below the handle was covered with a paddle-stamped pattern of small, contiguous diamonds. Two sherds similar to the Chusís Red series bore horizontal whitish bands, painted, one on the very lip of the vessel, the other on the exterior just below the lip. Another of the same composition carried a small, peaked nubbin just below the neck. Another of somewhat similar composition carried a horizontal applique band decorated by occasional fingertip impressions.

One sherd similar to the Sechura Black series gave evidence of a bowl with a flattish bottom. Another of the same composition (Plate V, E, bottom) possesses relief stipples created by mold-pressing.

**Yapato.** A kilometer or 2 south of Cerro Amarillo, on the edge of the cliff overlooking the valley, is the hamlet of Yapato. One of its daub-and-wattle houses is placed atop a small **conchal** which is believed locally to be ancient.

About 10 m. square in area, the mound is a meter or 2 thick and appears to be composed largely of marine shells.

**Hacienda La Isla.** About 6 km. southeast of the Cerro
Amarillo, on the Hacienda La Isla, Agua Rica section, about 1.5 km. south 78 degrees east of the hacienda-house, is situated a sand dune which was reported to be a huaca. It is about 4 m. in height and is covered in part with a heavy growth of shrubbery.

From a distance a portion of the mound had a greyish cast. Close examination revealed shells and charcoal, as well as a very few sherds, all of them seemingly modern. Included were an apparent open pitcher spout and a paddle-stamped piece. Small bits of glass and iron were also present. The layer of cultural materials seemed to be thin, however, nor did it cover the entire dune. No evidence was observed that the surface had been disturbed by treasure-seekers.

Despite the evidence of modernity, an employee of the hacienda stated that there never had been any houses built atop the mound.

It was reported that this was the loma de encanto (enchanted mound) from which a supernatural light issued to make its eery, nocturnal runs to Sechura and Matacaballo, a local folk-belief to which I had previously heard several references made. There is reason to suspect, however, that this identification is not correct: that the location of the real loma de encanto was not revealed.

In the first place, 2 different informants indicated
that the real huaca, which I took to be an actual temple pyramid, lay in the opposite direction from the Hacienda La Isla, in fact, between that plantation and the village of Tajamar. Also, I was told that "good things" were dug out of the real site, a patent improbability for the site which I examined, which appears to be nothing more than a sand dune, briefly occupied during historic times, although before the memory of the present owners.

Hacienda Vega de Loro. About 2 km. north of Chusís, at the base of the cliff but on ground a little higher than the valley bottom, are located 2 ancient refuse mounds. These are included in the Pingo section of the Hacienda Vega de Loro.

The 2 mounds lie about 50 m. apart. The southern one is at least 2 m. thick and covers an estimated area 50 m. in diameter. The northern one (Plate IV, E) is at least a meter thick and covers an area estimated at 30 m. in diameter.

Both mounds consisted largely of shells and bore sherds on the surface. There was some pitting, as if from the probings of treasure-seekers, especially on the northern one. Solid chunks of ash and charcoal came out of one such pit on the latter eminence. The southern mound had deep furrowing into one edge, as if from an old land reclamation project.

A small collection of potsherds was removed from the surface of the mounds. Examples comparable to the Chusís
Red and Sechura Red series (see below) were present. One sherd resembling the Chusís Red series bore a wide band of dull, whitish paint on its exterior. Another of similar composition carried whitish paint on the upper edge of its outflared rim. Still another of similar composition had been fired at such a temperature as to vitrify a portion of it and turn its surface purple. No stamped or modelled ware was observed.

A hundred m. or so to the northwest of the northern mound, on a point of the cliff (hardly more than a bluff in this sector), just below its edge, were located 4 cisterns, apparently fashioned for the storage of water (Plate IV, C). Aligned roughly in a north-south direction, all had been carved out of the soft rock of the cliff and were conical in cross-section, with the large end at the bottom. The bottoms were fairly flat and consisted of soft earth. All of them had been furrowed vertically on the inside below the lower edge of the orifice, as if by the dripping of water.

Of this group the northernmost (Plate IV, D) was the best preserved. It was 2.2 m. in diameter at the bottom and 1.0 m. at the mouth, and 1.0 m. deep below the lower edge of the mouth. The well-finished inner surface appeared to bear a red paint, which may, however, have resulted from fire-hardening. There was a large crack near the bottom on one side.
The next cistern to the south was 3 m. in diameter by 2 m. deep and contained 2 wooden poles. Its interior surface exhibited less of the apparent red paint.

The third cistern was about one m. in diameter and about one m. deep. Its surface was not smoothed nor did it show any red paint.

The last cistern was about one m. in diameter by about 1.2 meters deep. It contained a few stones, and what seemed to be tool marks were present on one side.

Similar chambers cut in the rock at Chusís are discussed in Section V, under "Cistern and Storage Cists," below.

About midway between these cisterns and the Chusís ruin, a little south of the Felix Chunga home, what appeared to have been a small reservoir for water was found beneath the overhanging edge of the cliff (Plate IV, F). A cavern, now mostly filled with sand, was probably originally much deeper. Immediately above was a gully which undoubtedly channelled some of the run-off from the surface of the mesa in time of rain. Around the valley side of the cavern, a wall had been built of rough, uncut stones set in a mortar of reddish clay. The front of the wall had been thrust outward, but the sides were well-preserved.

Mr. Chunga believed that this was an "Inca" construction. However, aside from this opinion, I have no information as to
its antiquity. No associated sherd material was observed. Sechura. About 800 m. east of the Catholic church at Sechura is located an ancient earthen pyramid surrounded by a refuse deposit of extensive proportions.

The diameter of the refuse deposit was measured by pacing at 650 m. in the northeast-southwest direction, past the east face of the pyramid. However, the western side of the deposit appears to be some 750 m. across, judging from a study of an aerial photograph supplied by the Servicio Aerofotografico Nacional. The ancient remains occupy about the same area as the modern village of Sechura, or perhaps a little more.

The surface consists of an irregular grouping of low-lying rubbish mounds. The highest (except the central pyramid), near the southern extremity, reached roughly 4 m. above the desert floor. The accumulation appeared to consist largely of marine shells. Great quantities of potsherds were also included. No house foundation was recognized, nor any glass, iron, charcoal, ashes, human bone, or treasure-digger's pit, noted.

The central pyramid rose to about 6 m. above the desert floor. It appeared to be composed of a fine gravel of fragments of marine fossils, together with sand. A few bits of human skull were observed on the surface, as well as a few potsherds and shells.
The top of the pyramid mound is a roughly rectangular platform, measured by pacing at 34.6 m. by 38.1 m. It is approached by a ramp which ascends northward on the east side, makes an approximately right angle turn to the left at the northeast corner, and continues to ascent westward until reaching the upper level.

(A similar mound at the Chusís site is described in Section V, below, under "The Central Eminence.")

The cemetery of the modern village of Seehura is presently encroaching into the west and northwest edges of the ancient refuse deposit. Here, some glass is observable on the surface. A smaller modern cemetery surrounded by a hexagonal adobe wall, now partly fallen, is situated northeast of the pyramid mound at the edge of the midden. A small modern cemetery also occupies the surface of the pyramid itself.

Certain persons in Seehura with whom I discussed this ruin seemed vaguely aware that the area must contain something ancient but had no idea that the mound was a prehistoric pyramid.

The surface pottery which was examined was closely similar in paste and temper to the principal series found at Chusís (see Section VI, below). No stamped or painted sherds were observed, however. One neck sherd (Plate V, F) of a ware comparable to the Chusís Red series and bearing a red
wash on the exterior exhibits a small, round, vestigial nubbin split by a deep horizontal incision (cf. Plate XII, L showing a Sechura Textured Red sherd from Chusís). Another neck sherd (Plate V, G) of a ware comparable to Sechura Red series possesses a scalloped rim, 25 mm. below which is a horizontal flange.

A citizen of Sechura once showed me a vessel which he said was of local origin, although I do not know from what site. It was a small, globular jar of a lusterless dark grey paste, decorated by paddle-stamping.

**Chuchal.** Beginning at a point approximately 700 m. north-northeast of the modern fishing village of Chulliyachi (Balneario Leguía) and extending in a northerly direction for about one more km., lie a series of 5 ancient refuse mounds. (An aerial photograph furnished by the Servicio Aerofotografico Nacional shows a few more small hillocks, but only five were observed on the occasion of my visit.)

A tide channel (*estero*) separates the mounds from Chulliyachi and from a sandy spit which extends northward from the latter village to the mouth of the nearby Piura river. In between the mounds and all around is a flat plain, barely elevated above the level of the sea, which lies a short distance to the west. The whole group appear to be but remnants of a much larger occupation zone, the greater part having been washed away by the river in flood (or
possibly tidal waves) until only the 5 eminences were left protruding above the flat plain.

Each mound consists of an enormous heap of shells, sherds, charcoal, and ashes (Plate IV, G). On the southernmost and second largest, I observed a human scapula. On the largest and second from the north, about 6 m. in height, great quantities of human bones of both sexes and various ages were lying about the surface, especially at a point where are found numerous pits of treasure-diggers (Plate IV, H).

Chuchal, it is locally believed, was the original site of modern Sechura. The population moved to its present site when Chuchal was destroyed by a tidal wave (maramoto). Whether this occurred before the arrival of the Spaniards or after does not seem to be known, but the Catholic church at Sechura is reputed to be 400 or more years old.

A small collection of potsherds was made from the 2 southernmost mounds and a separate collection from the 2 northernmost mounds. The southern mounds show no particularly distinctive rim forms, except as indicated by a sherd from a small, fine-pasted, apparently temperless, black jar, similar in composition to the Sechura Black series (see Section VI, below), with a distinct shoulder and a flattish bottom, on the interior of which polishing marks were clearly visible. Four sherds were of a thick, chalky
textured, pale brick-red ware, with coarse sand temper. The exteriors bore a lusterless, cream-colored slip. The inside of one of them carried what appeared to be a light green glaze. The paste of another sherd was a light greenish color, while its temper consisted in part of fine, black particles.

The northern mounds produced a few sherds which by their shape and composition suggested Chimú black ware. Included was an outflaring jar rim. Certain redware rim sherds also possessed the same outflaring form, while other rim forms suggest affinities with Chusís. One redware sherd of a doubly curved vessel neck (Plate V, H) shows a small vertical handle. Just above the point of upper contact is a horizontal row of 8 vertical punctates executed by a smooth, blunt instrument. The appearance is that of a hand with 8 fingers placed against the vessel neck (cf. a similar handle from Narigualá; see Plate V, B, top).

Chuchal sherds are generally much eroded on the surface. Most of them correspond in paste and temper to the Chusís Red series (see below), although a few closely resemble the Sechura Black series.

The southern mounds also produced fragments of gypsum and chips of what appeared to be a calcareous sandstone, while the northern mounds produced a fragment of copper or copper alloy.
Panadero. A rocky outcrop in the desert between Sechura and Matacaballo bears the name Panadero. No ruins were visible as I passed by in a motor vehicle, but the site has the reputation of having yielded archaeological goods to treasure-diggers. Beads from necklaces were mentioned. The area may have been a cemetery.

Matacaballo. Ten km. south-southwest from Sechura, on the shore of the Sechura bay, is situated the indigenous fishing village of Matacaballo. Refuse heaps are to be found along the shore in this vicinity, but some of them are modern, it was reported. A short distance north of this village, I observed a large shell mound east of the road.
V. STRATIGRAPHIC AND OTHER INVESTIGATIONS AT CHUSÍS
A SITE IN THE LOWER PIURA VALLEY

Site Description

**Location.** Chusís is an archaeological site situated at a point 3.8 km., north 15 degrees east, from Sechura, in the southern end of the lower Piura valley (see Fig. 7). The ruin is perched some 16 m. above the valley floor on a point of the cliff which juts south-southeastward out of the desert called the Tablazo de Paita (see Plate VI). It commands a view of the entire region from the sea to a point far up the valley, and across the cultivated acres of the valley bottom to the barren reaches of the Sechura desert lying beyond to the east and south. This cliff, composed of loosely cemented marine fossils (coquina), extends along the northwestern edge of the valley and appears to represent the third and last stage of withdrawal of the ocean from the low-lying coastal shelf of Pliocene times (conversation with Ruthven W. Pike, petroleum geologist).

**Environ.** About 350 m. south of the southern edge of the cliff, on a low, sandy eminence, is situated the plantation-house of the Hacienda Chusís (Plate VII, C),
which is one of 3 such properties owned in absentee by a wealthy citizen of Piura (see Preface). The hired administrator lives alone in one of 4 brick and adobe buildings and supervises the laborers, some of them villagers from the cliff above, in the production of cotton on the hacienda's ample fields lying to the south and east. Between the eminence and the cliff lies an abandoned channel of the Piura river, now completely dry, which I take to be an auxiliary fork which carries water only during seasons of unusual rain. Immediately to the east of the Chusís village an alluvial fan cuts deeply northwestward into the otherwise even outline of the cliff and heads in a cluster of narrow gullies just beyond the eastern terminus of the village's ancient boundary wall.

Here and there throughout the fields are patches of sand which the wind whips into being in time of drought. To the south and west of the village are lands which have been deeply furrowed to profit from sub-surface moisture. These are now generally abandoned, obviously too high above the water table for any profit after some years of sparse rainfall. Groves of algarrobos, some of the trees large, fill the uncultivated interstices of the valley lands, but are scarce and stunted atop the cliff. On the northern or desert side of the ancient settlement the gravelly surface stretches away into the llanos (flatlands) of the Tablazo
de Paita.

**Surface.** The east, south, and west sides of an area approximately 400 m. square are bordered by the sheer walls of the cliff, here and there penetrated by a narrow declivity allowing access to the top, while the north or desert side was formerly protected by a man-made wall of clay and stone running from cliff to cliff (see Fig. 8). Through the centuries an enormous quantity of construction debris, wind-blown sand, and rubbish, especially sea shells, potsherds, and ashes, has accumulated to a thickness in places of at least 3 m. Almost none of this refuse is to be seen, however, within 10 to 50 m. from the edge of the cliff. Either this border strip was never occupied—as it now is not—or else it was cleaned off, perhaps by some natural agency, subsequent to its occupation. Near the center of the site an earthen eminence, evidently a planned construction, rises to a point some 6 m. above the cliff's edge. Aside from the outside strip and this central eminence, the surface is everywhere thickly strewn with potsherds, tiny sea shells, and small construction stones.

Time, the wind, the chemical action of the saline soil, and the heavy rains that reach this valley from the north with disastrous effect perhaps two or three times a century, have all taken their toll of the prehistoric constructions. There are no really "standing" walls left, although all
over the site it is possible to trace out with the eye portions of some ancient structure, the walls of which still exist from the surface downward (Plate IX, A).

**Modern Constructions.** Atop the central eminence stands a small Catholic chapel, built, it was reported, between 1946 and 1948. It possesses windowless walls of adobe, a roof of cane, and a doorway without a door (Plate IX, D). Yet, however simply built, it cannot compare in economy of construction with the 1/4 wattle-and-daub huts of the modern Indians, which are scattered about over the ancient ruins. These huts are built of a framework of algarrobo poles to which are tied bundles of cane or corn-stalks, the whole of it plastered with mud inside and out (Plate VII, D). The floors are of sand, and occasionally the soiled sand is replaced with clean. A fire is kept at one side or corner of a room, on the floor or in an elevated, open hearth of hand-packed clay or adobes. The smoke escapes from the loosely built structures without the aid of a chimney.

**Investigations**

**Previous Investigations.** Reports of the present investigation apparently initiate the site of Chusís into the literature of archaeology. Certain geologists, however, had become acquainted with it. Dr. Georg Petersen, a geologist
of the Peruvian government Empress Petrolera Fiscal and amateur investigator of Tumbes archaeology, first brought the site to my attention as one which probably contained deep refuse deposits. Also, a survey system including the central eminence had evidently been set up at some time in the past, for an iron stake set in bronze was located beside the Catholic chapel. However, I have no information as to when it was done, or by whom.

The Grid System. The Chúsí's project was begun by laying out a grid system based upon squares of 10 m. to a side as an aid to mapping, record keeping, and spatial orientation (Fig. 8). Although not all the area was laid out, the system was theoretically extensible to the entire site or to any portion thereof where intensive investigation might prove desirable. All subsequent measurements were tied into this grid.

The base line was selected so as to be as nearly parallel as possible to the large clay wall which bounds the entire ruin on the north. (This, incidentally, marks a constriction between the east and the west cliffs which naturally divides the area of settlement from the desert lying to the north.) This base line, running from west to east, lay $76\frac{3}{4}$ degrees east of true north, as determined by compass (a declination of $7\frac{1}{4}$ degrees west of north was allowed to correct the compass reading).
All lines running parallel to the base line were labeled with Arabic numerals in an ascending series from north to south. However, in order to avoid the possibility of labelling archaeological features with negative values, the seriation was begun 30 m. to the north of the base line, well beyond any apparent archaeological deposit. The base line, then, was given the designation "Line 4".

All lines running at right angles to the base line were labelled with letters of the alphabet (omitting "I" and "O") in an ascending series from west to east. The seriation was begun at the westernmost extremity of the cliff top under investigation in the supposition that no archaeological data would be found beyond that point. The beginning point of Line 4, then, was on Line D, and it extended to a point 6.16 m. beyond Line LL. The total length of Line 4, in other words, was 316.16 m. Stakes were set at appropriate places along this line.

Each square bore the designation of the lines which crossed at its northwest corner. Square M-39, for example, lay just east of Line M and south of Line 39.

Shorter measurements were made with a 2-m. rod (a bamboo pole marked off in decimeters, included in the photographs used to illustrate this report), while longer ones were made by rope line and carefully calibrated pacing. Measurements were frequently checked one against the other.
FIGURE 8. Map of the Chusí site, lower Piura valley
An aerial photograph of the Chusí's village and vicinity, furnished by the Servicio Aerofotografico Nacional of Lima, aided greatly in compiling the base map.

**Elevational Data.** Two elevation lines were run across the entire site with the aid of a Brunton compass mounted on a tripod, while the height of the cliff's edge above the valley floor was calculated by an approximate method.

Two lines traversing the entire site and running approximately at right angles to each other were selected with the intention of revealing the maximum information on the vertical dimension. Each line resulted in the construction of a profile or cross-sectional drawing of the site (see Fig. 8, bottom).

The first elevation line was the base line (Line 4) of the grid system (see above). The end points thereof are herein given the designations Datum D (west end) and Datum E (east end). Datum A, near the center of this line, is the highest point thereof and is clearly visible from the other 2 datum points. It is marked by the presence of an algarrobo stump, which was blazed and labelled appropriately.

The second elevation line was selected to run from a point herein designated Datum A', located on Line D-E (Line 4), 44.9 m. east of Datum A, through the highest point of the entire site. This highest point, designated Datum B herein, was located beside the Catholic chapel and is marked
by the iron stake set in bronze. This same line continued to a point called Datum C herein, on the southern edge of the cliff. (The point of origin of Line A'BC was changed from Datum A, as at first intended, to Datum A' to avoid an obstruction. The line corresponds, moreover, to magnetic north and south, i.e. running $7\frac{1}{2}$ degrees west of true north.)

Datum E was found to have the lowest elevation of any point measured. Datum D was situated .50 m. higher, while Datum C was .75 m. higher. The dip and strike of the geological stratum upon which Chusí's is located may thus be calculated at zero degrees, 7 minutes, north 38 degrees east.

A series of 4 measurements of the vertical distance from the valley floor to the edge of the Chusí's cliff average 16.42 m. The method used, however, was not exact, so the result obtained can only be regarded as a fair approximation.

**Refuse Stratigraphy.** The principal investigation at Chusí's consisted of 3 trenches and 4 test blocks sunk through the refuse accumulation at 4 different locations for the purpose of studying stratigraphy.

The trenches are designated alphabetically herein, i.e. Trenches B, C, and D. (Trench A was cut through the large wall to the north of the site. Since it was not a study of refuse stratigraphy, it is treated below under the heading "The Boundary Walls.") The test blocks, herein called "stratitests," are designated to correspond to the
trenches with which they are respectively associated (except Stratitest A, not associated with a trench but an integral part of the main investigation described below under the heading, "House Construction.") In the case of the trenches, the straigraphic features observed on the sides of the cuts were recorded. Many of the sherds and other artifacts, as well as of the plant and animal remains, were saved and bagged according to provenience. The exact location of unusual specimens was furthermore measured and recorded. In the case of the stratitests, stratigraphic features were recorded; and in addition the area laid out was peeled off, layer by layer, each stratum being strained and the contents bagged separately.

The natural stratigraphy revealed by these excavations was generally clear and easily followed. In a few cases, however,—as explained in the text which follows—it was necessary to divide a layer artificially. For thicknesses of strata, refer to the accompanying drawings (Figs. 9, 10, 12, 13, and 15).

The method used to excavate the stratitests (except Stratitest A) requires explanation at this point. A circle of some 4 meters in diameter was circumscribed on the surface of the earth at the desired location. In the center of this circle, one square meter was laid out as the test block. The area outside the square meter but within the circle was then excavated. The sides of the block were carefully trimmed.
to the vertical, while the circular cut was sloped toward the center. This excavation was carried downward a meter or more to such a level that the top layer of the stratitest could be studied, measured, and strained, with the workers in a comfortable posture. A layer or 2 having thus been peeled off, the excavation outside the test block was then continued a little farther, and so on until bedrock was reached. Thus, when the excavation was completed, it had the shape of an inverted, truncated cone or inverted frustum (Fig. 10).

This method was developed after a large portion of the wall of a trench nearly 3 m. deep collapsed. The soil of which the Chusis site was composed was too sandy to support itself if cut in high vertical faces. An excavation in the shape of an inverted cone with the test block in the center prevented caving in and at the same time allowed the maximum visibility, as well as sufficient "elbow room," for the study of the strata.

These stratitests and trenches are described in order below, together with field notes on the contents of the various layers. These field notes do not constitute a complete catalog of finds, however. Potsherds, for example, were almost ubiquitous throughout the site, being found in practically every layer.

STRATITEST A. An area measuring 1.3 m. by 1.4 m. in
the southeast corner of the main room at the House Excavation (see below under "House Construction") was set aside as a stratigraphic test block. Three clearly defined layers existed between the surface and the hard clay floor at the bottom of the room (see Fig. 9).

Layer I, beginning at the top, about 15 cm. thick, consisted principally of light-colored sand. Little pottery, but an abundance of sea shells and charcoal were present, also a good many lumps of clay, as if from a disintegrating wall above. Some stones and bits of wood, as well as 3 or 4 charán seeds were found. No metal was discovered, but a piece of bamboo chopped with a metal tool and a small piece of dark green bottle glass came to light. On the south, near the bottom of the stratum, traces of ashes were found clinging to the wall.

Layer II, immediately below, about 5 cm. thick, consisted principally of a darker sand, which contained many lumps of clay apparently fallen down from a plastered wall, some shells, pottery, and stones, numerous vertebrae of small fish, many of them burned, and other burned bones. Included was a piece of metal broken in 2 that appeared to have been a pin or peg of copper, now of course patinated. The darkness of the sand was no doubt caused by its use as a floor level. This layer, as a matter of fact, corresponded in depth with the flared-out base of the east wall of the
FIGURE 9. Profiles of Stratitest A and Trench B, Chusís
room. It was not, however, compacted; while most soils become hard under the treading of feet, this sort of sand ordinarily does not.

Layer III, about 40 cm. thick, consisted of light-colored sand in which were included a fair amount of pottery, lumps of fire-hardened clay, fish bones, and shells of various kinds, some of the bones and shells being burned. A chip of what appeared to be algarrobo wood with the mark of a sharp tool, as if metal, was present.

Stratitest A was carried downward only to the clay floor of the room.

TRENCH B. Near Point K-9 a trench was extended east and west for 10 m. (see Figs. 8, 10). It was made 50 cm. wide and was sunk down to bedrock, which was reached at a depth of 53 cm. on the west end and 75 cm. on the east. Four distinct layers ran the full length of the excavation, in addition to which two lenses were distinguished (Fig. 9). Beginning at the top, the layers and lenses may be described as follows:

Layer I was composed largely of fine, loose sand. Nearly sterile of cultural remains, it nevertheless contained a considerable amount of excrement from the goats kept by the Chusí's villagers.

Layer II was composed of a darker sand than Layer I, particularly toward the top. It was also somewhat firmer and
contained an abundance of granulated charcoal.

Layer III consisted of sand with a small amount of charcoal but otherwise practically sterile of cultural remains. IIIA and IIIB are lenses of dark earth heavy with charcoal.

Layer IV was a hard clay resulting from the decomposition of, and merging into, the bedrock underneath. Friable and rather light in color, it was dug as deep as the pick would penetrate without great exertion. It contained a few sherds of a fairly thin, undecorated red ware.

STRATITEST B. Close beside Trench B and centered 3 m. west of the east end thereof, Stratitest B was laid out to cover one square meter. It was sunk down to bedrock, which was encountered at a depth of 75 cm. (Fig. 10).

A gap of 15 cm. existed between Stratitest B and the south side of Trench B. Within this space the charcoal-bearing lens of Trench B designated IIIB petered out. Aside from this one lack, the layers of Stratitest B were nearly identical with those of Trench B, treated above. Field notes on Stratitest B are listed below (Roman numerals correspond with the layer designations of Trench B):

Layer I consisted largely of a dry and very friable sand in which were found some shells, charcoal, and fish bones. Dung boluses, evidently excrement from the recent keeping of goats in the village, were plentiful. The layer was more hard-packed and sterile toward the bottom than the top.
Excavation of a Stratitest

Top and cross-sectional views (left)

Figure 10. Trench B and Stratitest B
Layer II was composed of sand and contained a great deal of ashes and charcoal.

Layer III was composed of sand and lumpy clay, which made it hard to strain. There were a few shells and fish bones and a little charcoal.

Layer IV consisted of hard clay, merging downward into small rocks, then into solid bedrock at the bottom. No cultural material was present except potsherds. This layer was not strained.

TRENCH C. Near Point Q-9 a trench was extended east and west for 10 m. (Fig. 10). About 60 cm. wide, it was sunk to a level 2 m. below the surface along its entire length, except at the west end, where it was sunk to bedrock, encountered at a depth of 2.9 m. In addition, when a burial urn (detailed below) was discovered near the east end, the trench was widened to 1.3 m. for the first 2 m. of its length to provide for its removal.

Trench C was exactly aligned with Trench B and lay approximately 50 m. east (Fig. 8). Thus, an approximate idea of the stratigraphy of the entire western half of the refuse accumulation along Line 9 can be gained by studying the 2 trenches and their corresponding stratitests. The crest of the mound along Line 9 is crossed by Trench C at about Line Q, the depth of the accumulation at this point being slightly more than 3 m.
FIGURE 11. Trench C and Stratitest C
Fig. 12 is a profile drawing of the first 8 m. of the southern face of Trench C, beginning at the western end.

The stratigraphy of only the first 2 m. beneath the surface is shown, as the excavation had progressed only to that level when, without warning, more than half of the southern face of the trench collapsed. The intention to complete the excavation to bedrock was abandoned, due to the danger of further collapse. It was at this point that the method of excavating a stratigraphic test block within an inverted cone, as outlined above, was adopted. At the west end of the trench, however, the excavation had penetrated to bedrock, but no record of stratigraphy had been made of anything below 2 m.

A ceramic vessel, measuring 53 cm. tall by 48.5 cm. maximum diameter and containing a smaller vessel and the remains of an infant, was found at 1.7 m. west of the east end of Trench C (Plate VIII, B). Unfortunately, it was discovered at a moment when I was temporarily absent. When I returned, the untrained workmen had widened the trench and cut away the overburden so as to facilitate the removal of the vessel and had also uncovered its upper portion. In so doing they had destroyed any evidence that might have revealed the manner of its deposition. I arrived before it was actually removed, however. It was situated mouth upward and 2/3 within the trench as it existed before widening. Its rim was located 1.78 m. below the surface, or in other words
within the vertical distance covered by Layer VIIIC of Trench C (see below). The vessel was intrusive, as was made plain by the sharp difference between the soil which immediately surrounded the urn and that of a little distance away; That next to the vessel consisted of sand containing much ash and charcoal. But it is impossible now to say from which level the vessel was introduced or the direction of its introduction, other than that it was not introduced from directly above, for these layers, a continuation of those shown at the left of Fig. 12, had not been disturbed.

The urn contained the bones of a human infant, together with a pot. No lid was present, and the soil above had evidently sifted in to fill the interstices. Further discussion of this find is relegated to the topics of ceramics, human remains, and religion, below.

Field notes on the strata shown in Fig. 12 may be summarized as follows:

Layer I was a loose, friable sand in which were distributed large amounts of goat manure, more especially toward the east end. At places in the west half, the lower portion of this layer seemed distinguished from the upper portion in that this layer of sand was firmer and contained less manure; hence, the designations IA and IB for the upper and lower portions, respectively. IC was a distinctive lens of pure sand having a laminated appearance, as if water-laid.
FIGURE 12. Profile of Trench C, looking south
Judging from the curvature of the laminae around the stone, the flow was from east to west. ID was a lens of fire-blackened earth.

Layer II consisted of almost pure sand with a small amount of charcoal here and there. It was harder than Layer I, nor was there visible any goat manure. IIA was a lens of charcoal.

Layer III originated as a thin stratum in about the center of the cut and fanned out abruptly into a thick deposit at the east end. It consisted for the most part of laminated brown sand, the color coming evidently from a heavy impregnation of some organic matter, possibly manure. At its west end, however, it was almost pure sand.

Layer IV was a somewhat darker sand containing some charcoal and in places fish bones and shells. At its east end the upper portion partook somewhat of the consistency of clay and is designated IVA in contrast to the lower portion, which is called IVB. IVC was an intrusion through Layers IV, V, and VI, plainly originating before the deposition of Layers II and III. It contained a large number of potsherds.

Layer V included some sand, but mostly charcoal and ashes.

Layer VI was a hard sand containing lumps of clay and small amounts of shells and charcoal.
Layer VII consisted largely of sand. Some charcoal, shells, and other seemingly organic matter was also present. Upper and lower portions are called VIIA and VIIC, respectively. VIIB, interspersed between VIIA and VIIC, was composed of charcoal and ashes mixed with dark-colored sand. VIID is a lens of charcoal.

No complete record was made of the stratigraphy exposed by Trench C beyond 2 m. below the surface. The following, however, partially fill the lack: (a) Stratitests C (see below) which carries the record down to bedrock for one m. of the horizontal distance; (b) the observation that, at the west end, where the excavation penetrated to bedrock, 2.9 m. below the surface (see above), cultural material was contained in the deposit all the way to the bottom, including a sherd found resting directly on bedrock.

STRATITEST C. Adjacent on the south to Trench C and centered 3.9 m. west of the east end thereof, Stratitest C was laid out to cover one square meter. It was sunk down to bedrock, which was encountered at a depth of 3.06 m. below the surface (Fig. 13).

Field notes on Stratitest C are listed below (Roman numerals correspond with the layer designations of Trench C, discussed above):

Layer I was essentially a loose sand in which was distributed a large proportion of goat manure. There were also
FIGURE 13. Stratitest C: profile of north face (left) and plan of stratitest and conical excavation (above)
charcoal, shells, pieces of gourd, *algarrobo* thorns, and bits of wood. Some of the wood appeared to have been cut with a metal tool. Small stones were uncovered near the bottom of the stratum. A trace of iron was present. Ashes were in evidence in the north portion.

Layer II, although composed of almost pure sand, contained a few bits of charcoal and a few small stones. There were also lumps of hard clay of a red-brown color, as if stained with iron. Toward the bottom of the sand was hard-packed and contained more charcoal.

Layer IIA was a mixture of charcoal, ashes, and sand, with the charcoal and ashes predominating on the north side. Lines were indistinct on the south side. Very few shells were present. The gill plate of a fish was found, which my workmen identified as belonging to the *cabrilla*.

Layer III consisted of a soft, friable sand, brown in color and laminated. The color appeared to be due to the presence of a large amount of some organic substance, probably excrement, although the substance could possibly have been an iron compound. Casts of what appeared to be individual dung boluses were preserved in the sand at one spot. Stone was practically absent, but there was a fair amount of charcoal and fish vertebrae. Hundreds of minute, white, powdery specks were observed.

Layer IVA was a hard-packed sand containing hard lumps
of clay and was difficult to strain. Some charcoal, shells, and fish bones were present. This layer thickened at the expense of Layer IVB on the south side of the block.

Layer IVB was a soft, friable sand containing charcoal, shells, and fish bones. Some laminated brown earth, as in Layer III, was found. The specimens from Layer IVB were accidentally mixed with those from Layer IVA. The difference between the two, however, may not have been real, which is further suggested by the disappearance of any visible distinction on the west end of Layer IV in Trench G.

Layer V contained much charcoal and many ashes and lumps of fire-hardened earth. There were also fish bones and lumps of a hard, brown clay that broke with a conchoidal fracture. Many of the sherds present were coated with a pale, yellow-green substance which was salty to the taste.

Layer VI was a loose sand having a slightly brownish color. Some charcoal and fish bones and a few shells were present. Some casts were found of individual dung boluses, or perhaps of insect burrowings or nests.

Layer VIIA consisted of hard-packed sand (a floor level?) of the same color as Layer VI. Little charcoal and few shells were present. Hundreds of white specks appeared in the western portion. Layers VI and VIIA were strained together.

Layer VIIIB was a soft, friable sand of uniform texture.
No ashes, but charcoal, fish bones, a few stones, and negative-painted pot sherds were noted. Shells were abundant especially a small variety identified as *Olivella columellaris* (see below, Section VII). Some of the shells had been burned.

Layer VIIC was composed of a purer sand than Layer VIIB, although charcoal, fish bones, and shells of various kinds were in evidence. The bottom line of this layer was not too clear, and some guess-work was used to establish it. To the east of this layer—outside the test block itself—were found a number of scattered bones, some of them human (see Fig. 13).

Layer VIII was a very soft and friable sand. A slight dampness was noted, which increased with depth. Charcoal, fish bones, and shells were rather few. The shell, *Olivella columellaris*, was practically absent. On the south half of the test block, the bottom of this layer was marked by a thickness of charcoal of one to 3 cm. A small amount of light-colored sand, not more than a cm. thick, had been spread over one portion of this charcoal.

Layer IX consisted of sand containing charcoal, fish bones, and shells but in lesser proportions than in Layer VIII. Charred dung boluses were present.

Layer X was a sand of a slightly different color than Layer IX. The bottom was indicated by a lens of fire-blackened
earth appearing in places, especially on the west. XA was a portion of this lens.

Layer XI was composed of a damp sand, harder than Layer X, which merged downward into clay and eventually stone. Individual stones lay on the bottom. Charcoal and shells were present but in diminished amounts. There were many white specks. A few charred dung boluses were found.

A large ceramic vessel containing a smaller vessel and the bones of a human infant was uncovered outside the test block, west of Layer VIIIC. It was centered at 60 cm. west of the west face and 20 cm. north of the south face of the block, and 1.85 m. below the surface (see Fig. 13; Plate VIII, D). It lay on its side with the mouth to the southeast. Although broken into 60 sherds it must have been an approximately globular vessel of some 42 cm. maximum transverse diameter. The breakage very likely resulted from the pressure of the overburden, but the broken half of a metate found immediately above could also have been involved. Sand containing charcoal, small shell, fish vertabrae, sherds, etc., had sifted in. The infant lay with its skull to the north. No lid for the urn was found.

At the place of this interment the bottom of Layer VIIB, immediately above, was marked by a hard, clayey level. The burial lay entirely within Layer VIIIC. No indication was observed that the clayey level had been broken or that
a hole had been prepared to receive the vessel.

Further discussion of this urn burial is reserved for the topics on ceramics, human remains, and religion, below.

The jaw bone of a llama in 2 fragments was uncovered outside the test block, just off the northwest corner, at 8 cm. above bedrock.

The conical excavation of Stratitest C, on its northern and eastern borders, cut through the stumps of walls of what appeared to be 2 different houses. These are discussed further in the topic on house construction, below.

An excavation in the shape of an inverted cone, such as surrounded Stratitest C, was begun at the west end of Trench C (see Fig. 11). Measuring 2.4 m. in diameter, it was sunk to a depth of 1.2 m., then abandoned.

TRENCH D. Beginning at Line JJ, 4.5 m. north of Line 32, Trench D was excavated to run south 17 degrees west for 16.6 m. (Fig. 14). Sixty cm. wide, it penetrated only to a depth of about one meter, except at Stratitest D (see below), where the excavation continued to bedrock.

Trench D was laid out in line with the twin-towered Catholic church in Sechura, which was visible on the southern horizon. It began at the summit of a prominent mound or hillock of the southeastern portion of the Chusís site and ran downhill to the bottom of a shallow trough separating this hillock from its neighbor. The uppermost strata
FIGURE 14. Trench D and Stratitest D
ran approximately parallel to this sloping surface.

Eight m. to the west of the Trench D and at a considerably lower elevation, a ceramic vessel measuring 56.5 cm. high by 44.4 cm. maximum diameter was discovered lying on its side, the mouth approximately to the north. It was very near the surface and was found by one of the workmen by accident. No stratigraphic information was obtained.

At 2.5 m. short of the bottom of the slope traversed by Trench D, on the east side, the excavation all but grazed the wall of a ceramic vessel measuring 42 cm. high by 37.8 cm. maximum diameter. Later, the few grains of sand concealing it fell away and exposed it to view (Plate VIII, E). It was standing upright, and a layer of hard clay about 4 cm. thick sealed its mouth. This layer was nearly flat and level and was probably the floor of a domestic structure. Two m. to the north, the line of the trench crossed what appeared to be the stump of a clay wall related to the floor level, which continued beyond (Fig. 14, inset). The vessel contained fragments of shell and charcoal and a chalky, flaky white substance.

The above 2 vessels are given further consideration in the Section VI, on Ceramics, below.

STRATITEST D. Adjacent on the east to Trench D and centered 50 cm. south of the north end thereof, Stratitest D was laid out to cover one square meter. The northwest
corner of the square was located on Line JJ, 4.5 m. north of Line 32. The test block was sunk to bedrock, which was encountered at a depth of 2.35 m. below the surface (Fig. 15).

Field notes on Stratitest D are recorded below:

Layer I consisted largely of a dry, powdery sand within which charcoal and many small shells (Olivella columellaris) were disturbed. The same shells were found in abundance all about the surface of the hillock. The stump of a clay wall 43 cm. high ran through this layer from north to south (Plate VIII, F). To the west of the wall the deposit was somewhat laminated, and the laminae leaned against it in such a manner as to make it certain that they were deposited after the wall was already in place. Aside from this, the stratigraphy within Layer I had been disturbed and was much confused. No attempt, therefore, was made to subdivide it. No artifacts are reported as coming from within the wall clay itself.

Layer II was a dark sand containing large amounts of charcoal, ashes, and Olivella columellaris. This layer had also been disturbed here and there. It was not possible to distinguish sharply between Layers I and II; they were therefore arbitrarily separated on a line coincident with the bottom of the wall. Nevertheless, Layer II corresponded with a similar layer clearly visible all around the northern and eastern faces of the conical excavation.
FIGURE 15. Profile of south face of Stratitest D (left) and profile of burial lying to the northwest
Layer III was composed largely of a relatively pure sand. Anciently, however, a trench had been cut through this layer. It lay immediately above, and corresponded in width to, a clay wall which ran underneath the layer from north to south (see Layers IV, V, and VI, below); and the trench had been filled with a different soil. The fill within the trench down to the top of the wall is designated herein as IIIA. Layers III and IIIA were inadvertently strained together.

A subsequent study of photographs taken in the field makes it appear highly probable that the ancient trench cut through a substantial part of Layer II also. The upper limit of this trench must have been approximately on a level with the top of the lower wall as it left the conical excavation on the south. As seen below under "House Construction," this level was approximately 38 cm. above the bottom of the channel (see Layer IV, below) and about 15 cm. below the bottom of the upper wall. At the north end of the conical excavation, the fill within the ancient trench, together with the undisturbed strata on either side, were sealed on top by a layer, the bottom of which was 8 cm. below the bottom of the upper wall.

Layer IV was a sand which contained few shells, little charcoal, and practically no ashes. It lay on either side of the stump of a clay wall which extended downward 49 cm.
from the top of the layer and ran in a north-south direction. This stratum was, in fact, continuous with Layer III, but was arbitrarily divided therefrom on a line coincident with the top of the wall, and the contents thereof strained and bagged separately.

The top of this lower wall had been hollowed out to form a channel. Semi-elliptoid in cross-section, it measured 35 cm. across by 12 cm. deep at one point. The fill within this channel, designated herein as IVA, was continuous with the fill of the ancient trench lying immediately above (IIIA). The contents were strained and bagged separately from Layer IV.

That portion of Layers III and IV located west of the wall were somewhat laminated; these parallel laminae leaned against the wall and the overlying fill in such a manner as to make it certain that they were deposited after the wall and some pre-existing structure later replaced by the fill, were already in place.

This lower wall surmounted with its hollowed-out channel (IVA) and the overlying, filled-in trench (IIIA), as well as the upper wall which interrupted Layer I, are discussed in greater detail below, under "House Construction."

Layer V was composed of sand, mingled with charcoal and ashes. It increased on the north to a thickness of 23 cm. at the expense of the layer underneath. It was also
divided by the lower wall.

Layer VI was a sand mixed with ashes and a great deal of charcoal. It was variegated or streaky in color. Charred shells (*Olivella columellaris*), bones, and dung boluses were present. Especially noticeable was the number of sherds which were coated with the pale, yellow-green substance noted above in Stratitest C, Layer V, streaks of which appeared within the sand as well. This stratum was also divided by the lower wall and appears to have been contemporaneous with its construction.

Layer VII was undisturbed by the building of the lower wall. It was a sand with a large proportion of ashes. Charcoal, some of it in large lumps, small shells (*Olivella columellaris*), and fish bones were also present. Many of the sherds bore the pale, yellow-green coating (see Layer VI, above). Charred dung boluses were found, which a workman, Daniel Chunga, identified as excrement of the guinea pig (*cui*). There was some lensing and sand and ashes.

Layer VIII was a sandy stratum containing abundant charcoal and ashes. Charred dung boluses, shells (*Olivella columellaris*), and *algarrobabas* (*algarrobo* beans) were present.

Layer IX was a friable sand, brownish in color, as if much manure were dissolved or pulverized in it. There were very little charcoal and few dung boluses, seemingly nearly
all of them on the surface of contact with Layer VIII.

Layer X consisted of sand on top, which gradually changed to clay toward the bottom. A quantity of loose rocks was mingled with the clay next to bedrock. This layer had a slightly brownish cast, especially toward the top, as if colored from the manure above. It contained very little cultural material: There were a few bits of charcoal and one dung bolus; a few sherds were located within 10 cm. of bedrock.

At a point approximately 75 cm. below the surface, on the northwestern edge of the conical excavation surrounding Stratitext D, a workman exposed the right hip bone of an adult human skeleton.

This was an intentional burial and lay fully extended in supine position (Plate VIII, H). The head lay to the southwest and the feet to the northeast. The head faced straight up and appeared to have been propped up a little. The jaws were well apart. The upper arms had been placed parallel to the trunk, but the forearms lay across it, the left one bent at a right angle across the stomach and the right one at a sharper angle with the hand extending to the left shoulder. The legs had been crossed below the knees,
with the right one on top.

Exceedingly fragile remains of a cloth (probably two different ones) were present. They had evidently been wrapped around the corpse. One cloth was of an over-one-under-two twill.

A fine, circular, brown line in the soil about 10 cm. in diameter was exposed beside the left humerus. Evidently the remains of a basket, it was about 5 cm. deep and was sub-hemispherical in shape. No contents were observed, except the sand on the layer to which the burial belonged.

The crossing of the legs may have been an economy measure to spare the labor of the grave digger, for the soil line marking the extent of the original excavation was very close to the skeleton.

Southwest of the skull, it was plain to see that one fairly thick layer had been cut through by the grave digger (Fig. 15). Soil of a different color and containing a few small stones surrounded the skeleton and covered it to a depth of 19 cm. above the frontal. At this level a thin layer of charcoal and ashes completely sealed off the burial and in fact was traceable to at least 5 m. down Trench D. No disturbance of the soil was noted above this latter level, which in the region of the skull lay 45 cm. beneath the surface.

The skull, mandible, pelvis, left humerus, left femur,
and left tibia were removed for measurement and study. Further discussion of this burial may be found below under "Human Remains" and "Religion."

Around the sloping sides of the conical excavation for Stratitests D, examples of woven textiles were found at several different points, also, at one point (Locus d), bits of what appeared to be carrizo cane. These were first noticed about 2 months after the excavation was completed. They had been weathered out of the soft sand by wind action. The remains were so fragile that blowing upon them with the breath could easily dissipate them. It was nevertheless possible to sketch some of them and count their gauge in the field (see Fig. 19 for exact locations of finds and Table 14 for notes; see also Fig. 39). There appeared to be remains of many more bits of cloth, but all were very much decomposed.

These specimens will receive further consideration below under "Textiles" (Section VII) and "Crafts" (Section VIII).

**House Construction.** Of the numerous remains of domiciles visible from the surface of the Chusí's site, one was selected for excavation for the purpose of throwing light upon the materials and technology of domestic construction. In addition, excavations for other purposes occasionally yielded further information on this subject.

An examination of the aerial photograph (Plate VI) shows
a distinct difference between the remains located on the eastern half of the site and those on the western half. Those on the eastern portion appear as a mass of light-colored mounds of more or less distinct outline, some of them plainly rectangular in form and oriented to the cardinal directions. The western portion is darker in color, while the individual house mounds are generally not distinguishable, the whole accumulation being a single, low-lying, irregular eminence.

Close range inspection confirms the impressions gained from studying the aerial photograph. Across the eastern half of the site numerous stumps of house walls protrude slightly above the surface (Plate IX, A). The principal building materials are clay and stone. The clay seems not to have been used as mortar, however; but rather probably furnished the main strength of the walls. The stones appear to have served merely as a filler. Large quantities of them lie strewn about the surface, and they are of the same porous, calcareous agglomerate of which the cliff is composed. Also, they are unshaped, or at best rudely shaped.

The surface of the western portion of the site, on the contrary, contains but a few of these building stones. Nor do the stumps of walls protrude above the surface. Nevertheless, the soil certainly contains a great many domestic constructions, for their outlines can easily be traced with
the eye in a number of places by the difference in coloration of the soil, as between wall and fill. (Once it rained lightly, and this, I discovered, emphasized the distinction in color).

Four rooms of a house on the western side of the site, the walls of which were visible by a slight difference in color from the surrounding soil, were excavated. They were located within Squares J-17 and K-17 (see Fig. 8) and proved to be but a portion of a larger unit of unknown extent.

The walls of the structure were oriented roughly north and south. The interior of one of the rooms, nearly square and measuring about 2.75 m. on a side, (see Fig. 16) was cleared and the walls studied. Also, a trench was sunk to expose the exterior of the north and west walls.

To the east of this room were found 3 smaller compartments, measuring approximately .6 m. wide, by 2.1, .4, and .3 m. long, respectively (Fig. 16). The largest of these was cleared and the walls studied.

One quarter of the interior of the main room which was set aside as a stratigraphic test block (Stratitest A) is discussed above under "Refuse Stratigraphy."

At a depth of 60 cm. below the surface, a level floor of hard clay, roughly smoothed as if by hand, was encountered. This covered the southern 3/4 of the bottom of the room and was straight and smooth on its northern edge. Sand
FIGURE 16. House Excavation in Squares J-17 and K-17
covered the remainder of the bottom.

All of the walls were slightly crooked, and all of the compartments varied slightly from the square. Much of the surfacing of the walls was crudely done.

The 4 walls of the main room were studied in some detail (Fig. 17). The central portion of the south wall was a stump of an old construction which had been reused after abandonment and to which had been added repairs on either side (Plate IX, B). The original wall was probably built of adobes c. 9 x c. 22 centimeters, to judge by fine cracks on its surface. The interior was plastered smooth with clay. No finger marks were noted. The repairs, on the other hand, consisted of hand-packed clay and were covered with finger marks. They were unsmoothed, except by patting with the palm of the hand. Portions of the repairs lay directly above portions of the original wall and were separated from them by small amounts of sand. The repairs were flared out at the bottom toward the interior of the room, indicating the level of the sandy floor at the time they were made.

This same wall—the older portion, that is—continued eastward to form the south wall of the largest of the smaller compartments, and perhaps beyond.

The entire east and north walls seemed to be of somewhat the same workmanship as that of the repaired portions of the south wall. They were of solid, hand-packed clay
FIGURE 17. Interior views, walls of main room, House Excavation
and bore abundant evidence in the form of finger marks of
their having been finished with the bare hands. At several
places adobes and stones of varying size were set into the
walls as integral parts thereof, apparently as filler. The
north wall thus contained rough stones and lumps of clay,
one reddened by fire, but no adobes distinguishable as such.
The flaring out of the base was noted along the interior of
both these walls, also along the exterior of the north wall.

The east and north walls were separated vertically from
the clay floor by at least 30 cm. of sand. The east wall
was discontinuous with the south wall at the point of junc-
ture. The south wall extended downward to at least the
level of the clay floor, while at the point of juncture the
east wall rested on an adobe laid flatwise 30 cm. below the
surface.

The clay floor of the room came to an end underneath
the east wall, at about one-third of the thickness of the
wall from the inside of the room, thus not reaching the
smaller compartments beyond.

Underneath the east wall and separated from it by a few
centimeters of clean sand was a shallow fire pit. Another
was located immediately below the north wall. The latter
fire pit was strained but yielded nothing but charcoal and
small shells.

The west wall consisted of 2 portions. The upper 20 to
40 cm. was repaired material of the same workmanship as, and continuous with, the east and north walls. The remainder was of similar workmanship to the older portion of the south wall, although it may have been made of very large adobes before the surface was plastered. This original construction continued down to the level of the hard clay floor and supposedly beyond. It was found leaning to the east, especially toward its north end; whereas, the upper portion (repair) was in an upright condition. This newer construction was considerably thicker than other house walls studied and had been built partly upon the original wall and partly upon a row of adobes laid lengthwise and flatwise parallel to it along the west side (see Fig. 16, bottom). These adobes measured 11 x 25 x 40 cm. and were probably mold made, although they exhibited finger marks on their surfaces. Also, the repair contained other adobes set within the clay. It was neither smoothed nor carefully aligned.

Viewed from the outside, this west wall appeared somewhat more complicated in its composition. The older portion itself was repaired on its south end, also on the north. On both ends this repair extended upward to the surface.

No entrance to this main room, nor to any of the small compartments, was observed.

The east wall of the small compartments presents the same rough aspect as the other late walls. There appeared
to be, however, at least 2 periods of construction, the latter one (the south portion) overlying the former at one point. Nevertheless, the entire east and north walls of the small compartments were continuous.

The wall at the north of the long, narrow compartment consisted of a thin cap of clay less than 10 cm. in height laid directly on the sand. Presumably, it was the eroded stump of a one-time complete wall.

To the north of the east wall of the main room lay a wall construction which was contiguous thereto, but not continuous. It consisted of mold-made adobes measuring 10 x 23 x 36 cm. The adobes were cours ed and separated by a clay mortar, which bore finger markings.

In the course of excavating Trench C and Stratitetest C (see above), remains of house constructions were encountered at 2 different places (Fig. 18). In both cases the walls closely approximated orientation with the true cardinal directions. Neither was apparent on the surface before excavations began.

One construction consisted of a wall, 30 cm. thick near the surface but thickening downward to about 50 cm., which ran east and west about 75 cm. north of the test block. Another wall, 45 cm. thick, adjoined the first on the north at right angles. This construction was built of solid clay into which stones and rectangular adobes had been introduced.
FIGURE 18. House walls encountered in the excavation of Stratitest C
as filler. The adobes were largely confined to the upper portion of the wall stump that remained, but no coursing was evident. A layer of what appeared to be very black ash about 2 cm. thick sealed the top of the north-south wall at the point where it entered the conical excavation surrounding the test block. Above this was a layer of some whitish substance about one cm. thick, and above the latter, a layer of sand corresponding to Layer I of the stratitest. This uppermost layer also covered the east-west wall.

On the south side of the east-west wall, at the point where it entered the conical excavation on the west, the layers of the refuse deposit leaned against the wall at such an angle as to make it clear that they had been deposited after the erection of the wall.

The east-west wall, moreover, at a depth of about 1.15 m. below the surface, stood upon the remains of a still older wall, which, although aligned with the newer wall, leaned northward.

The second construction was a wall built of individual adobes which entered the conical excavation in a north-south line near its eastern extremity (see Fig. 18). It was about 30 cm. thick, and all that remained of it extended from 40 cm. to 65 cm. below the surface. It is doubtful whether it was related to the former construction.

Elsewhere within the excavation, but outside the test
block itself, at a depth of 45 cm. below the surface, a hand-made adobe, c. 10 by 19 by at least 27 cm. was found.

In excavating Trench D (see above), an apparent floor level and stump of a clay wall were encountered near its lower (southern) end (Plate VIII, E; Fig. 14). Immediately beneath a layer of hard clay of some 4 cm. thickness, which was taken to be the floor level, a storage vessel was discovered standing upright. (See also above under "Refuse Stratigraphy."

In the course of excavating Stratitester D (see above), remains of house walls were discovered at 2 different levels (Plate VIII, F; Fig. 19). Although they were roughly parallel to each other, both running approximately north and south, and although they were situated one directly above the other, they were not related to each other in their construction, being separated by an accumulation of debris. Neither was apparent from a surface examination made before digging began.

The upper wall measured 43 cm. high by 45 cm. wide. It was nearly square on the bottom for the most part, although it varied to rounded as it left the conical excavation on the south. It was composed of a rather soft, friable clay, probably hand-packed, into the middle of which large, unshaped stones of the same material of which the cliff is composed had been occasionally introduced.
FIGURE 19. Stratitest D, showing house walls, burial, and loci of textile finds
The lower wall lay 44 cm. directly below the upper (Fig. 15). It measured 49 cm. from top to bottom at the south face of the test block, although this amount was reduced to 43 cm. on the north face by a rising of the bottom. Approximately 40 cm. wide at the top, below this it narrowed slightly, while the bottom, on the west side, possessed a prominent outflaring, as if intentionally planned as a footing. The whole wall leaned slightly to the east.

This lower wall was composed of a fairly hard clay into which a number of rectangular adobes had been introduced in an irregular fashion. They were laid flatwise but did not constitute the principal strength of the structure; nor had any attempt been made at coursing or bonding. One of the adobes, somewhat hardened with fire, measured 10 x 15 x 28 cm. A broken fragment measured 11 x 17 cm. At the extreme north end of that portion of the wall which lay within the conical excavation, at the very bottom, a dense stone, adjudged to be a discarded door socket, had been introduced, with its circular depression underneath. (This specimen is further discussed in Section VII, below, under "Artifacts of Stone."

The top of this lower wall had been hollowed out to form a channel resembling a small irrigation canal (Plate VIII, C). Semi-elliptoid in cross-section, at one point it measured 35 cm. across (inside) by 12 cm. deep, although
both width and depth varied somewhat along its course. The interior was plastered with a fine, hard clay up to 3 cm. thick, and in places the plaster continued a short distance above the channel, having been applied to the earth itself. On this plaster no impressions were observed of either hands or feet, but in one place there were found the markings of a tool, 45 mm. wide. The finish was rather rough. There appeared no evidence that the channel as such had ever existed above ground.

A close examination of the place where the channel left the conical excavation on the north revealed a distinct difference in color between the substance of the wall and the plastering clay, the latter being slightly lighter. The plaster at this point extended up the west side of the ancient trench which lay above the channel (see under "Refuse Stratigraphy," above) without interruption for about 20 cm., having been applied to the earth itself. The laminated strata on the west leaned against the plaster. Just beyond the southern extremity of the conical excavation, the channel came abruptly to an end, but the wall itself continued southward at a height of about 38 cm. above the bottom of the channel, or a total height of about 76 cm. At this point, the bottom of the upper wall reached within about 15 cm. of the top of the lower wall.

The gradient was measured between the point where the
bottom of the channel entered the conical excavation on the north and the point where it entered on the south. It was zero; that is, the 2 points were situated on exactly the same level.

On the south slope of the conical excavation for Strati-test D at Locus d (see Fig. 19), bits of what appeared to be carrizo cane were encountered. If correctly identified, these may have been vestiges of a house construction of the wattle-and-daub type; or they may have been woven matting.

**The Boundary Wall.** At a distance of some 430 m. from the southernmost tip of the Chusís promontory, approximately on a line defined by the nearest points of the 2 opposite cliffs, lie the remains of a solid adobe wall extending approximately east and west from cliff to cliff. (The base line was laid out so as to correspond as nearly as possible therewith; (see above under "The Grid System.") This construction separates the ancient village from the desert to the north. Although the area to the south of the wall was filled with ruins, no suggestion of any structure was detected lying to the north thereof.

The wall was observed as a low-lying ridge, projecting so slightly above the surrounding surface that it was at first visit difficult to locate, even though it was clearly visible on the aerial photograph. It was not perfectly straight, varying as much as 4 m. from the base line.
Rather, it was curved like a Greek bow, with the back and horns projecting toward the settlement. Also, the wall itself was of irregular thickness, being narrower in the middle and thicker toward the ends.

From the surface it appeared to be lined with stones, rough cut (if cut at all) and of the same material as that of which the cliff is made. It is a porous coquina, composed largely of fossils, not suitable either for precise shaping or smooth surfacing. These appear in places in a double row marking the wall's breadth: 2.2 m. to as little as 1.1 m. apart (outside measurements). One of these rows doubtlessly corresponds with the shelf revealed by excavation, as shown in Plate VIII, A, while the stone found aligned with this shelf (Fig. 20) was a subsurface remnant.

At 4 places in the length of the wall (possibly more), on Lines G, N, and AA, and between Lines JJ and KK, there appear complete breaks, as if to mark the location of gates in the ancient defense system. Also, at the extreme ends, for 2 m. or so back from the edge of the cliff, the wall disappears altogether.

Trench A was cut through this boundary wall for the purpose of studying the material of which it was built and its manner of construction. The trench was located immediately east of, and parallel to, a line crossing the base line at right angles 51.65 m. east of Datum D.
TRENCH A, CUT THROUGH NORTH WALL OF SETTLEMENT

FIGURE 20. Plan of Trench A
The wall was built of solid adobe clay. Also, it was hand-packed; no suggestion of individually shaped bricks came to light. At least 3—possibly 4—irregular layers were clearly visible, while at some points one layer came free from the next with complete ease. The bottom layer, relatively low and flat, seemed to consist of a hard-packed sand. (Some of the earth nowadays selected for the manufacture of adobes seems remarkably sandy when pulverized.) The next layer up is apparently a clay resulting from the decomposition of stone similar to that of the Chusís cliff and contains much gritty matter. The topmost layer is of a hard, rather homogenous clay containing little gritty matter.

Beneath the uppermost of these layers, on the southern side of the wall about midway between top and bottom, were found several unshaped stones of the familiar fossiliferous limestone of the Chusís cliff, which possibly constitute facing fallen from the preceding layer before being covered by the uppermost layer.

Beneath one of these flattish stones a quantity of sherds was found. Another pocket of sherds was found well within the underlying layer (see Fig. 21). These will be further considered in Section VI, below.

The height of the ruined wall above bed rock at Trench A was 1.1 m. The original height of the uppermost wall,
sand laminated with clay

hard, pure clay

calcareous clay

calcareous stones

hard-packed sand (?)

clay

bedrock

pure sand

clay

hard, pure clay

calcareous clay

organic matter

sherds

calcareous stone

sand

sand laminated with clay

bedrock

FIGURE 21. Profiles of Trench A

WEST FACE OF TRENCH A

EAST FACE OF TRENCH A
however, must have been something like 3 m. above bedrock, to judge by the slope of the existing remains.

On the north, this boundary wall was abutted only by pure sand; while to the south the sand was interlaminated with lenses of clay, as if resulting from a gradual melting down of the adobe under the occasional rains.

**Cistern and Storage Cists.** At 2 different points below the edge of the Chusí's cliff, small cists were located.

In Square HH-45, near the southernmost tip of the Chusí's promontory, a cist, evidently for the storage of water (Plate IX,C), was investigated. It was located about on the level of a shelf which is well below, but juts out beyond, the upper edge of the cliff. As the cliff above overhangs at this point, the chamber is in a protected spot. Oval in horizontal section, its diameters measured 1.7 m. (parallel to cliff) by 1.3 m., while its height was approximately 1.5 m. It was intentionally hewn into the soft stone of the cliff, then the interior, or at least portions of it, plastered with fine clay. Just inside the lower lip, the clay lining had been furrowed vertically, as by the dripping of water while the cistern was being emptied. The cist contained nothing but a few pebbles and a small amount of sand.

At a point on the east cliff, in Square RR-21, 3 more small cists were explored. In this case they were located beneath an overhanging shelf at the edge of the cliff, but
above a trail leading up the east side (Ascent E; see below). About the same size as that described above, they were circular in horizontal section. These also were intentionally hewn out of the soft rock of the cliff. The middle cist of the 3 was completely cleared of its debris during the present investigation, while the southernmost one was dug to the bottom. In addition to wind-drifted sand, they contained large numbers of corn husks and some buzzard feathers; also, several whole or fragmentary, hand-shaped, fired bricks. No sherds, charcoal, ashes, or stratigraphic evidence of any kind came to light. Some parts of the ceiling of the southernmost cist were colored red as if by firing. No evidence of the dripping of water, such as the vertical furrows inside the lip of the cistern on the southern tip of the cliff, appeared.

Two other features may here be properly mentioned because of their possible relation to the storage cists. At a point some 15 m. south of the 3 cists just mentioned, around a point of the cliff, lay a pile of rough stones. Although they were in all probability intentionally gathered, it is not clear for what purpose. Some 10 m. west of this point, a large area on the face of the cliff had been reddened by firing.

(Further examples of cisterns are discussed in connection with the Vega de Loro site, Section IV, above.)
The Central Eminence. The most prominent feature of the Chusí site was the central eminence upon which sat a small Catholic chapel (Plate IX, D). The highest point of the mound was 6.25 m. above the lowest point on the site, Datum E (see Fig. 8, bottom).

Although so eroded as to make it impossible to learn exactly its original size and shape without excavation, the rise in elevation was pretty well confined to an area of about 70 or 80 m. square. Also the mound appeared to be rectangular and to be oriented approximately to the cardinal directions.

In common with the boundary wall to the north of the site, also with some of the walls of domestic structures, the mound was evidently built principally of solid clay, but in this case reinforced along the outer corners with rows of stone. A disproportionately large number of rough, unhewn stones lay about the surface. Certain of these appeared to be aligned in conformity with what may have been the original orientation of the structure. Fig. 22 illustrates the apparent pattern.

The mound, which occupies the approximate center of the site, is surrounded by a depression, approximately 100 m. to the side, and oriented similarly to the mound. A comparison of the aerial photograph (Plate VI) with the profile drawing of the Line A'BC (Fig. 8, bottom) makes this
FIGURE 22. Apparent Alignment of Building Stones atop Central eminence
clear. Also, no potsherds or visible remains of house foundations are remembered as having been observed either in the depression or on the slopes of the mound.

Daniel Chunga, one of the workmen, stated that 4 years previous (i.e. 1946), during the digging of the foundation for the chapel, a human skeleton was found within a compartment of balsa wood.

Because of the presence of the modern chapel atop this eminence, I was reluctant to excavate. Although services were rarely held in it—-I personally never witnessed any—-it contained Catholic religious equipment and enjoyed the occasional visit of the clergy from Sechura, when services were held for the faithful of the hamlets of Chusís and nearby Miramar.

(Another example of artificial earthen mound is discussed in connection with the Sechura site, Section IV, above).

**Points of Entry.** At 3 main points around the edge of the Chusís site, trails ascend and break through the abrupt formation. In addition, 2 other little-used trails exist. These are called subidas (ascents) and bear practically all the traffic communicating between Chusís and the outside world. Visitors by any of these 5 entrances necessarily come afoot or on the back of an animal. No doubt, they are as ancient as the occupation of the site itself. Presumably,
they were originally natural features which were later widened and smoothed by human agency.

Ascent A (Plate IX, G), located on the west side near Point B-13, bears considerable traffic, which originates principally in Sechura and of necessity passes near the Hacienda Chusís. It is rather gently graded and is of sand which extends almost to the point where the trail breaks through the cliff. This defile was probably widened artificially.

Ascent B (Plate IX, E), located near Ascent A at Point C-15, is hardly more than a seldom-used branch of the latter. Undoubtedly it, too, was widened in the past.

Ascent C (Plate IX, H), located on the southern edge of the cliff at Point R-40, very probably bears the preponderance of traffic entering and leaving the site, traffic which originates for the most part in Sechura and passes beside the Hacienda Chusís. A gentle slope of sand approaches from the south but gives way soon to the solid rock of the cliff. Even though much traveled, it is steep, narrow, and poorly graded at points along its upper reaches. It was certainly intentionally fashioned in times past, but during heavy floods of the Piura river, an arm of which passes just below the cliffs, much of the grading may have been obliterated.

Near Point R-41, on the ledge to the west of the trail, near where the latter reaches the top, a step had been hewn
into the solid rock (Plate IX, F). It measured about 80 cm. from north to south by about 50 cm. by about 20 cm. deep. One more step existed below this one, but it may have been naturally formed. These steps were seldom used. If there have ever been any others they have disappeared.

To the east of Ascent C, near Point Y-42, Ascent D is located. It is seldom used.

On the eastern edge of the site, near Point RR-17, Ascent E is located. The approach is of sand and not very steep up to the constriction where the trail breaks through the edge of the cliff. This ascent seems not to have been purposely fashioned. The trail passes beneath and within 10 m. of the 3 storage cists discussed above. It is less used than Ascents A and C but much more used than B and D.

In addition to these 5 ascents, the site could be entered anciently through gates in the boundary wall which separated the settlement from the desert lying to the north (Fig. 8). Of these, there appeared to be 4. Exactly north of Datum B (the highest, and presumably the central, point of the earthen mound) lay the gate crossed by Line AA. Exactly south, lay the heading of Ascent C. This same north-south line continued southward across the valley to a point about a kilometer east of Sechura, past the approximate location of a similar earthen mound known to exist there (see discussion on the Sechura site, Section IV, above).
Broad, shallow hollows extend northward and southward from the mound to the extremities of the settlement at a level apparently continuous with the depression that surrounds the mound (see above). The whole arrangement—the mound, the depression, the 2 hollows, and the 2 points of entry, together with the north-south orientation and the alignment with another such mound near Sechura—seems to constitute a system, the possible significance of which is discussed in Section VIII, below.
VI. THE CERAMICS OF CHUSÍS

The ceramic materials upon which the present analysis and description are based are as follows:

9453 excavated sherds
52 sherds collected from the surface
6 excavated whole vessels
1 vessel in the possession of a villager
13 spindle whorls

The pottery (i.e. vessels and sherds) will be presented first, following which the whorls will be considered separately.

Typology. In the present research project the primary criterion for classifying the pottery is color of paste. All specimens ranged rather close, either to brick red or to black. A secondary criterion was the presence of temper visible to the naked eye. Some sherds—both brick red and black—had no visible temper. If it was present at all it was so fine that it could not ordinarily be detected by the naked eye. Other sherds—again both brick red and black—contained a rather high proportion of sand, the particles of which varied in size from medium to coarse. Thus, 4
principal varieties of pottery have been set up:

Chusís Red series (brick red, sand temper)
Chusís Black series (black, sand temper)
Sechura Red series (brick red, apparently temperless)
Sechura Black series (black, apparently temperless)

Each of these 4 series was further subdivided into several ceramic types according to the presence of or absence of decoration and the kind of decoration, if present. A description of each of the types is given below.

Following the description of types, sherd counts according to type and provenience are given in Tables 6 and 7. These include all sherds removed to the field laboratory while excavation was in progress at the Chusís site.

Analyses of form and size of the Chusís pottery depends primarily upon the numerous drawings of sherd sections made during the field laboratory analysis, together with estimates of diameters of vessel mouths made by matching rim sherds against a set of concentric circles. Using this method in the absence of the actual vessel, it is possible, at least to approximate the diameter of the mouth, often with close accuracy. The validity of the measurement depends in part upon the precision with which the vessel was manufactured. In the case of the Chusís pottery there is so little irregularity in the roundness of the mouth that the results may be generally depended upon. A study of the 6 whole vessels
recovered during excavations, and of a Chusis vessel in the possession of a villager, was also important in this analysis.

One aspect of the following classification and sherd count is somewhat artificial in nature. Tables 6 and 7 indicate that the very preponderence of the sherds are classified as "plain," that is, undecorated. If one could work with the whole vessels from which the sherds were broken, instead of the fragments only, he would probably find that a great many of the "plain" sherds come from vessels which in fact were decorated, although only over limited portions of the surface. A strong tendency was noted in the case of textured jars, for example, to concentrate the decoration on the neck, or just below the neck. The majority of sherds coming from such a vessel would bear no decoration, hence, could not be classified as anything but plain. Under these circumstances, the sherd counts are certain to be loaded in favor of the plain types.

This statistical loading is not altogether a disadvantage, however. The purpose of the sherd count by layers is to show culture change—or lack of change—over time. A change in the proportion of decorated sherds of a particular type may result either from a change in the proportion of vessels of that type in use or from a change in the proportion of the vessel surface which is decorated. Either
change would be reflected in the sherd count and would indicate the passage of cultural time.

Another practical difficulty arises in distinguishing between paint and slip on the surface of a mere fragment of a vessel. The term "paint" is understood as referring to an application of pigment to a part of the vessel surface only, in accordance with a preconceived design. "Slip" refers to an application of fine, thin mixture of clay to the entire surface, either the exterior or the interior, or both. But it is impossible to say whether the pigment which covers the entire surface of a single sherd is slip or is part of a large painted element.

Since no whole vessel discovered at Chusís bore either paint or slip, the present discussion is necessarily based upon a study of the 9505 vessel fragments. For the present purpose, then, the term slip will be used when the natural color of the paste of a given sherd is entirely covered by a single color on either its inner or outer surface; while the term paint will be used in cases where it is clear that a pigment was applied only to a part of one of the two surfaces, regardless of whether any other pigment covered the entire surface.

Since, as will be shown, much of the painting on Chusís ceramics was in broad bands, it should be realized that many "slipped" sherds came, in fact, from painted vessels.
Here again, however, the statistical loading in favor of slipped sherds is not necessarily a disadvantage, for changes in the proportions of slipped and painted sherds, as defined above, should serve the purpose of marking cultural time just as well, regardless of whether they are due to changes in the number of slipped or painted vessels used or to changes in the breadth of painted bands.

Except in the case of painted and slipped sherds, the color of the surface is almost invariably identical with that of the paste.

The term "textured" is used herein as a type label to include all pottery specimens the decorations of which was accomplished by manipulating the clay in any way (except with mold or paddle) while still wet. Such manipulation was accomplished by applique, modelling, incising, and punctuation. These 4 techniques are ordinarily found in combination: usually 2 together but occasionally all 4 on the same sherd. These varying combinations seem not to have typological significance, however. It therefore seems expedient to classify all sherds exhibiting texturing in any form under a single heading in each of the 4 series.

**Type Descriptions.** The 4 ceramic series of Chusí pottery have been subdivided into 15 types. In addition, a number of sherds remain which may not be classified into any of the constituted types and are therefore grouped together
under the label "miscellaneous." Descriptions of each of the types and miscellaneous groupings follow.

Sectional drawings of representative neck sherds accompany most of the type descriptions. In every case the exterior of the vessel is to the right.

**CHUSÍS RED SERIES**

**CHUSÍS RED PLAIN**

**Paste**

Method of Manufacture: Direct shaping with paddle and anvil. One large sherd (Fig. 23, Form 2) clearly exhibits below the neck the shallow wavyness typical of the paddle-and-anvil method. There is clear evidence on some jar sherds that the neck was fashioned separately from the rest of the vessel. This takes the form of a line of cleavage between the neck and wall and along that, on the interior of the vessel, a slight protruding of the clay from the neck downward past the top edge of the wall. The necks of jars were probably attached as coils by pinching and worked into shape by paddle and anvil.

Temper: Sand, usually present in large amounts and evenly distributed. The grains are medium to coarse in size, varying somewhat with thickness and vessel wall.

Texture: Paste well mixed and rather dense. Flexural strength good. Breaks with an irregular cleavage plane, but is only rarely friable.

Color and Firing: Typically brick red, but occasionally varies to dull orange or to brown. Most sherds suggest thorough firing in an oxidizing atmosphere, although grey cores and fire clouds are encountered rarely. Sometimes brown or black from culinary use.

**Finish**

Smoothed by hand. Outer surface appears to have been
FIGURE 23. Selected rim sherds (actual size) illustrating vessel forms, Chusia Red Plain
floated when wet but is rarely polished. Temper often shows through the surface, which is frequently crazed. Minute ridges, always parallel to the mouth of the vessel and doubtless produced by smoothing, are often found on the neck, both inside and out, and sometimes below the neck on the exterior.

Decoration

None.

Form and Size

Fig. 23 and Table 1 indicate the varieties of neck forms of the Chusíd Red Plain ceramic type as revealed by sherds, as well as frequencies of occurrence and oral diameters. Fig. 24 illustrates several reconstructed, corresponding forms of whole vessels. In the case of Form 1, the shape is clearly established by 4 whole excavated vessels. The other reconstructions, however, are somewhat conjectural, based as they are upon a study of the sherds only.

The 5 forms are as follows:

1. Large, globular jar with high, vertical neck and out-flaring mouth

   Neck: High and usually approximately parallel-sided, although the sides often slope slightly inward or outward. Rim everted and either rounded or bevelled on outer edge.

   Body: Globular, ranging from practically spherical to elongated vertically.

   Base: Rounded or often slightly pointed.

Four whole vessels of Form 1 were found in sub-floor positions. Two contained infant burials (Trench C and Stratitest C); one was placed vertically immediately beneath a floor traversed by Trench D and had apparently been used for storage (Plate X, C); and one lay on its side beneath the surface near Trench D and probably also functioned as a storage vessel (Plate X, A). All 4 were fire-blackened, as if from culinary use, over most of the outside and much of the inside. The vessel from Trench C had a large, vertical crack on its neck, which had anciently been repaired by drilling 2 holes on either side and binding with thongs (Plate X, B).

Table 2 lists measurements made on these 4 vessels of
TABLE 1
DIAMETERS OF VESSEL MOUTHS BY NECK FORM
AS INDICATED BY RIM SHERDS
CHUSÍS RED PLAIN

<table>
<thead>
<tr>
<th>Form</th>
<th>Number of Examples</th>
<th>Maximum Diameter</th>
<th>Minimum Diameter</th>
<th>Mean Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>30 cm.</td>
<td>12 cm.</td>
<td>19.4 cm.</td>
</tr>
<tr>
<td>2</td>
<td>31</td>
<td>28</td>
<td>6</td>
<td>15.0</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>5.0</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>54</td>
<td>20</td>
<td>40.4</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>35</td>
<td>28</td>
<td>33.0</td>
</tr>
<tr>
<td></td>
<td>72</td>
<td>54</td>
<td>5</td>
<td>22.7</td>
</tr>
</tbody>
</table>
FIGURE 24. Vessel forms, Chusis Red Plain (Form 1 based on whole vessels; Forms 2-5 based on sherds only).
### TABLE 2

**MEASUREMENTS OF EXCAVATED WHOLE VESSELS**

**CHUSÍS RED PLAIN, FORM 1**

<table>
<thead>
<tr>
<th>Provenience</th>
<th>Height</th>
<th>Maximum Diameter</th>
<th>Diameter of Mouth</th>
<th>Height of Neck</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trench C, burial urn</td>
<td>53.0 cm.</td>
<td>48.5 cm.</td>
<td>27.6 cm.</td>
<td>12.5 cm.</td>
</tr>
<tr>
<td>Stratitest C, burial urn</td>
<td>c.46.0</td>
<td>c.42.0</td>
<td>29.0</td>
<td>11.0</td>
</tr>
<tr>
<td>Trench D, storage jar beneath floor</td>
<td>42.0</td>
<td>37.8</td>
<td>19.5</td>
<td>9.0</td>
</tr>
<tr>
<td>Stratitest D, jar lying to the west</td>
<td>56.5</td>
<td>44.4</td>
<td>33.5</td>
<td>12.8</td>
</tr>
</tbody>
</table>

**Mean measurements** | 49.4 | 43.2 | 27.4 | 11.3 |
Form 1. The mean oral diameter, it will be noted is 27.4 cm., while that of the measureable rim sherds of Form 1 is only 19.6 cm. The difference may perhaps be accounted for by a factor of selectivity whereby only vessels which were purposely interred--vessels large enough for burial or for underground storage--would be preserved whole.

2. Medium-size bottle with high, outflaring neck and basal shoulder

   Neck: Medium to high, outflaring, straight or curving slightly outward, and everted at an abrupt angle from the body. Rim rounded, rarely thickened.

   Body: Slopes outward from the neck in a slightly convex line at about 45 degrees from the vertical.

   Base: Rounded. Contact between base and body marked by an abrupt shoulder perhaps a quarter of the distance from bottom to top of vessel. Vessel walls often a little thinner on the bottom than on the top.

3. Small-mouthed seed bowl

   Neck: Direct, inverted rim, rounded and slightly raised from the body. Orifice small.

   Body: Probably rounded. (Squat shape shown in Fig. 2, however, is conjectural.) Vessel wall thin.

   Base: Probably rounded.

4. Large, deep bowl with constricted orifice.

   Neck: Direct, inverted rim or rarely with a diminutive outcurve. Rim may be rounded, thinned, or squared. One very large bowl (oral diameter, 54 cm.) has the outer surface of the rim thickened to 2.1 cm. (wall thickness otherwise 1.3 cm.).

   Body: Rounded. Vessel wall thick, ranging between .6 and 1.3 cm.

   Base: Presumably rounded.

5. Large, deep, open bowl

   Neck: Direct rim, rounded or bevelled on the outer or inner edge. Neck everted, leaving bowl open.
Body: Rounded. Vessel wall often thick.

Base: Rounded.

Several other details of form are worthy of note in the present discussion of Chusís Red Plain. One sherd is a roughly-fashioned handle 10 mm. in diameter. Three vessel supports or podia are represented, but without evidence as to whether tripod or tetrapod vessels are involved or to which form they belong. One is a hollow conical example (Plate XI, A). Another is also hollow and conical but with a stubby extension at the bottom (similar to Plate XI, J, but undecorated). A probable example is mammiform. One small sherd seems to be part of a tubular spout.

CHUSÍS TEXTURED RED

Paste

Method of Manufacture: Direct shaping with paddle and anvil. The neck was probably attached as a coil by pinching and worked into shape by paddle and anvil.

Temper: Sand, usually present in large amounts and evenly distributed. The grains are medium to coarse in size, varying somewhat with thickness of vessel wall.

Texture: Paste well mixed and rather dense. Breaks with an irregular cleavage plane, but is not friable. Flexural strength good.

Color and Firing: Usually brick red, but occasionally ranges to brown or dull orange. Complete firing in oxidizing atmosphere indicated for most sherds. Fire clouds and grey cores rare. Sometimes darkened by culinary use.

Finish

Smoothed by hand. Outer surface appears to have been floated when wet and is frequently crazed, with the temper showing through. Rarely polished. Minute ridges, always parallel to the mouth of the vessel and doubtlessly produced by smoothing, often appear on the neck, both inside and outside, and occasionally below the neck.

Decoration

Modelling, applique, incising, and punctuation were
applied to sherds of Chusí Textured Red, often variously combined on single sherds. Modelling and applique are rare. Included are 3 lugs, perhaps for carrying. One is modelled (Plate XI, C), having been pushed out from the inside with the finger tip, and has 2 gouges on its upper part. Another (Plate XI, E) was pierced by 2 vertical perforations while the clay was still wet. It may have been stuck onto the vessel wall as an applique element, even though there exists a slight depression at a corresponding point on the inside.

One rim sherd of Form 3 (Plate XI, B) was decorated with a horizontal row of circular depressions pushed in from the exterior by the finger tip along the base of the neck, with corresponding eminences on the inside. One sherd, apparently from the base of a neck, shows a serpentine motif pressed in as a shallow groove with the finger tip. It is outlined by 2 rows of punctates, with a third row down the middle, the punctates in all 3 rows at about 8 mm. intervals. One rim sherd, possibly of Form 4, was from a vessel which was notched with the finger tip at intervals of about 13 mm. along the inner edge of the mouth. A rim sherd of a large, heavy, open bowl shows a series of notches pushed into the thickened outer edge of the rim with the finger tip.

On one neck sherd a shallow, circular depression about 10 mm. across has been pressed with the finger tip. The mark of the nail, probably not intentional, was left near the center of the depression. Another neck sherd has 3 straight, horizontal grooves pressed into the soft clay with the finger tip. These are equidistant from each other, and each ends with a punctate from a stick.

An example of applique is found on a neck sherd. It contains a band about 5 mm. wide and incised diagonally with the finger nail at 5 or 6 mm. intervals. Elsewhere on the sherd are 2 nearly parallel incised lines. An unusual aspect of this specimen is that the applique runs in a vertical direction. (Similar applique bands on Sechura Textured Red sherds are invariably horizontal; see below.)

One sherd comes from a vertical spout, about 4½ cm. in diameter, of what is possibly a spouted bottle. It is an applique, modelled, incised, and punctate human face (Plate XI, G). The one remaining eye and the 2 nostrils have been so deeply punctated as to push the clay through somewhat on the inside of the neck. The nose is strongly aquiline, almost square, and protrudes straightforward. The mouth is indicated by a shallow incision. Below the mouth, the clay has been pushed out from the inside with the finger in such
a manner as to thrust the lower lip slightly forward.

On one sherd, perhaps from the vertical neck of a large jar, an applique eye appears, over which arches an applique eyebrow (Plate XI, D).

Incising and punctuation are popular techniques for decorating Chusí Textured Red. Twenty-six sherds, including a handle, give evidence of both (Plate XI, F, H, and I). In addition, 32 more bear incising only, while 9 others bear punctuation only. (These last 41 might conceivably have shown punctuation and incising together, had the sherds been larger.)

The incising seems to have been accomplished while the clay was still quite soft, sometimes with a sharp, hard instrument, at other times with a rather blunt, flexible one, possibly a straw or small twig. In the latter case it was often simply dragged lightly over the surface. In a few cases, 2 such straws were held together during the dragging. The punching was accomplished either with the end of a stick or the end of a tube, perhaps a hollow reed.

The designs were placed invariably on the outside of the vessel; the favorite areas were the neck and a little below.

The motifs are occasionally serpentine. The body of the serpent is outlined by 2 parallel incisings to which is added a row of punctations down the center (Plate XI, H). In one case a serpentine design was accomplished by dragging a stick 8 or 9 mm. wide across the wet clay, thus producing a shallow groove, which was then embellished with medial punctates from a sharp instrument. There are also single wavy or serpentine lines, or sometimes a series of several parallel ones. On one sherd, 2 fine, straight incisings are parallel and 6 mm. apart. Between is a serpentine incising, the turns of which touch one of the straight lines, then the other, at about 12 mm. intervals.

There are incised straight lines and triangles. By criss-crossing straight lines, diamonds were sometimes produced, which were then filled in with a few punctates. In one case, series of small, serpentine incised lines fill diamonds, which alternate with punctate-filled diamonds (Plate XI, I). In another case, 2 neck sherds of Form 1, probably from the same vessel, show large incised triangles filled with incised parallel lines about 11 mm. apart between which are interspersed rows of hollow-reed punctates about 15 mm. apart (Plate XI, F). One sherd contains 3
straight, parallel rows of fine punctates.

One rim sherd of Form 4 contains short transverse incisions along the very rim at about 9 mm. intervals. One everted rim sherd carries a series of short, diagonal, parallel incisions on the top of the rim. Two sherds of everted rims manifest notches cut with a sharp instrument into their edge while the clay was soft.

One whole vessel of Chusí's Textured Red, a small jar of Form 2, was discovered as an offering within the burial urn of Stratitest C (Fig 26; Plate X, D, left). It was embellished with 3 horizontal lines of short vertical punctates spaced about 4 mm. apart around the entire circumference. The uppermost was placed at the line of union between neck and body. The remaining 2 lined the edges of a shallow groove pressed in with the finger tip midway between top and bottom and just above an indistinct shoulder. The vessel was heavily fire-blackened, both inside and out.

Form and Size

Fig. 25 illustrates 3 of the 5 forms of Chusí's Textured Red which seem discernable from an examination of neck sherds. Fig. 26 and Plate X, D, left, illustrate a whole vessel corresponding to Form 2.

The 5 forms are as follows:

1. Large jar with outflaring mouth

   Neck: Mouth flares outward from an apparently tall neck,
   vertical or slightly insloping. The rim is square and in
   one case slightly thickened. Two of the 4 examples have
   oral diameters of 24 and 32 cm.

   Body: Probably similar to Form 1 of Chusí's Red Plain.

   Base: No information.

2. Small jar with outflaring mouth and indistinct shoulder

   Neck: An outflaring rim surmounts a short, vertical
   neck, as exemplified by a whole vessel; (Fig. 26) oral
   diameter, 9.6 cm. Two rim sherds of approximately similar
   form have oral diameters of 12 and 15 cm. Mean diameter for
   the 3, 12.2 cm.

   Body: Slopes outward from the base of the neck at an
angle of about 35 degrees from the vertical, to a maximum diameter of 14.9 cm.

**Base:** Rounded. Base is joined to the body by an indistinct or rounded shoulder located slightly more than one-third the vertical distance from bottom to top.

3. **Jar with swollen neck**

**Neck:** The swollen neck either joins the body directly or the swollen portion of the neck is separated from the body by a vertical portion. Two examples have oral diameters of 8-10(?) and 11 cm., respectively.

**Body:** No information.

**Base:** No information.

4. **Large, deep bowl with constricted orifice**

**Neck:** Direct, inverted rim. The only example shows a slight lateral flange on its upper corner. Oral diameter, 40 cm.

**Body:** Rounded.

**Base:** Probably rounded.

5. **Large, open bowl**

**Neck:** Direct rim, thickened on the outer surface. Mouth open.

**Body:** Rounded, wall thick.

**Base:** Probably rounded.

In discussing Chusís Textured Red 2 further notes concerning form may be added: (1) One sherd is a vertical handle, oval in cross-section, to which has been applied a design consisting of deeply incised diamonds and punctates. (2) Another sherd (Plate XI, J) is a podium or vessel support, hollow and conical but with a stubby extension and with 3 vertical incisions as if to mark divisions between toes. No evidence was observed as to whether the specimen came from a tripod or tetrapod vessel.
FIGURE 25. Selected neck sherds (actual size) indicating vessel forms, Chusis Textured Red
FIGURE 26. Offering within burial urn, Stratitest C (actual size), illustrating Form 2, Chusis Textured Red
CHUSÍS WHITE ON RED

Paste

Method of Manufacture: Probably direct shaping with paddle and anvil.

Temper: Sand, evenly distributed and usually present in large amounts. The grains are medium to coarse in size.

Texture: Paste well mixed and rather dense. Flexural strength good. Breaks with an irregular cleavage plane but is not friable.

Color and Firing: Brick red. Complete firing in oxidizing atmosphere, with a few irregularities. Sometimes blackened by culinary use.

Finish

Apparently smoothed by hand. Outer surface seems to have been floated when wet, although the temper frequently shows through. The paint was applied directly to the paste. Polishing is rare and apparently occurred only before the application of paint.

Decoration

The white of the Chusís White-on-Red type is a chalky, lusterless pigment, sometimes thick or even flaky and generally somewhat fugitive. Sometimes the pigment is so eroded as to leave only a very thin coating. Often, the color is actually a light cream, but it may be assumed that the weathering of the centuries has slightly darkened it. The red is the natural color of the paste. (See Plate XIII, G and J-L.)

Eighteen sure examples of this combination were recorded. If, however, we assume that the grey on some sherds is really a white discolored by exposure to a kitchen fire—fire blackening was frequently observed on other sherds—and that the indefinite brown and dull grey on some painted sherds are only fire-darkened variants of the natural brick red of the paste, this number may be raised to 24.

The design elements are: large and small dots; groups, of straight, parallel stripes from 2 to 8 mm. wide, sometimes alternated with serpentine lines of about the same width; similar lines running in a vertical direction on the
neck or diagonally downward from the rim; and broad, parallel bands up to at least 30 mm wide. There is one instance of Form 1 of a thin, white stripe painted atop the rim. An eminence has been pushed out from the inside of the neck with the finger tip. A surface sherd which is embellished with white stripes shows a lug thrust out with the finger tip at the base of the neck and carrying 2 deep punctates.

**Form and Size**

Chusí's White-on-Red sherds were decorated exclusively on their exterior surface, which suggests that jars only are to be included under this category. On a priori grounds it would seem that bowls would be preferentially decorated on their interior surfaces. Also, in a study of thickness of vessel wall, to be detailed below, it was learned that no instance of white-on-red decoration was applied to a sherd of greater thickness than 7/₃ mm. It would thus seem that thin- and medium-walled jars were the preferred media for the application of white paint.

Three distinct vessel forms, all apparently jars, are indicated by the limited evidence of neck sherds (see Fig. 27):

1. **Jar with high, vertical neck and recurved rim**

   Neck: Tall, vertical neck slightly thinned toward the top. Upper 3 cm. is swollen and inverted. Rim rounded. Oral diameter of only example, 15 cm.

   Body: No information.

   Base: No information.

2. **Bottle with high, outflaring neck**

   Neck: High, outflaring or nearly vertical, and curving slightly outward. Rim square or rounded. Oral diameter of one example, 20 cm.

   Body: Turns outward from the line of union with the neck at a small angle from the horizontal.

   Base: No information.

3. **Jar(?) with low, everted neck**

   Neck: About one cm. high, everted. Rim slightly thinned and rounded.
FIGURE 27. Selected rim sherds (actual size) indicating vessel forms, Chusis White on Red
Body: Wall departs from neck at an angle of about 30 degrees from the vertical. Wall thin (4 mm.). A vertical handle or perforated lug, originates at the line of union between neck and body and passes downward, having a diameter of 25 mm.

Base: No information.

**CHUSÍS NEGATIVE PAINTED**

**Paste**

Method of Manufacture: Probably direct shaping by paddle and anvil.

Temper: Sand, medium in size of grain, evenly distributed, and present in large proportion.

Texture: Paste rather dense and well mixed. Breaks with an irregular cleavage plane, but is not friable.

Color and Firings: Brick red, indicating firing in an oxidizing atmosphere.

**Finish**

Apparently smoothed by hand. Exterior seems to have been floated when wet, although the temper sometimes shows through.

**Decoration**

The ¼ discovered sherds classified in this category were painted by an apparently negative technique. The design was evidently applied in a waxy substance; the whole vessel was then coated with paint; and finally the wax was melted off in the firing process, leaving the design in the natural color of the vessel wall.

In one case, a horizontal negative band 19 mm. wide is found on the exterior of a neck sherd. The sherd has been fire blackened, leaving the positive portion grey.

Another small sherd carries what appear to be a large dot and a broad band in negative, thus contrasting the brick red paste against a positive background of brown. In this case the apparent negative portion bears possible traces
of a cream-colored paint.

A third sherd exhibits parallel negative stripes of irregular brown about 5 mm. wide against a background of a mottled purplish color. On one edge the design has been blotted out by intense fire blackening.

A fourth sherd, from the surface, carries 3 straight negative stripes alternating with 2 serpentine ones, all varying from 3 to 6 mm. in width. The positive portion is red.

**Form and Size**

The vessels seem to be of sizable proportions, but the wall thickness is medium in each case. One sherd only indicates the shape of a neck. It is straight-sided and medium in height and everts from the body wall at an abrupt angle, hence is a jar. It is somewhat similar to Form 2 of the Chusí Red Plain type. Oral diameter is 25 cm.

**MISCELLANEOUS PAINTED AND SLIPPED SHERDS**

Forty-seven sherds of obvious affiliation with the Chusí Red series carry decoration in paint and slip which, nevertheless, does not allow them to be classified under any of the regular types. Nor do they possess any common characteristic for themselves which would make possible setting up a comparable category. They are, therefore, merely grouped together here for convenience in completing the record, with the understanding that such a grouping does not thereby constitute a ceramic type.

**Paste**

Method of Manufacture: Probably direct shaping by paddle and anvil.

Temper: Sand, medium in size, present in large proportion, and evenly distributed.

Texture: Paste rather dense and well mixed. Flexural strength good. Breaks with an irregular cleavage plane but is not friable.

Color and Firing: Brick red, indicating firing in an oxidizing atmosphere.
Finish

Apparently smoothed by hand. Outside seems to have been floated when wet. Temper sometimes shows through the surface. One sherd, at least, was well polished over the slip (buff).

Decoration

Seventeen sherds carry painted designs in a variety of colors. Five, possibly 6, examples of red paint on a white slip (Plate XIII, M) are included. This combination is undoubtedly related to the Chusís White on Red. Other colors appearing rarely in various bichrome combinations with the natural color of the paste are grey (probably distinct from discolored white), black, dull purple, and 2 shades of brown. One sherd displays more than 2 colors: Purple and brick red on white (Plate XIII, H).

Design elements on the painted sherds are predominantly straight, parallel lines of some 5 mm. width placed close together, one of which is occasionally substituted by a serpentine line of similar width. Series of parallel serpentine or scalloped lines also appear. Large dots and parallel chevrons are included, as are broad bands of at least 30 mm. width.

None of the painted sherds bear decoration of any kind on their inner surfaces.

Of the 26 sherds which carry slip on their outer surface only, 14 are red, 4 are white, 3 are buff or brown, 2 are brick red, one is orange, one is purple, and one is black.

Of the 3 sherds which carry slip on their inner surface only, one is white, one white with a pinkish cast, and one purple.

The 3 sherds which bear slip on both sides are all red on the outside and red, light brown, and white on the interior, respectively.

Form and Size

Of these 47 sherds, the fact that none was painted on its inner surface and only 6 bore slip on the inside suggests principally jars. As will be shown below in the study of wall-thickness, sherds of the Chusís Red series of a greater thickness than 7 1/3 mm. were almost as numerous as those
of less than that thickness. Yet, in no instance was paint applied to vessels of the thicker classification. Apparently, then, the miscellaneous painted and slipped vessels here considered should be described as principally thin-walled jars.

Five distinct neck forms are illustrated by slipped sherds of the present category. Each is represented by a single sherd (see Fig. 28; Plate XI, K):

1. Jar(?) with vertical neck and recurved rim


Body: No information.
Base: No information.

2. Vessel with high, outflaring neck


Body: No information.
Base: No information.

3. Seed bowl

Neck: Direct, inverted, rounded rim. Oral diameter, 10 cm. Red-slipped exterior.

Body: Rounded.
Base: Probably rounded.

4. Large, deep bowl with constricted orifice

Neck: Direct, inverted rim, squared and with a slight flange on inner edge. Interior appears to have a purplish slip.

Body: Rounded. Wall, 9 mm. thick.
Base: Probably rounded.
FIGURE 28. Selected rim sherds (actual size) indicating vessel forms, miscellaneous slipped sherds, Chusíc Red series
5. Stirrup-spouted bottle (Plate XI, K)

Neck: Spout is a vertical tube 26 mm. in diameter. Wall 3.5 mm. thick. Stirrup about 20 mm. in diameter, above the uppermost surface of which spout extends for at least 38 mm. Specimen is covered with a chalky white paint over which are traces of red paint on the bottom portion.

Body: No information.

Base: No information.

CHUSÍS BLACK SERIES

CHUSÍS BLACK PLAIN

Paste

Method of Manufacture: Evidently directly shaped with the aid of paddle and anvil.

Temper: Sand, the grains being medium to coarse in size. Present in large amounts.

Texture: Paste compact, with the temper evenly distributed. Breaks with an uneven plane of fracture but is not friable.

Color and Firing: Black, although occasionally varying to dark brown and medium grey. Most sherds indicate complete firing in a reducing atmosphere.

Finish

Smoothed by hand. Outer surface appears to have been floated when wet. Minute rotary ridges observable on both the interior and exterior of some specimens. Temper sometimes shows through the surface, which frequently carries a fine craze. Polished specimens were not observed.

Decoration

None.

Form and Size
Four vessel forms are suggested by the Chusí's Black Plain sherds which were recovered from the site (Fig. 29). Except for Nos. 1 and 3, the forms are represented by one sherd each.

1. **Vessel with high, outflaring neck**
   - Neck: High, everted, and curved slightly outward. Rim squared or rounded. Mean oral diameter of 4 examples is 15.5 cm.
   - Body: No information.
   - Base: No information.

2. **Jar(?) with short, outflaring neck**
   - Neck: Short, flares abruptly outward from contact with the body. Rim rounded. Oral diameter, 14 cm.
   - Body: Rounded(?). Leaves line of union with the neck at a steep angle.
   - Base: No information.

3. **Bowl with constricted orifice**
   - Neck: Direct, inverted rim. Rim rounded or tapered. Mean oral diameter of 2 specimens is 15.0 cm.
   - Body: Rounded.
   - Base: No information.

4. **Open bowl**
   - Neck: Rim tapered abruptly to 6 mm. thickness but squared and everted slightly from the body. Oral diameter, 30 cm.
   - Body: Rounded and everted at a wide angle. Wall, 12 mm. thick.
   - Base: Probably rounded.

Two other data on form are worthy of mention: One sherd may be the tip of a solid, conical podium or vessel support. Another sherd is a portion of a tubular spout 3 cm. in diameter. The wall thickens from 4 mm. to 6 mm. at the bottom.
FIGURE 29. Selected rim sherds (actual size) indicating vessel forms, Chusí Black Plain
CHUSÍS TEXTURED BLACK

Paste

Method of Manufacture: Evidently directly shaped by paddle and anvil.

Temper: Sand, the grains being medium to coarse in size and present in large amounts.

Texture: Paste compact with the temper evenly distributed. Breaks with an uneven plane of fracture but is not friable.

Color and Firing: Black, indicating complete firing in a reducing atmosphere in most cases. Occasional brown spots.

Finish

Smoothed by hand but not polished. Temper often shows through the surface.

Decoration

The 5 discovered specimens of Chusís Textured Black are decorated by incising, punctation, and modelling with the finger tip. Two rim sherds, apparently representing deep, open bowls, were indented at regular intervals by the finger tip, one along the thickened inner edge, the other along the thickened outer edge. Another is a sherd from the neck of a large, deep bowl with constricted orifice; the rim has been similarly indented along its outer edge.

The design on one sherd (Plate XI, L), apparently placed just below the neck of a vessel, consists of pairs of parallel incised lines, perhaps in a triangular pattern, between each pair of which is a row of short, transverse punctates. Also, one row of punctates seems to outline the base of the neck. The whole is rather crudely executed. The design on another sherd appears to be a large round dot pressed in with the finger tip, around which a circle of punctates have been executed with a sharp instrument.

Form and Size

Apparently medium to large vessels are involved in Chusís Textured Black. The 2 rim sherds appear to be from deep, open bowls with direct, slightly thickened, squared
rims. One example 25 mm. thick at the rim is similar to Form 5 (extreme right) of Fig. 23 (Chusí Red Plain). The other differs from the latter form by being thickened on the outer edge of the rim and by the wall being vertical at the rim. A third sherd, from the surface, comes from the rim of a large, deep bowl with constricted orifice. The rim has been bevelled to the outside and extends into an outward-protruding flange. Oral diameter, about 35 cm.

CHUSÍS MOLD-PRESSED BLACK

Paste

Method of Manufacture: Probably directly shaped by paddle and anvil.

Temper: Sand in fairly large proportion, the grains being medium in size.

Texture: Paste coarse but compact, with temper evenly distributed. Plane of fracture uneven, but pottery not friable.

Color and Firing: Medium grey, but with spots of brown and black. Probably fired in a reducing atmosphere. Irregularity in color may be due to subsequent culinary use, as evidenced by heavy sooting along one edge.

Finish

Probably smoothed by hand on both exterior and interior surfaces. Interior appears to have been intentionally puddled, though the effect may have resulted from pressing the vessel into a mold (see below). One sherd only—from the surface—was discovered (Plate XI, M, right).

Decoration

The exterior has been decorated by pressing into a mold. Fine, raised lines form a design consisting of a horizontal row of pairs of chevrons, points upward, below which two approximately parallel lines form a serpentine motif. The design is located on the upper part of the vessel body and seems to terminate approximately at the line of greatest diameter. The row of chevrons is covered with a thin coat of dull, olive-green glaze in which numerous, fine particles of sand became imbedded before firing.
Form and Size

The only discovered sherd appears to come from the gently-rounded shoulder of a medium-size jar. Wall varies from 2 to 5 mm. in thickness.

MISCELLANEOUS PAINTED AND SLIPPED SHERDS

Thirteen sherds of obvious affinity with the Chusí Black series are either painted or slipped and cannot therefore be classified as either plain or textured. Nevertheless, the variety of colors among such a few sherds prohibits setting up a comparable category based on color. They are, therefore, merely grouped together here for convenience in description, with the understanding that such a grouping does not constitute a ceramic type.

Paste

Method of Manufacture: Probably directly shaped by paddle and anvil.

Temper: Sand, the grains being medium to coarse in size and present in large amounts.

Texture: Paste compact with the temper evenly distributed. Breaks with an uneven plane of fracture but is not friable.

Color and Firing: Black, indicating firing in a reducing atmosphere.

Finish

Smoothed by hand but not polished. Temper shows through the surface.

Decoration

One painted sherd bears a deep purple slip on its exterior over which lies a band of dull orange 17 to 20 mm. wide. The band appears to run in a vertical direction. The interior bears a reddish cast, probably a slip.

Of the 12 examples of slipped sherds, 3 are brick red, 3 tan, 2 pale orange, 2 red, one brown, and one salmon-color. All but one are slipped on the inside of the vessel.
only. This exception bears a pale orange slip on the outside only.

**Form and Size**

Only one rim sherd (brown slip, interior) is included in this miscellaneous painted and slipped collection. It is a deep bowl with direct, inverted rim, bevelled on its outer edge, and a somewhat constricted orifice. Oral diameter is 30 cm. No small vessels seem represented in the collection; neither any very large ones, for only 2 of the 13 sherds (the above rim sherd and another with brick red slip, interior) have a thickness in excess of 7\(\frac{1}{2}\) mm. The fact that only one of the specimens lacks decoration on the interior suggests mainly open bowls.

**SECHURA RED SERIES**

**SECHURA RED PLAIN**

**Paste**

Method of Manufacture: Direct shaping with paddle and anvil. Several sherds provide clear evidence that the neck was fashioned separately from the body; perhaps as a coil, and subsequently attached, presumably by pinching, following which it was worked into shape by paddle and anvil.

Temper: To the naked eye there appears to be none, or if present to be very finely ground. But under a 10-power magnifying glass there appear what seem to be fine grains of sand in considerable proportion. Small amount of finely-ground mica sometimes present.


Color and Firing: Brick red, occasionally ranging into lighter variants. Rarely tends toward brown or purplish. Most sherds indicate thorough firing in an oxidizing atmosphere. Fire clouds and grey cores are rare. Occasionally darkened by culinary use.

**Finish**

Smoothed by hand. Outer surface and both surfaces of
the neck are compact and appear to have been floated while wet. Minute ridges, always parallel to the vessel mouth and doubtlessly produced by the smoothing, are often seen on the neck and sometimes below, on both the inner and outer surfaces. Polishing is occasionally seen on seed bowls and other vessels of fine construction. Sparse particles of finely-ground mica rarely show through the surface.

Decoration

None.

Form and Size

Fig. 30 and Table 3 indicate the varieties of neck forms of the Sechura Red Plain ceramic type as revealed by excavated sherds, as well as frequencies of occurrence and oral diameters. Fig. 31 illustrates several of the corresponding forms of whole vessels on which it is felt the evidence is sufficient to justify a reconstruction. In the cases of Form 3 and Form 5 the shape is clearly established by 2 nearly whole vessels in addition to the sherds. In the cases of 1, 6, and 8-11, however, the reconstructions are of necessity somewhat conjectural, based exclusively as they are upon a study of the sherd material.

1. Large, globular jar with high, vertical neck and outflaring mouth

   Neck: High and usually parallel-sided, although the sides are often slightly outcurved, instead of straight. Rim everted and either rounded or squared, or rarely thinned or thickened.

   Body: Rounded.

   Base: Probably rounded.

2. Jar(?) with medium-high, swollen neck

   Neck: Swollen or recurved. Rim rounded and in one case slightly everted.

   Body: Probably rounded.

   Base: No information.

3. Medium-size bottle with short, outflaring neck and low shoulder
FIGURE 30. Selected rim sherds (actual size) indicating vessel forms, Secura Red Plain
TABLE 3
DIAMETERS OF VESSEL MOUTHS BY NECK FORM
AS INDICATED BY RIM SHERDS
SECHURA RED PLAIN

<table>
<thead>
<tr>
<th>Form</th>
<th>Number of Examples</th>
<th>Maximum Diameter</th>
<th>Minimum Diameter</th>
<th>Mean Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>114</td>
<td>26 cm.</td>
<td>8 cm.</td>
<td>14.4 cm.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>20</td>
<td>11</td>
<td>15.5</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>10</td>
<td>5.5</td>
<td>7.8</td>
</tr>
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<td></td>
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<td>60</td>
<td>3.5</td>
<td>20.7</td>
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</tbody>
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FIGURE 31. Vessel forms, Sechura Red Plain, (Forms 3 and 5 based on nearly whole vessels; remainder based on sherds only)
Neck: Short or medium-high and everted. Rim rounded.

Body: Slopes outward from the neck in a slightly convex line of 45 or more degrees from the vertical.

Base: Rounded. Line of union with the body is marked by a distinct shoulder at about a quarter of the total height. Walls often a little thinner at the base than elsewhere.

One whole vessel of Form 3 (Fig. 32; Plate X, D, right) was contained as an offering within the burial urn of Trench C. The exterior was pebble polished. The base and shoulder were blackened by culinary use, and the rim was broken off around the entire circumference, although it was probably nearly complete. Height, c. 14.3 cm. Maximum diameter, 17.6 cm. Diameter of mouth, c. 5.8 cm.

4. Jar with medium-high, vertical neck

Neck: Medium-high and vertical. Rim rounded.

Body: Rounded(?).

Base: No information.

5. Spouted bottle

Neck: Vertical and straight or slightly concave. In one case neck tapers, with the larger end of the sherd being about 2 cm. in diameter. One specimen (Fig. 30, Form 5) is thin-walled with rounded rim. The spout of the nearly-whole vessel (Plate X, E, left) is missing, but it was about 4 cm. in diameter at the line of union with the body.

Body: Slopes outward from the neck in a straight line at about 45 degrees from the vertical.

Base: Almost hemispherical. An abrupt shoulder exists about midway between the bottom and the origin of the spout.

This vessel was shown to me by its owner, Eulauteria, Anton Ayala of Chusis village. It had been found at Chusis by children, probably near the surface. It is about 10 cm. maximum diameter by about 9 cm. in height without the spout.

6. Large, deep bowl with constricted orifice

Neck: Direct, inverted rim. Rim squared, in one case
FIGURE 32. Offering within burial urn, Trench C (actual size), Illustrating Form 3, Sechura Red Plain
with a slight flange on the inner edge.

Body: Rounded.
Base: Probably rounded.

7. Seed bowl

Neck: Direct, inverted, rounded rim.
Body: Rounded. Walls very thin.
Base: Probably rounded.

8. Small bowl with constricted, upraised orifice

Neck: Direct rim with constricted orifice. Rim is out-curved or upraised so as to give the appearance of a rudimentary neck. Rim rounded.

Body: Probably rounded.
Base: Probably rounded.

9. Large, shallow bowl with constricted orifice

Neck: Direct, inverted, and rounded rim. Inverted portion is short, leaving the mouth large.

Body: Rounded. Lateralmost extremity is only a little below the rim and projects in the form of a high, rounded shoulder.

Base: Rounded.

10. Large, deep, open bowl

Neck: Direct rim, rounded or squared, or with a slight flange on inner edge.

Body: Rounded, approximately hemispherical.
Base: Probably rounded.

11. Medium-size, open bowl with straight sides

Neck: Everted. Rim direct and rounded.

Body: Walls straight and turned out at about 45 degrees from the vertical.
A number of additional notes should be added to the discussion of the form and size of the Sechura Red Plain type. Eight examples of handles are included among the sherds. Three are clearly large, vertical strap handles with the upper portion thinned and broadened, possibly for attachment to a rim. Three more seem to fit the same description. One, however, appears to be a semicircular, vertical carrying lug. It is 2 cm. in diameter and 8 mm. thick at the perforation. One—found on the surface—is a flat loop handle, broadened at one end and attached to the outflared rim of a jar having an oral diameter of approximately 7 cm. and passing over the top of the vessel.

Two sherds appear to be fragments of vessel supports or podia, one of the fragments being 5 cm. long. They are hollow and conical, but it is not clear whether tripod or tetrapod vessels are involved.

One Sechura Red Plain sherd clearly belongs to a vessel with a flat bottom. The straight base meets the body wall at a very obtuse, though definite, angle. This sherd is one of 2 which provide the only evidence of flat-bottomed vessels discovered among Chusis ceramics.

One sherd may be a fragment of a cuboid effigy vessel.

One sherd is a piece of a curved tube, as if belonging to a stirrup-spouted vessel. Twenty mm. in diameter, it has walls 5 mm. thick, leaving a channel of 10 mm. across.

One sherd appears to derive from a vessel with a vertical spout and an elongated body shaped like a watermelon.

One sherd from an outflaring neck has been pressed into an open pitcher spout. This sherd is not eroded and looks rather new.

SECHURA TEXTURED RED

Paste

Method of Manufacture: Direct shaping with paddle and anvil. The neck was fashioned separately from the body, perhaps as a coil, and subsequently attached, presumably by pinching, following which it was worked into shape by paddle and anvil.
Temper: To the naked eye there appears to be either no temper present, or if present to be very finely ground so as to be hardly visible. Under the magnifying glass, however, a high proportion of what seems to be very fine sand appears. Small amount of finely-ground mica sometimes present.


Color and Firing: Brick red, occasionally ranging into lighter variants. Rarely tends toward brown or purplish. Most sherds indicate thorough firing in an oxidizing atmosphere. Fire clouds and grey cores are rare. Occasionally darkened by culinary use.

Finish

Smoothed by hand. Surface is compact and appears to have been floated while wet. Minute ridges, always parallel to the vessel mouth and doubtlessly produced by the smoothing, are often seen on the neck and sometimes below, on both the inner and outer surfaces. Sparse particles of mica occasionally show through. Polishing is not common, usually being confined to thin-walled specimens.

Decoration

The most common decorative element employed in connection with Sechura Textured Red was the applique band. There were 23 examples, 11 of them straight and horizontal (Plate XII, B, Q), one straight and probably vertical, and 11 serpentine and horizontal (Plate XII, C-F). I have called these wavy bands "serpentine," although no example of a serpent's head or other sure evidence of the identity of the motif was noted. The width of the bands is about one cm. The technique was definitely applique as evidenced by the tiny, parallel ridges created by smoothing the vessel surface with the hand (see above), existing underneath the applied element. After application, the element was smoothed down with the fingers so as often to appear to be an integral part of the vessel. These bands are almost invariably located on the outside and apparently by preference on the neck. Three sherds, however, bore such a serpentine element on the inside (Plate XII, F). These were rim sherds of 2 vessels, which possessed broadly outflaring necks (Form 7). The bands are further embellished with rows of reed punctates or series of notches pressed in with the finger tip about 8 or 10 mm. apart, sometimes showing the finger nail, or in one case with a fragment of shell about 5 mm. apart.
A second important technique was a form of modelling accomplished by pressing or dragging the finger tip along the desired line on the soft clay, leaving a shallow groove a cm. or a little more in width (Plate XII, A). Nineteen examples were observed. Usually, the pattern was serpentine. These serpentine grooves were always embellished with hollow-reed or stick punctates or in one instance short, transverse incisions about 8 or 10 cm. apart, either down the center of the body or along each side. In all instances where the location of the sherd in the vessel could be learned, it came from the neck. Two instances of straight, horizontal grooves were observed among the sherds, one unembellished and upon the line of maximum diameter of the vessel, the other embellished with transverse punctates. A circular groove about 3 cm. in diameter was found on a neck sherd. An eminence had been pushed through from the inside to correspond with the size of the circle. In all cases, the grooves were on the outside of the vessel.

What appears to be a portion of a large neck of a jar (Plate XII, I) is decorated with a human eye about twice normal diameter pressed into the soft clay with strokes of the finger tip. A neck sherd of Form 5 bears notches pressed with the finger tip along the outer edge of the rim at intervals of 3 or 4 cm.

Other applique elements are lugs, 2 of them split with a deep horizontal incised line in the middle, one of the latter, from the neck of a tall, vertical jar (Plate XII, L), with 2 short incised lines on the top, giving it the appearance of a duck's bill; a lug attached to a serpentine element (Plate XII, E); buttons with one or 2 concentric rings around them (Plate XII, N); and an instance of an oval bead transversed by 2 horizontal punch-and-drag incised lines (Plate XII, M). This last-mentioned element was on the outside of a neck sherd of a somewhat large vessel of Form 1. One lug, on what was probably a neck sherd, was modelled by pushing through from the inside. It was then incised with 3 gouges.

Both applique and modelling were involved in 3 human faces on neck sherds (Plate XII, G, H, and R), also two human noses which came from unknown parts of vessels (Plate XII, J). While the nose of one of the faces is missing, that of another face, together with the 2 free noses, is strongly aquiline. The nostrils and eyes are punctate. The lower part of the face is thrust outward from the inside of one specimen. On 2, the mouth is a horizontal, or nearly horizontal, row of punctates in one case executed by the
punch-and-drag technique. On one sherd (Plate XII, H), the eyes are simply 2 small applique rings, while the nose is a larger such ring with a punctate hole in the center. Mouth and nose are not shown separately on this last specimen.

Aside from those cases where they appear in direct association with shallow finger-tip grooves or applique bands, incising is rare in Sechura Textured Red sherds, and punctuation is not common. There are a few examples of isolated incised lines and rows of punctates. One neck(?) sherd displays a circle of 10 reed punctates, in the center of which a hole (not a perforation) of 7 mm. diameter has been drilled after firing (Plate XII, K). On another sherd, such a circle of punctates surrounds a round, shallow dot depressed with the finger tip. One neck(?) sherd shows a horizontal row of small diamonds with punctates in the center.

Six sherds were observed which had either one or 2 holes of 3 to 5 mm. diameter punched entirely through the wall of the vessel while the clay was still wet. These were around 13 to 19 mm. apart and 10 or 12 mm. down from the rim on those which could be recognized as rim sherds. They were usually punched from the inside, although one sherd of Form 8 had such a hole punched from the outside in association with a shallow serpentine groove (Plate XII, A). This last-mentioned specimen was well polished on the exterior.

One sherd is from the body of the vertically fluted vessel, modelled as if to imitate a pumpkin.

Form and Size

Fig. 33 illustrates the variety of neck forms which are discernible from an examination of the sherds. Table 4 indicates the number of examples of each form, together with the mean, maximum, and minimum oral diameters. Fig. 12 illustrates my reconstruction of 5 of the vessel forms. The forms of necessity are somewhat conjectural, based as they are entirely on sherd material.

1. Large, globular jar with high neck and outflaring mouth

   Neck: High and usually approximately parallel-sided. Rim everted and either rounded or squared.

   Body: Rounded.

   Base: Probably rounded.

2. Jar(?) with high, vertical neck
FIGURE 33. Selected rim sherds (actual size) indicating vessel forms, Sechura Textured Red
<table>
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<tr>
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<td>60</td>
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<td>60.0</td>
</tr>
</tbody>
</table>

24 | 60 | 7 | 15.3 |
Neck: High and vertical with rounded rim, or upper part of neck thickened with tapered rim.

Body: No information.

Base: No information.

3. Jar with swollen neck

Neck: Medium to high with rounded or squared rim. Swollen above line of union with body, above which it straightens or everts pronouncedly.

Body: Rounded.

Base: No information.

4. Jar(?) with high, cambered, and doubly-curved neck

Neck: High with rounded rim. Above line of union with body neck cambers sharply to the interior, above which it is successively concave and convex, as viewed from the outside, about the last cm. being inverted.

Body: No information.

Base: No information.

5. Jar with short, outflaring neck


Body: Rounded(?)

Base: No information.

6. Jar with medium-high, vertical neck


Body: Rounded.

Base: Probably rounded.

7. Jar with medium-high, outflaring neck

Neck: Medium-high and outflaring. Rim rounded. Neck
FIGURE 34. Vessel forms, Sechura Textured Red (based on sherds only)
straight, outcurved, or slightly recurved.

Body: Walls probably straight and leave the neck at an angle of approximately 45 degrees from the vertical.

Base: Probably rounded and probably meets the body making a distinct shoulder. Several sherds showing such shoulders appear to belong to this form.

8. Medium-size, thin-walled bowl with constricted orifice
   Body: Rounded. Wall thin.
   Base: Probably rounded.

9. Small, open, shallow bowl
   Neck: Low and not constricted. Rim rounded.
   Body: Rounded.
   Base: Probably rounded.

10. Large, deep, open bowl
    Neck: High and not constricted. Rim squared.
    Body: Rounded.
    Base: Probably rounded.

SECHURA WHITE ON RED

Paste

Method of Manufacture: Probably direct shaping with paddle and anvil.

Temper: The magnifying glass reveals a considerable proportion of very fine-grained sand, not ordinarily visible to the naked eye. Small amount of finely-ground mica sometimes present.

Color and Firing: Brick red, indicating thorough firing in an oxidizing atmosphere.

Finish

Probably smoothed by hand. Surface is compact and appears to have been floated while wet. The surface of one sherd (Plate XIII, E) was well polished before the design was applied. Another sherd indicates that the neck of the jar was left unpolished, but at least the upper part of the body was polished, following which that part was largely covered by the design, while the neck was left undecorated. Two sherds were smoothed but not polished.

Decoration

The white of the Sechura White on Red type is a thin, lusterless paint. The red is the natural color of the paste, except in one case in which it is a slip. Five sherds of this combination are recorded.

The design elements are: broad stripes up to 25 mm. wide; pairs of straight and serpentine stripes 3 to 5 mm. wide, with the serpentine line touching the straight one at nearly every bend; and small oval dots. In the case of designs with small elements, the paint was probably applied with a small, round brush and may have spread a little before it dried.

Form and Size

In every case the design is applied to the outside of the sherd, which would suggest jars rather than bowls. One sherd is clearly from a jar.

SECHURA NEGATIVE PAINTED

Paste

Method of Manufacture: Probably direct shaping with paddle and anvil.

Temper: None visible to the naked eye, but the magnifying glass shows the presence of a considerable amount of very fine sand. Two sherds contain a small amount of finely-ground mica.

Color and Firing: Only 3 sherds of Sechura Negative Painted were discovered. Two have a brick red paste, while the third is pale orange. The color, however, is constant in each case and indicates complete firing in an oxidizing atmosphere.

Finish

Smoothed by hand. Minute, rotary ridges resulting from smoothing are present on the interior of one sherd from an open bowl, while the outside is well polished. The other sherds are well smoothed with a compact surface but are not polished; tiny flakes of mica show through on one of them.

Decoration

These 3 sherds were decorated by means of a technique of negative painting. The design was evidently applied in a waxy substance, perhaps with a small, round brush. The wax appears to have spread a little before setting. The whole exterior of the vessel was next coated with paint. The wax was then melted off in the firing process, leaving the design in the natural color of the vessel surface.

One sherd from the House Excavation, exterior trench (Plate XIII, A), carries 3 parallel negative stripes about 3 mm. wide and about 10 mm. apart. They are arcs of large, concentric circles. The edges of the stripes are irregular; it may be that the artist intended the inside edge of each to be straight and the outside edge to be wavy. The base color is light orange; the applied color is a faded black.

The second sherd (Plate XIII, I), found in the conical excavation of Stratitester D at a depth of one m., comes from the rim of an open bowl. It carries an exterior design consisting of 2 parallel stripes about 4 mm. wide: an irregular, straight one just below the rim and a serpentine one about 2 cm. down from the rim. Seven small dots are distributed fairly evenly between the stripes and below the serpentine one. About half the inside of the sherd is covered with the paint, but in an irregular fashion. The base color is brick red; the applied color is a dull purplish.

The third sherd was found on the surface at the Chusí site. It carries an interior design consisting of several dull purple stripes on the brick red paste. The lusterless aspect of the base color (brick red) indicates that some
substance originally covered it which has now completely dis­
appeared. Whether this was the wax of the negative technique
or some pigment of unknown color is not now ascertainable.

Form and Size

The first of the above-mentioned sherds probably comes
from a jar, since the design is on the exterior. The second
is a rim sherd from a small, open, medium-deep bowl, similar
in shape to Form 9 of the Sechura Textured Red type, except
that it is thinner, a little deeper, and slightly thickened
below the rim. Oral diameter is 15 cm, the thickness being
generally 3 mm., but, although the vessel is otherwise well
made, it is somewhat irregular in this respect, being
scarcely more than one mm. thick at one point. This third
sherd is decorated on the interior and is probably from a
flattish bowl.

SECHURA MOLD-PRESSED RED

Paste

Method of Manufacture: Direct shaping by pressing the
clay into a mold. Marks of the instruments of pression
clearly visible on interior surface, in one case a flattish
tool, in another, the fingers.

Temper: None apparent to the naked eye, but a 10-power
magnifying glass shows a considerable proportion of very fine
sand. One specimen has occasional inclusions of pebbles of
up to 2 mm. diameter.


Color and Firing: Brick red, indicating thorough fir­
ing in an oxidizing atmosphere. Slight discoloration on one
specimen due to culinary use.

Finish

Apparently no effort was made to finish the designed
surfaces further after removal from the mold. One sherd,
however, has been polished over a portion of its surface not
covered by the design.

Decoration

Of the 2 discovered sherds of the Sechura Mold-Pressed
Red type, one (Plate XI, M, top) contains a relief design consisting of 4 small raised dots in a furrow between 2 low, rounded eminences. It is difficult to make out the intended subject.

On the second sherd (Plate XI, M, lower left) the wing tip, leg, and claws of a bird are portrayed by means of sunken lines and dots. Underneath is a double sunken line down the center of which is a row of small raised dots. The mold from which this vessel was cast was itself evidently cast from a vessel or from a model on which the design elements had been incised and punched; if the mold had been directly incised and punched the lines and dots on the end product would be raised, not sunken. The design seems to be confined to the upper portion of the body wall and possibly the neck. The area below the design is polished.

Form and Size

Since the designs are located on the outer surface, it is probable that jars are involved. The bird motif seems to occupy the upper half of a globular jar.

SECHURA STAMPED RED

Paste

Method of Manufacture: Direct shaping by paddle and anvil. Of the 2 sherds in this category, the smaller appears to retain the marks of the anvil on its inner surface.

Temper: None visible to the naked eye, but the magnifying glass reveals a considerable proportion of very fine sand. Smaller sherd has an inclusion of a pebble 2 mm. in diameter.


Color and Firing: Brick red, but with brown or grey core, suggesting firing in an oxidizing atmosphere but without complete control.

Finish

Probably smoothed by hand. Larger sherd and exterior of smaller sherd present surfaces which are compact and apparently floated while still wet. The interior of the larger sherd
has definitely been hand-smoothed.

Decoration

The smaller sherd (Plate XI, M, upper left) carries a design consisting of 4 closely-shaped, parallel lines, 3 of them straight and one scalloped. The design is definitely the result of paddle-stamping, for the sherd contains portions of 2 separate impressions, one of which was never complete. The lines are unusual, however, in being sunken instead of raised, which suggests that the paddle itself was a ceramic cast from an incised model.

The larger sherd (Plate XI, M, bottom) contains portions of 2 apparently identical designs spaced 7 cm. apart and 4 cm. down from what is evidently the juncture between the body and the neck of a jar. It is obviously an example of medallion stamping, for the design is a complete unit in itself and is repeated possibly 10 times around the circumference of the vessel. It is a flower design about 3 cm. in diameter consisting of large and small raised dots and raised lines. A stem connects with a central dot, which is encircled by 5 other dots of slightly smaller size. Beyond the circle of dots is a line ticked on its exterior and scalloped so as to fit the dots loosely. Beyond the ticked line are smaller dots. Beneath the flower a leaf seems to connect with the stem. The design is almost identical with that observed on a pottery stamp at the modern village of Simbila and on a chicha jar in the possession of the administrator of the Hacienda Chusís (Christensen, 1955, Fig. 3; Fig. 5, left).

Form and Size

Since the designs are stamped only on the outer surfaces of the sherds, it is probable that jars are involved. The medallion-stamped flower designs seem to be located a little below the neck of a large, globular jar.

MISCELLANEOUS PAINTED AND SLIPPED SHERDS

Twenty-six sherds of obvious affinity with the Sechura Red series carry decoration in paint and slip which, nevertheless, will not allow them to be classified under any of the types thus far established. Nor do they possess any common feature which would make possible setting up a comparable category for them alone. They are therefore merely
grouped together here for convenience in description, with the understanding that such a grouping does not constitute a ceramic type.

**Paste**

Method of Manufacture: Probably direct shaping with paddle and anvil.

Temper: Invisible to the naked eye, but magnification indicates a considerable quantity of very fine sand.


Color and Firing: Brick red to brown. Thorough firing in oxidizing atmosphere indicated.

**Finish**

Probably smoothed by hand. Surface is compact and appears to have been floated while wet. Exterior surface of sherds from thin-walled seed bowls are often polished, sometimes both surfaces.

**Decoration**

Five sherds carry painted decoration in 2, 3, or 4 colors, 3 of them showing red paint over a white slip. One rim(?) sherd of 3 mm. thickness bears a large, brick red dot over a white slip on its outer surface. The inner surface carries a red slip. Another specimen, from the base of the neck and upper body of what is possibly a spouted bottle, preserves brick red stripes painted over a white slip. (Dull purplish stripes may also be present, but if so they are all but eroded away.) The third sherd, (Plate XIII, M) from a thin-walled seed bowl, bears an exterior design of 3 red, parallel, serpentine stripes about 4 mm. wide painted over a white slip, beginning just below the rim. These red-on-white sherds seem definitely related to the Sechura White on Red type (see above).

Two painted sherds (Plate XIII, D) from the same thin-walled seed bowl, unearthed respectively in Trench C and in the conical excavation of Stratitest C at a depth of c. 1.9 m. below the surface, carry a band covering the first 24 mm. beneath the rim on the outside which contains 4 distinct colors. The band was evidently painted white first, then below this the remainder of the exterior was painted red.
Thereafter, first dull purple then brick red stripes were painted over the white. The interior bore a red wash. The brick red and purple stripes were arranged diagonally, this pattern being broken by 2 radial elements.

Twenty-one sherds exhibiting slip are included among these unclassified specimens of the Sechura Red series. Eleven are so decorated on the outside only, including 5 in white, 2 in red, 2 in brick red, and 2 in light tan. Six are slipped on the inside only, including 3 of white, one of red, one of brown, and one of purplish. And finally, 4 sherds are slipped on both the inside and the outside. This last group includes one with a white interior and red exterior; a fragment of a thin-walled seed bowl with a red interior and a white exterior; and portions of 2 similarly-shaped vessels red on both sides.

**Form and Size**

Of the 26 sherds herein considered, none is painted on its interior surface, while 13 bear an interior slip. It would seem that both jars and bowls are included in this miscellaneous category. But while both jars and bowls appear to have been either slipped or painted on their outer surfaces, the interiors of bowls were probably decorated only by slipping.

One sherd with a brick red external slip is from the neck of a globular jar with a tall, insloping neck and an everted, rounded rim, approximately similar to Form 1 of the Sechura Red Plain type, except for the inward slope of the neck. Oral diameter, 9 cm. Another sherd may be from a spouted bottle similar to Form 5 of the same type. It bears brick red and possibly purplish stripes on a white slip. Although the rim is gone, it is likely about 5 cm. in oral diameter. A perforated, vertical lug fills the corner between neck and body.

Five rim sherds, from thin-walled, seed bowls, including 2 from the 4-color vessel described above, are among the miscellaneous collection. Two of the others are slipped on both sides. The oral diameter of each of 4 specimens is 16 cm. and that of the fifth, 15 cm. The shape is similar to that of Form 7 of the Sechura Red Plain type.
Paste

Method of Manufacture: Presumably direct shaping by paddle and anvil.

Temper: None apparent to the naked eye, but a 10-power magnifying glass shows considerable amount of very fine sand.


Color and Firing: Black, or occasionally varying to dark brown or medium grey. Most sherds indicate complete firing in a reducing atmosphere, although brown spots are occasionally seen.

Finish

Smoothed by hand. Surface is compact and appears to have been floated while still wet. Minute ridges, always parallel to the vessel mouth and doubtlessly produced by the smoothing are often seen on both the inner and outer surfaces. A number of pieces are well polished.

Decoration

None.

Form and Size

Fig. 35 (top) illustrates rim sherds selected from the Sechura Black Plain collection as representative of the 5 vessel forms which seem discernible. Table 5 indicates the frequency of occurrence of the forms and their mean oral diameters. Fig. 36 (top and middle) illustrates reconstructions of corresponding whole vessel forms. The reconstructions are somewhat conjectural, based as they are on sherd material only.

1. Jar with high, outflaring neck
   Neck: Tall and everted. Rim rounded.
   Body: Rounded(?).
   Base: No information.

2. Small jar with short, everted neck
### TABLE 5

**DIAMETERS OF VESSEL MOUTHS BY NECK FORM AS INDICATED BY RIM SHERDS**

**SECHURA BLACK PLAIN**

<table>
<thead>
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<th>Form</th>
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<th>Minimum Diameter</th>
<th>Mean Diameter</th>
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FIGURE 35. Selected rim sherds (actual size) indicating vessel forms, Sechura Black Plain and Sechura Textured Black
FIGURE 36. Vessel forms, Sechura Black Plain (top and middle) and Sechura Textured Black (bottom) (based on sherds only)
Neck: Short and everted. Rim rounded or bevelled on outer edge.

Body: Rounded(?)

Base: No information.

3. Jar with swollen neck

Neck: Swollen and tapered to a thin, rounded rim.

Body: Straight-sided(?). It is not clear whether that part of the sherd below the swollen portion belongs to the body or to the neck.

Base: No information.

4. Deep seed bowl

Neck: Direct, inverted rim. Rim tapers almost to a sharp edge or is occasionally rounded. Vessel wall leaves the mouth at a rather steep angle, thus leaving a rather large opening.

Body: Rounded. Vessel wall thin.

Base: Probably rounded.

5. Large, deep, open bowl

Neck: Rim direct and vertical or somewhat everted, leaving the mouth of the vessel open. Rim square or bevelled inward. Sometimes a slight medial flange on inner edge of rim.

Body: Rounded.

Base: Probably rounded.

A few additional observations concerning form and size are in order at this point. Two probable examples of vessel spouts are included. One is about 4 to 6 cm. in diameter and is well pebble polished. The surface is an intense black, but the paste on the interior is a light brown. Another sherd is from a well-polished mammiform vessel support (Plate XII, 0). The wall is 4 mm. thick. Still another sherd, 2.5 mm. thick, may also be a fragment of such a vessel support. It has a hole 5 mm. in diameter punched through from the outside while the clay was still wet. The interior is unfinished. Also, 2 examples of handles are
found among the Sechura Black Plain sherds. One sherd—from the surface—appears to represent a flat-bottomed jar.

SECHURA TEXTURED BLACK

Paste

Method of Manufacture: Presumably direct shaping by paddle and anvil.

Temper: Not usually visible to the naked eye, but magnification makes clear the presence of a considerable proportion of very fine sand.


Color and Firing: Black, or rarely dark brown or grey. Most sherds indicate complete firing in a reducing atmosphere.

Finish

Smoothed by hand. Surface is compact and appears to have been floated while wet. Minute ridges, parallel to the vessel mouth and doubtlessly produced by the smoothing, are often seen on both inner and outer surfaces.

Decoration

Of the 5 sherds classified as Sechura Textured Black, 2 are from the necks of very similar, swollen-neck jars. Four cm. below the rim on the outer surface, they carry a horizontal applique band 4 or 5 mm. wide with a row of hollow-reed punctates down the center about 8 mm. apart (Plate XII, S). Another has on its outer surface a serpentine pattern pressed into the soft clay with the finger tip and lines on either side with triangular punctates about 9 mm. apart. Still another, puzzling: incomplete, appears to exhibit a pair of human legs on its exterior, modelled in low relief and outlined by faint incised lines. This last-mentioned sherd also carries a red slip on the outside. The fifth sherd (Plate XII, P)—from the surface—shows the distal part of a human arm crudely modelled by thrusting the clay outward with a stroke of the finger tip on the inside. The arm was then outlined by an incised line to which was appended 5 simple incised lines representing fingers. The exterior of this sherd is brick red, which may be a slip or
may have resulted from faulty firing.

Form and Size

From only 2 sherds can information concerning vessel form and size be learned. They represent a jar with a high, swollen neck (Fig. 35, bottom; Fig. 36, bottom; Plate XII, S). The neck leaves the body at an abrupt angle and curves first outward then inward, tapering slightly. The rim is rounded. The body and base are presumably globular.

MISCELLANEOUS PAINTED AND SLIPPED SHERDS

Five sherds of obvious affinity with the Sechura Black series carry decoration in paint and slip and are not therefore classified in either the plain or the textured types. For convenience in description and in order to complete the record they are grouped together here, with the understanding that such a grouping does not constitute a ceramic type.

Paste

Method of Manufacture: Probably direct shaping by paddle and anvil.

Temper: Magnification reveals a considerable proportion of very fine sand, which, however, is rarely visible to the naked eye.


Color and Firing: Black, indicating complete firing in a reducing atmosphere.

Finish

Evidently smoothed by hand. Surface is compact and appears to have been floated while still wet.

Decoration

Two sherds, one of them only $2\frac{1}{2}$ mm. thick, contain a red slip on the inner surface. A third carries a red slip on the outer surface. One fine sherd, $2\frac{1}{2}$ mm. thick, is adorned with a black, metallic luster on the inner surface.
The exterior of one sherd (Plate XIII, C) was slipped with the base color of dull white, over which were painted a broad and a narrow stripe and a small and 2 large dots in black, grey, brown, and dull red. The colors have since been darkened by use in the fire.

**Form and Size**

Information on vessel shapes and sizes represented by this miscellaneous group of sherds is incomplete. Two sherds are only $2\frac{1}{3}$ mm. thick, suggesting perhaps the thin-walled seed-bowl type. The fact that the decoration was applied both to the outer and inner surfaces suggests both jars and bowls.

**Sherd Counts.** A total of 9505 sherds are involved in the present study of Chusí pottery. This includes every sherd removed to the field laboratory from the Chusí site: 9453 from the excavations and 52 from the surface. Tables 6 and 7 indicate the distribution of the sherds by provenience and type.

Not every lot of sherds was classified, however, and such unclassified lots are indicated in Table 6. The lots which are classified by types include every sherd found in the four stratigraphic test blocks (Stratitests A, B, C, and D), as well as in certain other proveniences, as indicated. The lots labelled "unclassified," on the other hand, come from proveniences which were not excavated stratigraphically and from some of which only a selection of the more significant sherds was removed to the laboratory.

These unclassified lots of sherds have been of necessity
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<th>Chusís Red Series</th>
<th>Chusís Black Series</th>
<th>Sechura Red Series</th>
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<tr>
<td>White on Red</td>
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<td>misc. sherds</td>
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<td>total</td>
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<tr>
<td>Red Plain</td>
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<tr>
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<td></td>
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Strat. test C (Cont.):

Layer VII-B 179 1 3 183 7 1 8 57 1 2 60 8 8 259
Layer VII-C 283 3 286 12 12 139 3 142 18 1 19 459
Layer VIII 175 4 179 13 13 101 1 102 13 13 307
Layer IX 68 2 3 73 6 6 46 46 5 5 130
Layer X 83 2 83 12 12 40 40 5 5 140
Layer XI 72 6 72 6 1 7 63 1 64 6 6 149
In association with burial urn 22 22 22 13 1 14 1 1 1 1 37
Total classified 1563 12 1 10 1566 111 1 2 114 772 9 4 785 103 1 2 106 2571

Conical excavation (unclassified)

Total, Strat. C 2675
<table>
<thead>
<tr>
<th>Trench D (unclassified)</th>
<th>755</th>
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<td>Stratitests D:</td>
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</tr>
<tr>
<td>Layer I</td>
<td></td>
</tr>
<tr>
<td>Layer II</td>
<td></td>
</tr>
<tr>
<td>Layers III &amp; III-A</td>
<td></td>
</tr>
<tr>
<td>Layer IV</td>
<td></td>
</tr>
<tr>
<td>Layer IV-A</td>
<td></td>
</tr>
<tr>
<td>Layer V</td>
<td></td>
</tr>
<tr>
<td>Layer VI</td>
<td></td>
</tr>
<tr>
<td>Layer VII</td>
<td></td>
</tr>
<tr>
<td>Layer VIII</td>
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</table>

**TABLE 6. COUNTS OF EXCAVATED SHERDS BY PROVENIENCE, CHUSÍS (Cont.)**

<table>
<thead>
<tr>
<th>Proveniences</th>
<th>Chusís Red Series</th>
<th>Chusís Black Series</th>
<th>Sechura Red Series</th>
<th>Sechura Black Series</th>
<th>Grand Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Red Plain</td>
<td>Textured Red</td>
<td>White on Red</td>
<td>Negative Painted</td>
<td>misc. sherds</td>
</tr>
<tr>
<td>Trench D (unclassified)</td>
<td>755</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stratitests D:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer I</td>
<td>99 1 2 1 103 4 2 6 28 28 7 7 144</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer II</td>
<td>201 3 3 207 37 1 38 75 2 1 78 5 5 328</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Layers III &amp; III-A</td>
<td>30 1 1 32 2 2 21 1 22 1 1 57</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer IV</td>
<td>22 3 25 1 1 24 1 25 2 2 53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer IV-A</td>
<td>44 1 1 3 49 1 1 20 1 21 2 2 73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer V</td>
<td>78 1 79 5 1 6 68 2 1 71 2 1 3 159</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer VI</td>
<td>74 74 10 10 56 1 57 10 10 151</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Layer VII</td>
<td>141 1 142 25 25 81 1 82 30 1 31 280</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer VIII</td>
<td>75 3 78 36 36 27 1 28 24 24 24 166 251</td>
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</table>
### TABLE 6. COUNTS OF EXCAVATED SHERDS BY PROVENIENCE, CHUSÍS (Concl.)

<table>
<thead>
<tr>
<th>Proveniences</th>
<th>Chusís Red Series</th>
<th>Chusís Black Series</th>
<th>Sechura Red Series</th>
<th>Sechura Black Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer IX</td>
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</tr>
<tr>
<td>Layer X</td>
<td></td>
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<tr>
<td>Total classified</td>
<td>861</td>
<td>15</td>
<td>6</td>
<td>16</td>
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<tr>
<td>Conical excavation (unclassified)</td>
<td>885</td>
<td></td>
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<tr>
<td>Total, Strat. D</td>
<td>2489</td>
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</tbody>
</table>

**TOTALS:**
- Total Classified: 3177 36 2 23 3246 298 2 8 308 1728 20 1 13 1762 257 3 5 265 5581
- Total Unclassified: 3872
- Total excavated sherds, Chusís: 9453
TABLE 7
COUNTS OF CLASSIFIED SHERDS BY CERAMIC TYPE, CHUSÍS

<table>
<thead>
<tr>
<th>Ceramic Type</th>
<th>Excavated Sherds</th>
<th>Surface Sherds</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chusís Red Series</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Plain</td>
<td>3177</td>
<td>6</td>
<td>3183</td>
</tr>
<tr>
<td>Textured Red</td>
<td>36</td>
<td>5</td>
<td>41</td>
</tr>
<tr>
<td>White on Red</td>
<td>8</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Negative Painted</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>misc. sherds</td>
<td>23</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>totals</td>
<td>3246</td>
<td>17</td>
<td>3263</td>
</tr>
<tr>
<td><strong>Chusís Black Series</strong></td>
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<tr>
<td>Black Plain</td>
<td>298</td>
<td></td>
<td>298</td>
</tr>
<tr>
<td>Textured Black</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Mold-Pressed Black</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>misc. sherds</td>
<td>8</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>totals</td>
<td>308</td>
<td>2</td>
<td>310</td>
</tr>
<tr>
<td><strong>Sechura Red Series</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Plain</td>
<td>1728</td>
<td>3</td>
<td>1731</td>
</tr>
<tr>
<td>Textured Red</td>
<td>20</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>White on Red</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Negative Painted</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mold-Pressed Red</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Stamped Red</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>misc. sherds</td>
<td>13</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>totals</td>
<td>1762</td>
<td>20</td>
<td>1782</td>
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<tr>
<td><strong>Sechura Black Series</strong></td>
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<tr>
<td>Black Plain</td>
<td>257</td>
<td>12</td>
<td>269</td>
</tr>
<tr>
<td>Textured Black</td>
<td>3</td>
<td>1</td>
<td>4</td>
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<tr>
<td>misc. sherds</td>
<td>5</td>
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<td>5</td>
</tr>
<tr>
<td>totals</td>
<td>265</td>
<td>13</td>
<td>278</td>
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<tr>
<td><strong>Totals of classified sherds</strong></td>
<td>5581</td>
<td>52</td>
<td>5633</td>
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<tr>
<td><strong>Plus total unclassified sherds</strong></td>
<td></td>
<td></td>
<td>3872</td>
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<tr>
<td><strong>Total sherds, Chusís</strong></td>
<td></td>
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<td>9505</td>
</tr>
</tbody>
</table>
disregarded in the statistical analyses of sherd counts by layers. They were, however, of use in the descriptions of ceramic types, for from them were selected decorated sherds, rim sherds, and other fragments from which additional descriptive information could be learned, in order to augment the evidence of the stratigraphically excavated sherds. This explains the occasional disparity between the totals given in Table 7, right-hand column, and the counts mentioned in the ceramic descriptions, above.

A Note on Wall Thickness and Oral Diameter. A preliminary, experimental classification of the 9453 sherds excavated at the Chusí site was based upon wall thickness. Two types were set up for each of the 4 series, the criterion of separation being whether the sherds exceeded, or were less than, 7½ mm. in thickness.

Of the 3246 sherds of the Chusí Red series, 1722 (53.0%) were of Type I (less than 7½ mm. thickness) and 1524 (47.0%) of Type II. That is, thin-walled and thick-walled vessels composed the series in about equal proportions.

The Chusí Black and the Sechura Red series, however, were predominantly composed of thin-walled vessels. The proportions of the Chusí Black series were 251 sherds (81.5%) of Type I as against 57 (18.5%) of Type II. The Sechura Red series contained 1676 sherds (95.1%) of Type I
as against 86 (4.9%) of Type II. To judge from these figures, the thinnest-walled series of the 3 was the Sechura Red, followed in turn by the Chusís Black and the Chusís Red.

The break-down of the Sechura Black series into the 2 wall-thickness types was not completed. It is possible to say, however, that the thin-walled sherds greatly exceeded the thick-walled ones, at a percentage probably as high as, or even higher than, in the case of the Sechura Red series.

In this connection the measurable excavated rim sherds of the Chusís site were given particular consideration. Table 8 shows a comparison of the 2 wall-thickness types of each of the 4 series. It will be seen that wall thickness corresponds with the diameter of vessel mouth to a striking degree in each of the 4 series, especially in the Sechura Red and the Sechura Black.

This study of wall thickness and oral diameter makes it clear that vessels of the Sechura Red and Sechura Black series were generally of finer, smaller construction than those of the Chusís Red series. Those of the Chusís Black series seem to be intermediate between the 2 extremes, an effect possibly due to the small number of examples involved.

Summary of Pottery. The method apparently used in manufacturing the great preponderance of Chusís pottery was direct shaping by paddle and anvil. (The only exceptions
<table>
<thead>
<tr>
<th>Series and Types</th>
<th>No. of Examples</th>
<th>Mean Diameters of Types</th>
<th>No. of Examples</th>
<th>Mean Diameters of Series</th>
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<tbody>
<tr>
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<tr>
<td>Type I</td>
<td>50</td>
<td>17.1 cm.</td>
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<tr>
<td>Type II</td>
<td>74</td>
<td>25.3</td>
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<td>Chusís Black Series</td>
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</tr>
<tr>
<td>Type I</td>
<td>3</td>
<td>13.0</td>
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<tr>
<td>Type II</td>
<td>5</td>
<td>19.4</td>
<td></td>
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<tr>
<td>Sechura Red Series</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Type I</td>
<td>61</td>
<td>15.9</td>
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</tr>
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<td>Type II</td>
<td>7</td>
<td>39.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sechura Black Series</td>
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</tr>
<tr>
<td>Type I</td>
<td>13</td>
<td>13.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type II</td>
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<td>49.5</td>
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</tr>
<tr>
<td>Total examples</td>
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<td>215</td>
<td></td>
</tr>
</tbody>
</table>

Mean oral diameter, all rim sherds, Chusís 20.4
noted are the 2 sherds of the Sechura Mold-Pressed Red Type.) The necks of jars were fashioned separately from the bodies, perhaps as coils, subsequently attached, presumably by pinching, and later worked into shape with paddle and anvil.

Another feature common to a very large proportion of the sherds, particularly those from the neck, is minute ridges, which are always parallel to the rim, remarkably regular, and sometimes very long (e.g., Plate XII, M). I was at first puzzled, wondering whether this could imply the use of the potter's wheel. After watching the manufacture of pottery at the modern village of Simbilá (Christensen, 1955, pp. 11-13), however, I was satisfied that such is not the case. There, excellent utilitarian pottery is manufactured without the use of the wheel, but upon completion minute ridges identical with those seen at Chusís are clearly visible. They are made by the potter shaping the neck with the hands while walking steadily around the upright vessel with the arms held rigidly. The fact that such ridges were not found on all the Chusís sherds may be due to 2 kinds of alteration of the vessel's surface: polishing and weathering. Also, either may account for the fact that this ridging was observed more often on the interior of the sherd than on the exterior.

Most Chusís pottery presents the appearance of having been smoothed and floated by hand. Polishing is also
occasionally present; it shows up repeatedly on finely-made, thin-walled sherds of what is often clearly a seed-bowl shape in the Sechura Red and Sechura Black series.

The temper and color of the sherds and vessels divide them into 4 major series: Chusís Red, a brick red pottery with medium to coarse temper; Chusís Black, a black pottery with medium to coarse temper; Sechura Red, a brick red pottery without temper visible to the naked eye; and Sechura Black, a black pottery without visible temper. The temper of the 2 Chusís series may have been crushed rock, while that of the 2 Sechura series was probably the fine, wind-blown sand of the desert.

These 4 series have been further divided into 15 types on the basis of decoration. There were observed 9 distinct techniques of decoration: applique, modelling, incising, punctation, stamping, mold-pressing, slipping, painting, and glazing. The stamping, mold-pressing, and glazing were observed only on sherds found on the surface of the site, a fact which is utilized in Section VIII in interpreting Chusís chronology.

The ceramic types herein labelled "textured" make use of applique, modelling, incising, and punctation in varying combinations. Each type has its distinctive emphasis. The Sechura Textured Red favors applique and finger pressing, especially of horizontal serpentine elements, while Chusís
Textured Red is preponderantly incised and punctated. The
textured black types seem indifferent in this respect.

Most examples of the white-on-red types present a
rather crude variety of painting. The red is simply the
brick-red paste of the vessel wall, while the white is a
dull, somewhat fugitive color applied without skill. Occas-
ional examples achieve a much higher degree of excellence,
however.

Another decorative technique, although represented by
only a very few sherds, seems of unusual importance: neg-
ative painting.

Preferred design elements for painted pottery at Chusís
are very broad, plain bands, horizontal straight and serpen-
tine lines or stripes, and dots.

Among numerous shapes found among the Chusís vessels,
the large, high-necked, globular jar with an outflaring rim
is very common. The medium-size bottle with outflaring neck
and basal shoulder is also very popular, especially among
the Chusís Red Plain type. The thin-walled seed bowl is
common, particularly in the Sechura Black Plain type, while
large, deep bowls, both open and constricted, occur in many
examples in most of the types. Worthy of note are handles,
hollow conical and mammiform foot supports, straight-sided
and tapering vertical spouts, stirrup-spouts, and carrying
lugs.
One gets the impression of a rather homogeneous, provincial ceramic tradition, in which all types were closely interrelated. All types were probably manufactured at the village or nearby. Few sherds seem sufficiently differentiated from the general tradition to assign them as trade pieces, including perhaps the mold-pressed and stamped specimens from the surface. Fire blackening from culinary use is very common throughout most of the types. While it is undoubtedly true that more care was exercised in the manufacture of some pieces than others, there seems to be no evidence of the manufacture of any variety of pottery exclusively for funerary, ceremonial, or esthetic purposes. Apparently all the pottery was "utilitarian."

Ceramic Spindle Whorls. Table 9 describes 13 ceramic spindle whorls acquired during investigations at Chusís. Nos. 1 to 4 were removed from the excavations (Stratitest A, Layer III; Trench C; Stratitest D, Layer II; and Stratitest D, Layer III, respectively). Nos. 5 to 11 were presented to me by a villager, Srta. Julia Chunga Ramos; they had been gathered from the surface. Nos. 12 and 13 are present in the ceramic collection but without record of provenience.

The paste and temper of these whorls are comparable to those of the Chusís pottery. No. 9 possesses paste and temper which seem similar to those of Chusís Red pottery. Nos. 1-7, 12, and probably 8 have paste and temper similar to
<table>
<thead>
<tr>
<th>No.</th>
<th>Form</th>
<th>Ht.</th>
<th>Diam.</th>
<th>Diam. of Channel</th>
<th>Decoration</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pear</td>
<td>22 mm.</td>
<td>22 mm.</td>
<td>5 mm.</td>
<td>fingernail impressions</td>
<td>poorly made</td>
</tr>
<tr>
<td>2</td>
<td>oblate spheroid</td>
<td>14</td>
<td>22</td>
<td>5</td>
<td>none</td>
<td>paste soft</td>
</tr>
<tr>
<td>3</td>
<td>spheroid</td>
<td>19</td>
<td>19</td>
<td>5</td>
<td>diagonal incisings</td>
<td>broken and eroded</td>
</tr>
<tr>
<td>4</td>
<td>jar</td>
<td>21</td>
<td>20</td>
<td>5</td>
<td>none</td>
<td>broken on bottom</td>
</tr>
<tr>
<td>5</td>
<td>jar</td>
<td>17</td>
<td>17</td>
<td>4</td>
<td>none</td>
<td>fine, hard paste, highly polished</td>
</tr>
<tr>
<td>6</td>
<td>beehive</td>
<td>14</td>
<td>20</td>
<td>5</td>
<td>reed punctates and vertical incisings</td>
<td>polished; broken</td>
</tr>
<tr>
<td>7</td>
<td>seed bowl</td>
<td>16</td>
<td>19</td>
<td>5</td>
<td>incised chevrons</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>sphere</td>
<td>18</td>
<td>19</td>
<td>4</td>
<td>incised lines much around circumference</td>
<td>broken</td>
</tr>
<tr>
<td>9</td>
<td>seed bowl</td>
<td>17</td>
<td>21</td>
<td>5</td>
<td>vertical incisings in sets of 3</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>jar</td>
<td>17</td>
<td>20</td>
<td>c.6</td>
<td>incised wing-hour-glass shape designs</td>
<td>well polished</td>
</tr>
<tr>
<td>No.</td>
<td>Form</td>
<td>Ht.</td>
<td>Diam.</td>
<td>Diam. of Channel</td>
<td>Decoration</td>
<td>Comments</td>
</tr>
<tr>
<td>-----</td>
<td>-------------</td>
<td>-----</td>
<td>-------</td>
<td>------------------</td>
<td>----------------------------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>11</td>
<td>biconical</td>
<td>19</td>
<td>20</td>
<td>4</td>
<td>vertical in- crudely</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>cisings a- made</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>round circumference</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>truncated</td>
<td>13</td>
<td>18</td>
<td>7</td>
<td>none</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sphere</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>seed bowl</td>
<td>17</td>
<td>22</td>
<td>5</td>
<td>incised con- probably</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>centric tri- polished</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>angles and circles</td>
<td></td>
</tr>
</tbody>
</table>
those of the Sechura Red series. Nos. 10, 13, and probably 11 are affiliated in these characteristics with the Sechura Black series.

These spindle whorls vary widely in the skill involved in their manufacture. No. 5, for example, gives evidence of excellent workmanship. Others such as 1, 2, and 11 give the impression of having been fashioned by a housewife from any lump of clay near at hand and fired in her kitchen fire pit. The firing temperature of some specimens was too low, making the paste soft; the atmosphere seems poorly controlled, such that the color is indefinite.
VII. THE NON-CERAMIC SPECIMENS OF CHUSÍS

Metals. Twenty specimens of metal were recorded from Chusís. Two were gathered from the surface, while 18 were removed during excavation. All of them are small; many are doubtlessly mere fragments of larger ornaments or tools. In Table 10 the objects are listed and described as they originally appeared.

Dr. William C. Root of Bowdoin College has since examined the specimens, submitting them to electrolytic cleaning and spectroscopic analysis. My thanks are due him for the following additional information, which is abstracted from his manuscript (Root, 1955).

The specimens are of essentially pure copper, except for the gilded disc (M-12), but are completely corroded. All seem to have been made by hammering.

The disc (M-12) is of thin sheet, gilded on both sides. It appears to have been manufactured by the mise-en-couleur process.

A number of the objects (M-8, -10, -19, -20, -22, -25, and -26) are tubes of small diameter and probably served as pins. They seem to have been rolled from strips of sheet copper. Due to their corrosion, there is now no evidence of
TABLE 10
METALS RECOVERED FROM THE CHUSIS SITE

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Provenience</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-8</td>
<td>surface</td>
<td>Tube, 15 mm. long.</td>
</tr>
<tr>
<td>M-9</td>
<td>surface</td>
<td>Small point(?).</td>
</tr>
<tr>
<td>M-10</td>
<td>Stratitest A,</td>
<td>Pin, 43 mm. long.</td>
</tr>
<tr>
<td></td>
<td>Layer II</td>
<td></td>
</tr>
<tr>
<td>M-11</td>
<td>Stratitest B,</td>
<td>Small lump.</td>
</tr>
<tr>
<td></td>
<td>Layer I</td>
<td></td>
</tr>
<tr>
<td>M-12</td>
<td>Stratitest B,</td>
<td>Gold-plated spangle or disc, round and 21 mm. diameter. Two very thin gold laminae are held</td>
</tr>
<tr>
<td></td>
<td>Layer III</td>
<td>together by a thin layer of some black adhesive of possibly crystalline structure. The whole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>is encased in heavy green patina, no actual copper being present.</td>
</tr>
<tr>
<td>M-13</td>
<td>Trench C</td>
<td>Fine crescent, originally probably square in cross section, 28 mm. from tip to tip, one tip</td>
</tr>
<tr>
<td></td>
<td></td>
<td>being pointed. About a quarter of the distance from the blunt end a fine, twisted wire of two</td>
</tr>
<tr>
<td></td>
<td></td>
<td>strands, each composed of several filaments, has been wrapped around it 4 times and tied or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>twisted into a knot on the inside. The structure of the wire is fairly clear, even though it</td>
</tr>
<tr>
<td></td>
<td></td>
<td>is probably entirely patinated. (See Plate XIV, A.)</td>
</tr>
<tr>
<td>M-14</td>
<td>Trench C</td>
<td>Square nail or pin, 63 mm. long. Slightly bent.</td>
</tr>
<tr>
<td>M-15</td>
<td>Trench C</td>
<td>Nail or pin, 51 mm. long. Patina is pale green.</td>
</tr>
</tbody>
</table>
### TABLE 10
METALS RECOVERED FROM THE CHUSÍS SITE (Cont.)

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Provenience</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-16</td>
<td>Stratitest C, Layer VIII</td>
<td>Square nail or pin, 23 mm. long.</td>
</tr>
<tr>
<td>M-17</td>
<td>Stratitest C, Layer IX</td>
<td>Small lump.</td>
</tr>
<tr>
<td>M-18</td>
<td>Stratitest C, Layer IX</td>
<td>Small lump.</td>
</tr>
<tr>
<td>M-19</td>
<td>Stratitest C, conical excavation</td>
<td>Fine pin, 51 mm. long.</td>
</tr>
<tr>
<td>M-20</td>
<td>Stratitest C, conical excavation</td>
<td>Pin or tube(?), 17 mm. long.</td>
</tr>
<tr>
<td>M-21</td>
<td>Stratitest C, conical excavation</td>
<td>Spiral, total length c. 40 mm. Makes 1 complete revolutions, beyond which it continues straight. Patina is pale green.</td>
</tr>
<tr>
<td>M-22</td>
<td>Stratitest C, conical excavation</td>
<td>Fragments of a pin, total length c. 107 mm.</td>
</tr>
<tr>
<td>M-23</td>
<td>Stratitest C, conical excavation, below c. 2 m. depth</td>
<td>Band, 1/4 x 31 mm.</td>
</tr>
<tr>
<td>M-24</td>
<td>Stratitest C, conical excavation, below c. 2 m. depth</td>
<td>Hook(?). Main shaft is c. 50 mm. long, to the side of which bends an arm c. 23 mm. long.</td>
</tr>
<tr>
<td>M-25</td>
<td>Trench D</td>
<td>Pin, 66 mm. long.</td>
</tr>
<tr>
<td>M-26</td>
<td>Trench D</td>
<td>Tube, 67 mm. long. Patination apparently complete.</td>
</tr>
</tbody>
</table>
TABLE 10
METALS RECOVERED FROM THE CHUSÍS SITE (Concl.)

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Provenience</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-27</td>
<td>Stratitest D, conical excavation, beside lower wall, c. 1.0 to 1.3 m. depth</td>
<td>Small lumps. Patination apparently complete.</td>
</tr>
</tbody>
</table>
overlapping, so it is impossible to say whether the edges were originally fastened together. In one case (M-20) it looks as if one end was melted and then hammered to a point.

A number of examples (M-13, -14, -15, -16, and -24) appear to be nails(?), hammered into a square cross section.

M-21 is a round wire bent into a crude spiral.

M-23 is a flat piece of rectangular cross section.

Further consideration is given Chusis metals in a future monograph which Dr. Root is preparing (Root, n.d.).

Artifacts of Bone. Only 6 specimens of bone which had been shaped into ornaments or tools, or otherwise modified by human agency, were unearthed at Chusis. Of these, 3 were bird bones and the remainder probably of long bones of mammals.

Provenience and description for each specimen are given in Table 11.

Artifacts of Shell. Four specimens of shell were unearthed at Chusis which gave the appearance of having been intentionally fashioned by human agency. The provenience of each, together with a brief description, is given in Table 12.

Artifacts of Stone. Twenty objects of stone which appeared to have been intentionally fashioned by human agency were brought to light at the Chusis excavation. With 2 exceptions (AST-19 and AST-21) these had been manufactured of
<table>
<thead>
<tr>
<th>Specimen</th>
<th>Provenience</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB-1</td>
<td>Stratitest A, Layer III</td>
<td>Two reels(?), measuring 136 x 15 x 5 mm. and 138 x 18 x 8 mm., respectively. Squared on the ends. Made from fairly dense long bones of a large mammal. Well smoothed and polished and regular in outline.</td>
</tr>
<tr>
<td>AB-2</td>
<td>House Excavation, exterior trench</td>
<td>Three fragments of what appears to be a flute or whistle made of a hollow bird bone. Larger end, 11 mm. diameter, has been worked smooth and squared off. Two holes were perforated near the small end, one c. 4 mm. in diameter and situated 5 mm. therefrom.</td>
</tr>
<tr>
<td>AB-3</td>
<td>Stratitest C, Layer III</td>
<td>Bird bone, one end cut off square.</td>
</tr>
<tr>
<td>AB-4</td>
<td>Stratitest C, conical excavation, east of Layer VII-C</td>
<td>Ornament(?), 41 x 18 x 2 mm. A portion of one side has been thinned to 1 mm. and covered with a dark adhesive substance, including what appear to be traces of copper patina. One end is rounded, while the other has a short projection extending laterally from each corner. (See Plate XIV, C, right)</td>
</tr>
<tr>
<td>AB-5</td>
<td>Stratitest D, Layer IX</td>
<td>Awl, 72 mm. long. Consists of a splinter of a long bone of a mammal, pointed and fire-darkened on both ends, but one end broken off.</td>
</tr>
<tr>
<td>AB-6</td>
<td>Stratitest D, conical excavation</td>
<td>Leg bone of a pelican, with a hole punched roughly in the side.</td>
</tr>
<tr>
<td>Specimen</td>
<td>Provenience</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>ASh-1</td>
<td>Stratitest C, Layer V</td>
<td>Pot-polisher(?), 59 x 22 x 8 mm. Fashioned of the terminal portion of a large pelecypod shell, roughly crescent-shaped. Included are 7 radial ribs. These have been smoothed down nearly to the level of the intervening softer areas, the whole surface finished by abrasion, as is clear from the minute striations, then polished. (See Plate XIV, C, left.)</td>
</tr>
<tr>
<td>ASh-2</td>
<td>Stratitest D, Layer V</td>
<td>Snail shell pierced by 3 rough holes, perhaps for stringing.</td>
</tr>
<tr>
<td>ASh-3</td>
<td>Stratitest D, Layer VIII</td>
<td>Thick fragment of a large shell. Has worn edge, as if used for a scraper.</td>
</tr>
<tr>
<td>ASh-4</td>
<td>Stratitest D, Layer IX</td>
<td>Small fragment of shell, measuring 1½ x 20 mm., well smoothed on the edges as if used for a scraper.</td>
</tr>
</tbody>
</table>
imported material, for to my knowledge no stone exists anywhere near the site, other than the loosely-cemented, fossiliferous limestone of the cliff. Knives, scrapers, chisels, hammers, roller, metates, and other tools and in one case (AST-17) a possible ornament, are involved. Percussion flaking, abrasion, pecking, sand-and-string cutting, drilling, and perhaps other techniques were employed in their manufacture. Pressure chipping is notably absent. With few exceptions, the finds were fragmentary and probably represent broken and discarded tools.

These specimens are listed according to provenience, with descriptions and measurements, in Table 13. Selected examples are illustrated in Figs. 37 and 38.

Textiles. Several examples of cloth, as well as what appeared to be the remains of a basket, and of reed matting, were discovered in the conical excavation surrounding Stratitest D (see Fig. 19 and discussion under "Refuse Stratigraphy," above). These were so fragile, however, that no attempt was made to remove any of them from the field. Instead, notes and sketches were made on the spot; these are summarized in Table 14. Also, Fig. 39 illustrates one of the examples of cloth from Locus a.

Plant Remains. Among the remains studied in the field laboratory at the hacienda-house were samples of charcoal from 20 different proveniences. At least one sample included
FIGURE 37. Artifacts of stone excavated at Chusif
<table>
<thead>
<tr>
<th>Specimen</th>
<th>Provenience</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST-1</td>
<td>House Excavation, main room</td>
<td>Grinder, about the size of the palm of the hand and flattish. One side is rough and carries traces of what appears to be hematite of an intense brick-red color.</td>
</tr>
<tr>
<td>AST-2</td>
<td>House Excavation, exterior trench</td>
<td>Scraper(?) or knife(?) measuring 54 x 32 mm. and oval in outline. Of metamorphosed sandstone. Was apparently fashioned by percussion; no retouching noted. Has sharp edges; shows no evidence of use. (See Fig. 37, upper left.)</td>
</tr>
<tr>
<td>AST-3</td>
<td>Trench B, Layers I to III-B</td>
<td>Crude knife(?). No pressure chipping.</td>
</tr>
<tr>
<td>AST-4</td>
<td>Stratitests B, conical excavation</td>
<td>Cutting base(?) of slate(?) showing straight grooves, which appear to have been cut by the string-and-sand method.</td>
</tr>
<tr>
<td>AST-5</td>
<td>Stratitests B, conical excavation</td>
<td>Triangle of dark red sandstone (?). Shaped by scraping and rubbing.</td>
</tr>
<tr>
<td>AST-5a</td>
<td>Trench C, c. 1.2 m. depth</td>
<td>Hammer stone.</td>
</tr>
<tr>
<td>AST-6</td>
<td>Trench C</td>
<td>Fragment of chopper(?).</td>
</tr>
<tr>
<td>AST-7</td>
<td>Trench C</td>
<td>Fragment of sculpture(?). Has 2 holes drilled into it.</td>
</tr>
<tr>
<td>AST-8</td>
<td>Trench C</td>
<td>Knife(?) or scraper(?)</td>
</tr>
</tbody>
</table>
| AST-9    | Stratitests C, Layer I | Fragment of scraper, 25 x 22 mm. Composed of a dense, lusterless, tan-colored metamorphosed sandstone, which breaks with a
### TABLE 13
**ARTIFACTS OF STONE EXCAVATED AT CHUSÍS (cont.)**

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Provenience</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST-9 (cont.)</td>
<td></td>
<td>conchoidal fracture. Has been retouched, probably by percussion. One edge has been worn smooth by use. (See Fig. 37, upper right.)</td>
</tr>
<tr>
<td>AST-10 Stratitest C, Layer VII-C</td>
<td>Fragment(?) of knife, 58 x 39 mm. Composed of slate(?). Cutting edge, judging by longitudinal striations, has been shaped by abrasion. (See Fig. 37, middle right.)</td>
<td></td>
</tr>
<tr>
<td>AST-11 Stratitest C, Layer VII-C</td>
<td>Chisel (probably cutting end only), measuring 50 x 29 x 19 mm. Tapers to a cutting edge of 16 mm. Shaped by pecking. (See Fig. 37, lower right.)</td>
<td></td>
</tr>
<tr>
<td>AST-12 Stratitest C, burial in conical excavation</td>
<td>Portion of metate, measuring 17 x 17 x 5½ cm. Shaped by pecking, then ground smooth around outer edge. Inner surface smooth from use. The unbroken end and one side bear the marks of subsequent use as a hammer. (See Fig. 38.)</td>
<td></td>
</tr>
<tr>
<td>AST-13 Stratitest C, conical excavation below c. 2 m. depth</td>
<td>Cutting end of chisel(?) or pick(?), 56 x 29 x 22 mm. Shaped in part by pecking. Blade or point ill-defined. (See Fig. 37, lower left.)</td>
<td></td>
</tr>
<tr>
<td>AST-14 Stratitest C, conical excavation</td>
<td>Fragment of metate(?). One surface is well-smoothed and concave.</td>
<td></td>
</tr>
</tbody>
</table>
| AST-15 Stratitest C, conical excavation | Portion of net sinker(?) or net weaving tool(?), 65 x 14 x 8 mm. Tapers to a shallow V on
<table>
<thead>
<tr>
<th>Specimen</th>
<th>Provenience</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST-15 (cont.)</td>
<td>Specimen provenience</td>
<td>unbroken end. Fashioned of slate by abrasion, as evidenced by striations. A longitudinal groove with rounded bottom bisects either surface. (See Plate XIV, B, left.)</td>
</tr>
<tr>
<td>AST-16 Stratitests C, conical excavation</td>
<td></td>
<td>Fragment of roller(?), 9 x 6 x 5 cm. The original was cylindrical and c. 9 cm. in diameter. The curved surface is well-rounded and smooth.</td>
</tr>
<tr>
<td>AST-17 Stratitests C, conical excavation, c. .7 m. depth</td>
<td></td>
<td>Net sinker(?), pendant(?), or bead(?), 51 x 20 x 12 mm. Fashioned of soapstone(?) by abrasion. Tapers to a small end on which the eyes and mouth of a fish are portrayed by drilling and incising. Larger end is pierced by conical perforations from both sides meeting in the middle. (See Plate XIV, B, right.)</td>
</tr>
<tr>
<td>AST-18 Trench D</td>
<td></td>
<td>Hammer, 10 cm. long x c. 3½ cm. in diameter. Fashioned of a dense material. Pounding marks visible on rounded end. (See Fig. 37, middle left.)</td>
</tr>
<tr>
<td>AST-19 Stratitests D, Layers III and III-A</td>
<td></td>
<td>Pot-polisher(?), consisting of the core (steinkern?) of a large fossil shell. Well smoothed by abrasion.</td>
</tr>
<tr>
<td>AST-20 Stratitests D, Layer VI, at bottom of lower wall</td>
<td></td>
<td>Socket for door post(?), measuring 38 x 19 x 10 cm. Approximately elliptical in shape, it contains a smooth-ground, circular depression round in</td>
</tr>
<tr>
<td>Specimen</td>
<td>Provenience</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>AST-20</td>
<td>(cont.)</td>
<td>cross-section, 3(\frac{1}{2}) cm. deep x c. 12 cm. diameter, on the extreme edge of one side, about midway between the ends. The reverse side bears evidence of shaping by pecking. Composed of a dense, heavy material, unlike that of the cliff. (See Plate XIV, D.)</td>
</tr>
<tr>
<td>AST-21</td>
<td>Stratite D, conical excavation, c. 1.0-1.3 m. depth</td>
<td>Tool(?), 10(\frac{1}{2}) x 5(\frac{1}{2}) x 1(\frac{3}{4}) cm., approximately rectangular in form. But little smoothed. Perhaps composed of a fossil consisting of long, fine, parallel tubes.</td>
</tr>
</tbody>
</table>
FIGURE 39. Knitted cloth found at Locus A, Stratitest D
TABLE 14

TEXTILES DISCOVERED AT STRATITEST D, CHUSÍS

<table>
<thead>
<tr>
<th>Locus (see Fig. 19)</th>
<th>Depth Below Surface</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>1.27 m.</td>
<td>One specimen of cloth consisted of simple, parallel elements to which transverse elements were tied with a knot at every point of contact.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A second specimen, knitted cloth, consisted of square knots, c. 5 knots to the cm. (Fig. 39).</td>
</tr>
<tr>
<td>b</td>
<td>1.32</td>
<td>Cloth, found in association with a non-human bone. Basket weave with paired warp and weft.</td>
</tr>
<tr>
<td>c</td>
<td>.98</td>
<td>One specimen of cloth with a simple basket weave.</td>
</tr>
<tr>
<td>d</td>
<td>.86</td>
<td>Wattle or matting(?).</td>
</tr>
<tr>
<td>e</td>
<td>.76</td>
<td>Cloth, apparently with a simple basket weave.</td>
</tr>
<tr>
<td>f</td>
<td>1.32</td>
<td>Cloth, having a simple basket weave. C. 10 elements to the cm.</td>
</tr>
<tr>
<td>g</td>
<td>1.35</td>
<td>Cloth, with the surface composed of many curlecues or nubbles. Resembles somewhat modern nubby cloth oroodle cloth.</td>
</tr>
<tr>
<td>enshrudging human skeleton</td>
<td>c. .8</td>
<td>Cloth, probably 2 distinct specimens, one of which is an over-one-under-two twill.</td>
</tr>
<tr>
<td>beside left humerus of skeleton</td>
<td>c. .8</td>
<td>Basket(?), c. 10 cm. diameter x c. 5 cm. deep. Sub-hemispherical in cross section. Represented only a fine, brown, circular soil line.</td>
</tr>
</tbody>
</table>
the charred remains of bark. Another sample weighing nearly 4 grams came from the deepest layer (XI) of Stratitest C.

Seven chips or twigs of the wood itself were recorded, at least 2 tentatively identified as of algarrobo and one of cane.

Nine examples of large seeds were identified as of a fruit called charán. Four other finds were of seeds of the algarrobo tree. (This tree is an entirely different species from that of Cuba and other parts of Latin America, despite the similarity of name, I am informed by Prof. Glen Moore of the Department of Botany, Brigham Young University. The latter, called algarroba, is the carob tree and results from a post-Columbian introduction from the Mediterranean region. The Peruvian algarrobo, on the other hand, is indigenous and is a close relative of the mesquite of the United States Southwest, differing from it only in species, not in genus.) Plant seeds were also noted as inclusions within the boluses of excrement (see below, under "Remains of Terrestrial Fauna"). These generally have the appearance of algarrobo seeds. Two fragments of the bottle gourd appeared, both from near the surface. Fragments of what appeared to be carrizo cane were noted at Stratitest D.

Most of these plant remains were preserved by being charred.

Three packets of charred plant remains were submitted
to Mr. Junius B. Bird of the American Museum of Natural History, to whom my gratitude is due for these and other species identification on the next few pages. Identified were a number of seed pod sections of the algarrobo tree and a root end, probably of the caña brava.

**Bird Bones.** Bones of birds were recorded from 11 different proveniences at the Chusís site. In at least one instance, a large bird or birds were involved. In one other case, a portion of what appeared to be the skull of a duck was noted.

The leg bone of a pelican (AB-6) is listed in Table 11, above.

**Remains of Marine Fauna.** Either fish bones or shells were recorded for nearly all proveniences of the Chusís site, while both were recorded for the majority of them. Indeed, except for the sand itself, marine fauna were the most abundant type of remains and accounted for a very great part of the refuse accumulation. A wide variety of species of both fish and shells were present, but undoubtedly the most abundant was a smoothed-shelled gastropod (*Olivella columnellaris* Sowb) c. 15 mm. long by c. 6 mm. maximum diameter. The *Donax* sp. was also very common. A set of teeth was tentatively identified as belonging to the ray fish and a gill plate as belonging to the *cabrilla*.

These remains were often found fire-blackened or charred.
Selected shells were identified by Mr. Fred Weir, at the request of Mr. Bird, as follows:

- **Donax** sp.
- **Pitaria lupanari** Lesson
- **Paphia staminæ** Conrad
- **Marginella curta**
- **Olivella columellaris** Sowb
- **Natica** sp.
- **Pholadidae** sp.
- **Pteria (= Avicula)** sp.
- **Balanus** sp.
- **Cardium** sp.
- **Pecten** sp.

**Remains of Terrestrial Fauna.** Bones of mammals were also very common at the Chusis site. Nearly every provenience produced examples, very often designated in the field laboratory record as "large mammals." Bones identified at the field laboratory as the dog are included, 2 of them slightly burned. Remains of smaller mammals were also occasionally encountered, including some which I took to represent a rodent, possibly the guinea pig.

The following species identifications of selected bones have been submitted by Mr. Bird:

- Mountain lion (*Felis Concolor puma*?). Single large specimen.
Female sea lion (probably *Otaria byronia*). This single specimen definitely is not the Galápagos sea lion, nor the fur seal (*Arctocephalus*).

Desert fox (probably *Cerdocyon thous*). Five leg bones, probably of a single organism.

Llama (*Lama glama glama*) or alpaca (*Lama pacos*). Fifteen bones from 13 different proveniences.

Since no trace of any South American camelid appears in the Chicama-Virú sector until the domestication of the llama, c. 1000 B.C., Mr. Bird assumes that the Chusí's specimens are probably of the llama.

These bones were often charred or at least darkened by exposure to the fire. One llama mandible bears cutting marks on both the inside and the outside. No long bone of a large mammal was found whole.

Another form of evidence concerning the terrestrial fauna is the numerous boluses of excrement, which were found widely distributed throughout the accumulation. These were usually preserved by charring, although a number of them definitely had not been charred. Many were comparable to the boluses of a sample of excrement which the kitchen boy at the hacienda-house, Carlos Temoche T., brought to me from the guinea pigs (*cui*) kept by his family, i.e., c. 15 mm. long by c. 6 mm. diameter, parallel-sided, and pointed at one or both
ends. The greater part of them, however, were slightly larger, rounder, less regular in outline, and tended toward the tear-drop shape. From this, I assume that the guinea pig and at least one other rodent were represented. I found no boluses that I felt justified in assigning to a creature as large as the llama.

**Human Remains.** Three intentional human burials were unearthed at Chusí, as well as 5 other fragmentary finds of human osseous remains.

The well-preserved skeleton of an adult male, deposited in an extended and supine position, was discovered lying to the west of Stratitest D (see under "Refuse Stratigraphy," above). The following parts were removed to the field laboratory for study and measurement: cranium, mandible, pelvis, left humerus, left femur, and left tibia.

Inspection of the pelvis and skull clearly indicated that the sex was male. The condition of the surfaces of the pubic symphysis indicated an age of from 30 to 50 years, while the state of endocranial suture closure indicated from 50 to 60 years. The completed eruption of the dentition and the wear on the teeth confirmed the conclusion of considerable age.

Fifteen adult teeth were present in the mandible and were in good condition; no caries were observed. However, the third right molar was missing, and the jugum had grown
smooth, except for a slight pit. On the left side, anterior aspect, 2 foramina were present.

The right side of the maxilla had the normal 8 adult teeth. The third molar was only slightly worn, yet the number of cusps was not clear. Some of the other molars may have possessed 5 cusps, but the occlusial surfaces were much worn. The left side had a supernumerary third incisor, about the size of the inferior incisors. The first molar on the left side was absent, and in its place a smooth hole 5 mm. in diameter led to the nasal cavity, above (Plate XIV, E). No caries were observed in the maxilla.

Two small foramina were located on the left side of the sagittal suture within the first cm. from the mid-sagittal plane and directly between occipital bosses, which were posterior extensions of parietal bosses. The left boss was slightly larger than the right. No os inca was noted.

A longitudinal spine was observed on the posterior aspect of the left femur.

The following measurements were recorded in mm.:

- Maximum length (glabella-opisthocranion) 158
- Maximum breadth (euryon-euryon) 155
- Minimum frontal (frontotemporale-frontotemporale) 95
- Basion-bregma 143
- Endobasion-nasion 104
<table>
<thead>
<tr>
<th>Measurement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endobasion-prosthion</td>
<td>97</td>
</tr>
<tr>
<td>Bizygomatic (zygion-zygion)</td>
<td>150</td>
</tr>
<tr>
<td>Maxillo-alveolar length (prosthion-alveolom)</td>
<td>59</td>
</tr>
<tr>
<td>Bigonial diameter (gonion-gonion)</td>
<td>111</td>
</tr>
<tr>
<td>Bicondylar breadth (rami)</td>
<td>128</td>
</tr>
<tr>
<td>Foramen magnum length (basion-opisthion)</td>
<td>c. 33</td>
</tr>
<tr>
<td>Foramen magnum breadth</td>
<td>c. 33</td>
</tr>
<tr>
<td>Total facial height (nasion-gnathion)</td>
<td>120</td>
</tr>
<tr>
<td>Upper facial height (nasion-supradentale)</td>
<td>70</td>
</tr>
<tr>
<td>Mid-facial breadth (zygomaxilla-rezygomaticillare)</td>
<td>103</td>
</tr>
<tr>
<td>Nasal height (nasion-nasospinale)</td>
<td>51</td>
</tr>
<tr>
<td>Nasal height (aperture)</td>
<td>32</td>
</tr>
<tr>
<td>Nasal breadth (aperture)</td>
<td>23</td>
</tr>
<tr>
<td>Orbital height</td>
<td>37</td>
</tr>
<tr>
<td>Orbital breadth (maxillofrontale-ectoconchion)</td>
<td>43</td>
</tr>
<tr>
<td>Orbital breadth (dacryon-ectoconchion)</td>
<td>41</td>
</tr>
<tr>
<td>Anterior interorbital breadth (maxillofrontale-maxillofrontale)</td>
<td>21</td>
</tr>
<tr>
<td>Dacryal chord (dacryon-dacryon)</td>
<td>21</td>
</tr>
<tr>
<td>Biorbital breadth (ectoconchion-ectoconchion)</td>
<td>101</td>
</tr>
<tr>
<td>Maxillo-alveolar breadth (ectomolare-ectomolare)</td>
<td>70</td>
</tr>
</tbody>
</table>
Palatal length (staphyion-oralis) 53
Palatal breadth (endomolare-endomolare) 46
Circumference (glabella-euryon-opisthocranium-euryon-glabella) 502
Sagittal arc (nasion-opisthion) 331
Frontal arc (nasion-bregma) 114
Parietal arc (bregma-lambda) 103
Occipital arc (lambda-opisthion) 114
Transverse arc (porion-apex-porion) 334
Femur: morphological length 409
Femur: midshaft anterior-posterior diameter 29
Femur: transverse diameter 27
Femur: maximum diameter of head 46
Length of humerus 292
Length of tibia 335

The burial urn discovered in the excavation of Trench C (see above, under "Refuse Stratigraphy") contained the fragile, articulated skeleton of a small infant. Dental crowns were present but apparently not yet erupted.

The burial urn discovered in the excavation of Strati-test C, lying just west of the test block (see above, under "Refuse Stratigraphy"), enclosed the fragile, articulated skeleton of another small infant (Plate VIII, D). The mandible contained 12 juga. Synostosis between the 2 halves was not
Three fragments of what was probably the skeleton of an immature person were unearthed in the exterior trench of the House Excavation. Included were what appeared to be a distal humerus with the epiphysis missing, and the epiphysis of a distal femur.

Two vertebrae and a calcaneus were unearthed in Trench C at a depth of c. 2.0 m. (identification by Mr. Bird).

Within the conical excavation of Stratitest C, east of Layer VII-C of the test block, certain bones of at least one adult lay disarticulated and scattered. Included were the right clavicle(?), 2 vertebrae, and several metacarpals or metatarsals.

Within Layer IX of Stratitest D was found an adult molar with 5 cusps.

Within the conical excavation of Stratitest D, at a depth of c. 1.8 to 2.0 m., a human vertebra, probably lumbar, was encountered.

None of the above human remains indicates exposure to fire or other unusual treatment.

Other Specimens. A number of miscellaneous specimens from various parts of the site merit a brief mention.

In the main room of the House Excavation a lump of fine, soft, chalky substance of an intense brick-red color
was found, together with a stone upon which it had apparently been ground (see above, Specimen ASt-1, under "Artifacts of Stone"). Another lump of similar red substance weighing nearly 4 grams was recovered beside Stratitest D, within the conical excavation at a depth of c. 2.0 m. It was identified by Dr. Kenneth C. Bullock of the Department of Geology and Geography, Brigham Young University, as earthy hematite. Quantitative analysis, by Merle James Custer, shows it to be composed of 42.3% iron by weight.

An elliptical disc of unfired clay, measuring 21 x 14 x 5 mm., with a deep longitudinal incision, was unearthed in Layer III of Stratitest A. The clay contained fine sand and if fired might have been converted into the Sechura Textured Red ceramic type (see above). A similar disc or pellet of unfired clay, measuring 20 x 18 mm., this one without incision, was found in the exterior trench of the House Excavation.

Numerous examples of pebbles and fossil shells, widely distributed throughout the site, were noted. Lumps of fire-hardened earth and clay—probably unintentional—were also very common. Lumps of unfired clay of a hard, brittle composition, frequently breaking with a conchoidal fracture, were often found. A few examples of what was taken to be petrified wood and some of possible gneiss also came to light.

In Layer I of Stratitest A, a small piece of dark green bottle glass was discovered.
VIII. AN INTERPRETATIVE SUMMARY OF CHUSÍS ARCHAEOLOGY

Preceding portions of the present study are occupied with a descriptive presentation of the empirical data. An effort has been made to avoid interpretations as to the culture and chronology of the site. In the present section, however, the principal effort will be to make such interpretations.

Subsistence Pattern. Judging from the archaeological evidence, the ancient subsistence pattern of Chusís was based primarily on fishing and gathering of shells. The proximity of the sea with its Humboldt Current containing enormous quantities of edible marine life in great variety provided a ready source of food. And the accumulation of midden makes it certain that this source was not overlooked. I calculate that there are approximately 250,000 cubic meters of it resting on the flat surface of the Chusís cliff, and aside from the sand and building remains, the greater part of it consists of shells and fish bones.

The most numerous form of marine life, in fact practically ubiquitous, was the "concha chica" (*Olivella columnellaris* Sowb), a small gastropod which anciently must have been gathered from the beach and prepared in much the same manner...
as it now is among the modern inhabitants of the Sechura Bay region: A quantity of the shells is immersed in scalding water, and a gruel is cooked from the emergent organisms. A small bi-valve (Donax sp.) was also very common. Both the gastropod and the bi-valve were seldom found broken, which would suggest that they were opened by the boiling water bath, rather than by crushing the shell. Larger shells were usually found in a fragmentary condition.

Not only were the shells present in considerable variety, but also the bones of fish. Included are the ray fish and the cabrilla.

The fact that the fish bones and the larger shells were often found in a charred or fire-blackened condition seems to indicate that such food was sometimes cooked directly in the fire, perhaps baked in the coals.

Two artifacts of stone appear to have been connected with the fishing activity: AST-15 and AST-17. The former may have been a net-weaving tool, perhaps a shuttle for passing the weft through the warp elements. The latter appears to have been a sinker for either line or net, what with the perforation on one end. In any event, the fact that it was fashioned to resemble a fish indicates the choice of an art motif suggested by a very common activity in the lives of the ancients.

A pair of carefully fashioned bone tools (AB-1) also
appear to be connected with fishing. I understood my workmen to identify them as reels or spools for the winding of line.

An artifact of metal (M-24) may be a fish hook.

The presence of the pelvis of a female sea lion (p. 98) suggests that the ancient Chusís villagers practiced sealing on occasion and ranged a good way into the open sea in order to reach an island where seals could be found.

Evidence for the practice of agriculture was considerable but not sufficient for full definition in all particulars. Although no possibility of such activity appears to have existed on the cliff itself, nor on the desert to the north, extensive and fertile lands fill the valley below. In modern times, the livelihood of the Chusís villagers is largely dependent upon irrigation and tillage of the soil.

At the present time the water of the Piura river only reaches the Sechura region for about 2 months during the year, January and February, and some years, not at all. Whether this was so during prehispanic times is not known. It is entirely possible that, before the settling of Europeans in the coastal valleys of Peru, a much lesser proportion of the water was diverted upstream, thus allowing an ample and dependable supply to reach the lower valley. In any event the present tradition is an agricultural one. Though individuals and families turn to other means of
livelihood in the time of scarcity, or even leave the valley, they later return and continue to depend primarily on agriculture by irrigation. Every bit of the water that does reach them is utilized, and in the intervening dry seasons a sizable population clings on to its existence with the aid of numerous wells.

Evidence for the cultivation of maize is surprisingly little. Two fragments of metates, an artifact usually thought to be associated with maize agriculture, are included among the specimens of stone: AS-t-12 and AS-t-14. If the white, chalky substance in the bottom of the jar found beneath the floor level in connection with Trench D is the desiccated remains of chicha, then we have a further evidence for the presence of maize in the culture, for chicha is ordinarily brewed from corn and is a very common trait among the indigenes (cholos), as distinguished from the whites (blancos), to this day.

Still further evidence on agriculture is in the form of certain of the plant remains mentioned above. My workmen recognized the pits of a fruit which they called charán. The bottle gourd was also present.

That the above constitutes anything like a complete listing of cultivated plants in the ancient Chusis culture, is extremely unlikely, since the lavish variety of food crops of prehistoric Perú is well known. However, the preservation
factor may have left us only a partial representation. A good many of the men of modern villages located within easy access of the Sechura Bay vary their work according to a seasonal rhythm: At appropriate times when the planting, harvesting, and other agrarian work leave them free, they take to sea fishing. In the case of the latter activity, however, they appear to work as employees of specialized fishermen, since only a few are prosperous enough to own a boat and other equipment for themselves. Thus, agriculture is seasonal, while fishing may be depended upon at any season.

The great quantities of mammalian bones and dung boluses found distributed widely throughout the site are convincing evidence of the practice of animal husbandry. The llama was responsible for the greater part of these bones, probably nearly all of those entered in the field record as "large mammals." Also present as domesticated animals were the dog and probably the guinea pig, as well as some other rodent. A form of the duck, possibly the muscovy, which is known to have been domesticated anciently in South America (Gilmore, 1950, p. 460), appears to have been present.

The fact that no boluses of excrement were found which can logically be ascribed to the llama seems significant. It is likely that the guinea pig and perhaps other forms were kept in the village itself, while the llama was pastured in
the valley below and brought to the site only in the form of butchered meat. Another possibility is that the llamas were not kept in the lower Piura valley at all, since it would have provided at best an unnatural habitat for this mountain-loving camelid and since it is now totally extinct in the coastal valleys, but that the slaughtered meat was imported from the sierra. This seems hardly likely, however, in view of the fact that llamas were reported in various coastal valleys at the time of the Conquest, notably the nearby Chira valley (Lothrop, 1948).

The fact that these mammalian bones were often found discolored by the fire suggests the same thing as noted above in the case of the shells and fish bones: The meat was either cooked directly in the flame or else the cooking vessels were allowed to overheat and burn the food. Two fire-blackened dog bones suggest that even that animal may have had a place in the ancient diet.

The cutting marks on both sides of a portion of llama mandible indicate that the meat was cut off bit by bit, perhaps as the diner ate it. The broken condition of all long bones of the larger animals suggests the practice of extracting the marrow.

The complete absence of projectile points or any tool that could be construed as serviceable for hunting, is noteworthy. Evidently, the valley bottom was rather fully
where in modern times great numbers of large *algarrobos* occupy the unused interstices—sand dunes and other areas unfit for agriculture—and continue to bear their annual crop, untended. These pods possess a rich, melliferous flavor. They are regarded as fit food for humans in time of poverty, but most *cholos* do not ordinarily partake of it. Horses, donkeys, and even dogs, however, are fond of it.

The administrator of the Hacienda Chusís kept large quantities of it as regular provender for his horses. Even his underfed dog would steal it whenever it could. During ancient times in the Chusís community *algarroba* may have been fare for man, but it was more likely fodder for guinea pigs and llamas.

The root tip of *caña brava* may indicate another instance of gathering. The stalk of this cane plant was much used in Peruvian antiquity for dart shafts and building materials for wattle-and-daub construction, but the use to which the roots may have been put is not clear, unless they served for food.

The diet of the ancient Chusís villagers seems to have been fairly varied—adequate or perhaps even rich in proteins. There was an abundance of sea food, as well as birds and of land animals, especially the llama, in addition to starchy plants.

Considerable evidence exists bearing on practices of
food and water storage. The pottery itself, for the use of which there is abundant evidence at the Chusís site, constitutes a means of storage. The jar, apparently containing dried-up chicha dregs, which was found standing upright, the mouth sealed off by the floor level traversed by Trench D, is an example. I have seen drinking water stored in a similar fashion in a corner in a modern Chusís hut, and it seems probable that water, chicha, grains, and many other items were so stored in antiquity.

The cistern and storage cists described in Section V, above, are further evidence on storage practices. In the case of the cistern on the southern edge of the cliff, it is clear the item stored was water. In the case of the 3 cists on the eastern face of the cliff, above Ascent E, there is no evidence that water was stored, but the abundant corn husks suggest the use to which they have been put, at least in rather recent times. Also, the workmen said that it was customary to build a fire in them to drive out the moisture, then deposit corn, beans, and any other comestible, after which the mouth is sealed from marauding foxes and buzzards by stacking bricks over them. The bricks and traces of firing were present to confirm this version. These observations undoubtedly throw light upon ancient practices. The reason that the cistern for water is no longer used may be that the population has decreased to a point where it is not practical
to keep a person on continuous guard against befouling birds and animals.

Settlement Pattern. It was a practice more or less general during the antiquity of the Peruvian coast to locate settlements and cemeteries around the edges of the desert, that is, on terrain which was close to the cultivated fields but could not itself be profitably cultivated. Chusís was no exception. Located on a point of the cliff some 16 m. above the level of the valley floor, it is inconceivable that water could have been raised to irrigate its parched soil. The settlement occupied no land that could have been utilized for any other purpose. On the other hand, it was close and within easy access to the terrain upon which livelihood depended in large part.

The site was also fairly close to the sea, upon which its ancient occupants must have depended in even greater part for their sustenance.

In several respects Chusís was admirably situated from the point of view of military preparedness. An area of little less than half a km. square was bounded on 3 of its 4 sides by the sheer walls of a cliff and on its fourth side by a man-made wall of solid clay of possibly 3 m. height. The latter was located along a line connecting the constriction between the 2 opposite cliffs, where the shortest length of clay wall could afford the greatest amount of protection. The
cliff's edge, furthermore, was penetrated only by narrow defiles, which must have been easily defended. Also, the earthen pyramid may have been useful as a place where the populace could repair in time of attack.

Yet, aside from the choice of site and the construction of the boundary wall, no evidence of military activity came to light—no implements of war, no traces of violent destruction, no fortifications. The narrow defiles traversing the cliff's edge may have been difficult to storm, but why have as many as 5? The clay wall was probably difficult to surmount; then why compromise its protection with 5 gates?

One function of these seemingly military precautions was probably not military at all. The ancient community appears to have possessed little worth defending in a military sense, other than the freedom of its inhabitants, and little worth the struggle, to an invader. The community was one of peasants, and the evidence suggests a peaceful and unspectacular existence. One function of these defenses was likely protection against predatory, night-prowling foxes. At the present day, they seem able to get through the most carefully prepared protective devices to prey upon fowls and other small stock. They must have been a nuisance to an ancient people, an important part of whose livelihood depended upon the keeping of guinea pigs and fowls. Dogs alone would have been sufficient to prevent the
foxes from entering via the various gates and ascents.

Another purpose of the wall in question may have been simply to mark the boundary of the settlement. The building of boundary walls is a well known characteristic of the coast of Peru lying to the south. Not a trace of occupation or construction was to be found on its northern or desert side.

Trench A was cut through this boundary wall for the purpose of studying its composition and history. The original wall appears to have melted into a low ridge either as the cumulative effect of the occasional light seasonal rains over a period of years, or more likely, as the single effect of one of the rare flood rains resulting from the dislocation of the El Niño current (see above under "Climate"). Thereafter, apparently without disturbing the remains of the previous construction, a new wall was raised above them, along the original lines. This was repeated at least 3 times.

The laminations to the south of the wall (Fig. 21) appear to result from alternating deposition of wind-blown sand and clay melted down from the wall, and were formed following the third construction. They suggest neglect of the wall's upkeep. But the laminations are to be found on the inside of the wall only; the outside deposit consists of pure sand. This undoubtedly means that at a time when
the final wall construction was melting down and depositing itself in thin layers on both sides, the outside was kept clean, while on the inside both sand and clay were allowed to accumulate. This confirms the view that the purpose of the wall was protection from marauding enemies of the outside world, whether human or animal. But the time finally came when the wall was altogether neglected, and any remaining eminence above the surface was obscured.

The dominant feature of the internal plan of the Chusí's village was the central earthen mound, which is now surmounted by a Roman Catholic chapel. It was an artificial rectangular construction of religious intent: a temple pyramid, corresponding to the ancient coastal Peruvian tradition of similar structures, built of either earth or adobe.

The pyramid was surrounded, moreover, by a large ceremonial square of plaza, which was in turn connected by streets with the 2 principal points of entry of the site: Ascent C on the south, and the gate at Line AA on the north. No buildings, public or domestic, appear to have been located in either the plaza or the streets. The relative absence of midden accumulation and construction debris over the streets and plaza, contrasts with its abundance both to the east and to the west.

All constructions encountered in investigating the Chusí's site, except the boundary wall, were rectangular and
were oriented with the sides approximately to the cardinal directions. While there were slight discrepancies in the case of individual domiciles (cf. Fig. 19), the public architecture (pyramid, streets, gate, and ascent) seemed to be oriented with considerable exactness. The boundary wall failed to correspond in alignment with the remainder doubtlessly because of the practical necessity of connecting the nearest points of the cliff with the shortest line. It is clear, then, that the ancient artisans of Chusís were able to lay out and align their constructions with precision, perhaps aided by astronomical observation; that their culture required orientation to the cardinal directions; but that for domestic structures a mere approximate orientation was deemed sufficient.

The modern huts and chapel of the Chusís hamlet are also rectangular and oriented approximately to the cardinal directions.

With such engineering ability, it is surprising to find that the boundary wall varies from a straight line by several meters and that its thickness also varies considerably. For some reason the ancient builders lacked either the will or the skill to keep the wall in perfect alignment and the width constant. It was probably built as a community enterprise and without the expert guidance which other features suggest was available.
Trade and Travel. Chusís is admirably situated as a point of contact with a wide extent of territory. In an ecological sense, it is anything but isolated. Yet, archaeological evidence suggests remarkably little contact with the outside world.

The Sechura-Chusís sector constitutes as it were the funnel spout of the lower Piura valley. It was the most logical point of egress to the sea, at least for the territory lying to the south of Piura. To traverse the same sector was also the most logical means of overland contact with the outside world for the entire Illescas peninsula. Furthermore, Chusís lies astride the most direct route between the Lambayeque valley on the south and the seaport of Paita on the north. This means that it was in a position to serve as a connecting link between the great Mochica and other civilizations of the coast of Peru to the south of the Sechura desert on the one hand, and an important civilizational zone including Paita and La Huaca--the entire lower Chira valley, in fact--and ultimately the Pariñas, Tumbes, and Puná areas, on the other hand. Also, the approximate alignment of the earthen pyramid of Sechura with the pyramid and streets of Chusís is a fact of probable significance in this connection. (see Section V, above, under "Points of Entry").

Any crossing of the Sechura desert or the Tablazo de Paita would have involved layover and replenishing of
supplies at or near Chusís.

Whether the Inca highway passed this way or avoided the desert in preference for the foothills route through Olmos, (see Section IX, below), as does the modern highway, I am not at present informed. But Incas or no, clear evidence exists of way stations along this desert route at some time or another in the past. This takes the form of large sherd deposits in the vicinity of Minchales (see Section IV, above). Also, since the first World War the desert route has been much used as a shortcut for trucking.

Nevertheless, the evidence at the site does not suggest a cosmopolitan center with widespread commercial contacts, but rather an isolated community with a localized culture. The pottery was probably for the most part manufactured at home.

However, certain of the rare and unusually well made sherds may be thought of as remnants of "trade vessels." Also, the hematite was certainly not mined locally. The nearest source known today is an outcrop at Tambo Grande, in the upper Piura valley about 90 km. above Chusís. Moreover, the copper and the gold for the artifacts discussed in Section VII, above, were certainly imported, for the Pliocene shelf of coastal Peru could not be expected to contain such ores. Possible sources are the Illescas mountain to the southwest, or more likely the Andes mountains to the east.
Whether the actual smelting of the metals or the casting and working of the tools took place at Chusís or they were traded in from the exterior, is not certain. Root (1955, p. 3) suggests local manufacture of all specimens except the gilded disc (M-12), because of their simple technology and because they do not very much resemble the metal objects of either the Chimú area to the south or Ecuador to the north. Another item which must have been imported is the stone for the majority of the artifacts of stone discussed in Section VII, above. The only stone which I observed as native to the area was fossiliferous limestone, which is not suitable for the manufacture of tools. There were also other examples of unworked stone which could not have come from the site itself. Then, too, the bones of such animals as the mountain lion and the sea lion reinforce the supposition of extensive travel on occasions.

Nevertheless, while Chusís was admirably situated for trade, and while some trade and travel certainly took place, its volume seems unaccountably small, and the culture unexpectedly little influenced by outside contacts.

Construction. Although all domiciles which were occupied at the time of the 1950 investigations, totaling 14, as well as all ruins of recently abandoned domiciles, were of wattle-and-daub construction, little evidence of this technique was encountered beneath the surface. The only instance
is what appeared to be remains of carrizo found during the excavation of Stratitest D. Evidence for this type of construction, however, is probably rather perishable; its absence is no sure indication that the practice was missing.

Abundant evidence was found, however, for the solid-wall type of construction (tapia). This was usually in the form of wall stumps of solid, hand-packed clay. Into the clay mass, rough stones, whole or fragmentary rectangular adobes, and simple lumps of clay were customarily introduced in an irregular fashion. Apparently, they were not intended to add to the strength of the construction but functioned only as filler. Neither the building clay nor the water with which it had to be mixed was available atop the cliff. Hence, to prepare the mass in the valley below and transport it, a load at a time, on the back of man or llama, must have been a burdensome task, and it is no wonder that loose stones and adobes lying about the surface from a previous construction should have been reused in the new wall. There is no evidence of the use of a form in these constructions.

The more massive constructions, such as the boundary wall and the earthen pyramid, were also built of solid, hand-packed clay. Although stones may have been somewhat used as filler, they were more likely used as facing. Whether afterwards plastered over or not, such facing would have been effective in preventing or slowing down erosion on the
occasion of a rain. The alignments of stones hardly rising above the present surface of both the boundary wall and the pyramid are evidence of this facing.

There were also encountered walls of individually-shaped adobes. Examples of these sun-dried bricks varied in thickness from 9 to 11 cm., in width from 15 to 25 cm., and in length from 28 to 40 cm, (cf. Bennett, 1949, p. 59). In one case (the wall to the north of the main room of the House Excavation) the adobes were definitely mold-made, but hand-made adobes were also present. In the case just cited, the bricks were coursed and laid in a clay mortar; the finger markings seem to indicate that the labor was accomplished without the benefit of a trowel. In the case of the older portions of the south and the west walls of the House Excavation, a construction of adobes appears to have been plastered over smooth with clay on the inside. No finger markings appeared on the surface of such plaster.

It may be assumed that the domiciles were constructed by individual householders and their families and perhaps friends, as occasion required. I see no evidence of a specialized class of masons having been called upon either to build or to supervise such building. The walls are not very straight, nor the rooms very square. The extensive use of filler to save as much labor as possible in view of the limited number of laborers seems to confirm this view.
Also, repaired portions of walls are so crudely done as to suggest that their makers had neither the skill, interest, nor tools to do a better job.

The boundary wall, on the other hand, as well as the pyramid, was probably built as a community project, in which there were available a large number of hands to bring the clay mass up from the valley bottom. Stones were utilized as facing, which would be necessary to protect the sloping exterior of a trapezoidal wall from erosion, but neither necessary nor practical in the case of the vertical wall of a domestic structure. Nevertheless, not even in the case of this large boundary wall is there evidence of the employment of specialized engineers, for the structure is no straighter, nor its thickness more constant, than could easily be accomplished by unskilled workers.

All structures of any sort observed at the Chusí site, excepting only the boundary wall, were rectangular in ground plan and oriented approximately to the cardinal directions. This even applies to the courtyard surrounding the pyramid, to the streets running north and south therefrom, and to a similar pyramid about 4 km. due south therefrom at Sechura. This implies a definite perception of direction and perhaps even of astronomy.

The floor of the main room of the House Excavation consisted of hard, solid clay, undoubtedly laid by hand.
A hard layer traversed by Trench D is interpreted as a floor level. Other floors were composed only of loose sand, as are the floors of modern Chusis huts.

Another feature is the apparent absence of doorways. None is found giving egress to the main room of the House Excavation, for example. Could this indicate entrance through a hole in the roof by means of a ladder, as in the Pueblo area? Yet this seems unlikely if specimen AST-20 has been correctly identified as a doorpost socket (see Fig. 13).
No evidence on the presence of windows was noted.

A few words of interpretation are in order with reference to the channel atop the lower wall encountered in the excavation of Stratitests D. As explained above, under "Refuse Stratigraphy," the fill within this channel was identical with the soil which lay immediately above for the next 14 cm., but was distinctly different from the substance of Layer IV, which lay on either side of the channel, and Layer III, which lay on either side of the fill immediately above the channel. This appeared to mean that Layer III had been broken through in order for the fill within and above the channel to have been introduced. But this was not the case, for Layer III had never been continuous across the top of the wall. This fact was made plain by the laminae within Layers IV and V, which leaned against the wall on the west, together with those of Layer III, immediately above and
continuous with Layer IV, which leaned against the fill within the channel. This situation is interpreted to mean that the place of the fill within and above the channel was occupied by some solid structure at the time that Layer III (and presumably Layers IV and V) were in formation.

The solid structure above the wall was, in fact, nothing but a continuation of that wall itself. At some time after Layer III (and perhaps other layers, now disappeared) had been piled against it, the upper portion of the wall had been scooped out to form the channel but the soil on either side of the trench thus formed left intact. The channel and the sides of the trench above it were then plastered with a fine clay. The finish was rather rough, as if the artisans experienced difficulty getting down into the trench to do the plastering. The plaster on the sides of the trench subsequently disappeared for the most part, and it was filled with an alien sand. This process was completed and the surface fairly well leveled before the formation of Layer II.

Crafts. Nearly all of the ceramics discovered at Chusí's were evidently manufactured locally. The above-mentioned discs or pellets of unfired clay, evidently fashioned as applique elements for the embellishment of the vessel neck, as exemplified in Plate XIL, M, would only have been found at a site where pottery was actually made. Also, the presence of hematite, together with a stone upon which
to grind it, shows that the slip for the decoration of pottery vessels was prepared not far away. The pot-polishers, if correctly identified, one of shell (ASH-1) and one of fossil shell (AST-19), are further evidence of local manufacture. There is not a single sherd or vessel which appears to be affiliated with either the Chavín, Mochica, Chimu, or Inca ceramic tradition. Lumps of hard, brittle clay may be of the sort which is selected in pottery making.

Local manufacture seems to apply to all sherds, except a few painted ones, which by their rarity could with logic be classed as "trade pieces." These exceptions include the 3-color pieces shown in Plate XIII, D and H, possibly the negative-painted sherds, and very probably, the mold-pressed, paddle-stamped, and glazed examples recovered from the surface. (The pottery used by present-day Chusís villagers is probably manufactured exclusively at Simbilá; see Christensen, 1955).

Almost the entire range of Chusís ceramics, as revealed by the present investigation, appears to have consisted of "utilitarian" pieces, although a few of the more finely fashioned pieces may have served as "ceremonial" objects: perhaps the same ones mentioned above as having been of outside manufacture. Yet, no example which would have been impractical in a utilitarian situation was observed. Fire-blackening, as from a kitchen hearth, was often seen on the
decorated pieces, whether painted, modeled, incised, or otherwise decorated, as well as the undecorated ones.

Even more significant, perhaps, is the fact that the burial urns and the smaller vessels which they contained as offerings, had all obviously been used much in the kitchen before being selected as grave furniture, in fact in one or 2 cases had probably been discarded from the kitchen. The selection of vessels for funerary purposes would certainly have provided an opportunity to use a special class of fine ceremonial pottery if they possessed such. One gets the impression that, while there were undoubtedly different degrees of excellence in utilitarian ceramics, there existed no category having solely a ceremonial or esthetic function.

A wide variety of vessel forms characterized Chusís pottery, but the only non-container discovered was the spindle whorl. Most of the vessels are either globular jars or deep bowls, the latter often with the orifice somewhat restricted. The spindle whorls are generally spheroid or in imitation of ceramic vessels.

Other features of form are: handle; lug; narrow, vertical spout; stirrup spout; podium or vessel support as of tetrapod or tripod vessels, including mammiform; and open rim spout.

Features of form which were not present are: shallow bowl and plate, flat bottom (with one possible exception),
annular base, figurine, lid, double-lobed jar, etc.

Vessel surfaces were generally well smoothed and often polished. Decoration was accomplished by applique, finger-pressing, modeling, incising, punctuation, painting, over-all washing, and (on surface sherds) mold-pressing, stamping, and glazing.

Four distinctive wares, herein called series, are in evidence: Chusí’s Red, Chusí’s Black, Sechura Red, and Sechura Black. Of the 5581 classified sherds, 58.2% are of Chusí’s Red, 5.5% of Chusí’s Black, 31.6% of Sechura Red, and 4.7% of Sechura Black. In the Chusí’s Black and the Sechura Red series, there is a strong predominance of thin-walled vessels over the thick-walled ones; whereas, in the Chusí’s Red series the 2 types are approximately equal in numbers.

Decoration applied to ceramics of the Sechura Red series consisted largely of either finger-pressed grooves or applique bands. That which was applied to the Chusí’s Red series was generally executed either by painting or by incising and punctuation.

The ceramics of Chusí’s are evidently those of a peasant community. They afford no evidence of either a class-structured society or of any but a rudimentary craft specialization. It does not present the sort of picture that would be expected if the pottery had been produced by a highly specialized guild. It is rather a folk art or craft, one
which may rise occasionally to a short height of esthetic excellence but remains always firmly tied to utilitarian needs.

Gold and pure copper were employed in the manufacture of the metallic specimens from Chusís. The techniques of hammering copper into wire, both round and square in cross section, and thin sheets; rolling such sheets into long tubes; and mise-en-couleur gilding were all practiced.

Several objects appear to be nails or pins, some of them fairly long (e.g., M-22), and some of them square rather than round in cross section (e.g., M-14). Some specimens are long tubes (e.g., M-26); whether or not these originally had a solid, non-metallic core, they probably functioned as pins. They may have served as shoulder fasteners for outer garments. A hook (M-24) could conceivably have been useful in the fishing industry. A spiral (M-21), a crescent-shaped object with a wire-work (M-13), and a gilded spangle (M-12) probably served as ornaments.

The materials for these metal artifacts were undoubtedly imported in their entirety, or perhaps the artifacts themselves. There is no evidence of local manufacture, nor is there any known local source of ore. Nevertheless, the widespread distribution of the metallic specimens in refuse deposits suggest that they were objects of utilitarian use in the everyday activities of common people. Also, the
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( R o o t, 1955s P° 3 )» s u g g e s t t h e w ork o f

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b a s k e t w eave w i t h p a i r e d w arp a n d w e f t , an o v e r - o m e - u n d e r two t w i l l , k n i t t i n g , n e t t i n g C ? ) , g a u z e ( ? ) , a n d n u b b y c l o t h ( ? )


were also present.

Because of the apparent parallel between the pins found at Chusís and the shoulder pins with which Inca subjects fastened their loose outer garments, I am inclined to believe that cloth manufactured at Chusís was fashioned into similar loose garments and secured in a similar manner. The gold-plated disc or spangle (M-12) also has its parallel in the ornamentation of other Andean peoples and may have been sewed onto a cloth garment. The cuprous spiral (M-21) is similar to metal ornaments intended for suspension from the ear lobe elsewhere in South America.

An artifact of stone (AST-17), perforated at one end as if for suspension, may be identified as a pendant or a bead for a necklace.

Basketry was also practiced, judging by the offering left beside the extended burial of Stratitest D. A bone awl (AB-5; see Table 11) found in Stratitest D may have been used in manufacturing baskets.

Bone and shell, both of which were abundant at the Chusís site, were but little used for the manufacture of artifacts; whereas, stone, practically all of which had to be imported, was utilized much more. A variety of tools are represented, as also a variety of shaping techniques. Notably absent, however, is any evidence for pressure chipping of stone, even though some of the stone used was of the sort
which could have been so fashioned. This lack is shared with Andean farming cultures in general. Certain primitive hunting groups in the same area, however, did practice pressure chipping. (see "Cabo Blanco Zone," Section III, above).

Religion. There is scanty evidence on the nature of the religion of the ancient Chusíis villagers. The 2 pottery vessels containing human skeletal remains indicate the practice of urn burial for infants. (cf. Bennett, 1949, pp. 50-51). Extended supine burial is indicated for adults, however, by the remains found in connection with Stratitestate D.

In all cases encountered, grave furniture is at a minimum in quantity and very ordinary in quality. The urns each contained an offering of a small pottery vessel, perhaps originally containing food, but it was a common kitchen vessel, fire-blackened and virtually undecorated. Also, one of them (Fig. 32; Plate X, D, right) was badly chipped around the rim. The urns themselves had doubtlessly served as ordinary, undecorated storage jugs, but had also been fire-blackened at some time or another. The neck of one of them (Plate X, B) had been cracked during use and mended, but the crack had extended itself until when found it had completed the circuit of the vessel. Even when deposited in the grave, it may have been nothing more than a useless cast-off. A metate was unearthed in connection with the burial of Stratitestate C, but even so it was only a fragment, and one which
furthermore bears clear evidence of having been used as a hammer stone before final deposition.

The adult skeleton appears to have been wrapped only in a cloth or 2 before burial. What appeared to be the remains of a basket beside its left humerus may also have been a food container and have functioned in a manner comparable to the above-mentioned small pottery vessels: as a funerary offering.

Thus, there was no evidence discovered that would indicate any felt need for elaborate burial. Whatever the ancient religion was like, it must not have seemed important to its practitioners to provide well for the dead; the funerary containers, as well as the grave furniture, were simple in the extreme.

No grave furniture was reported in association with the skeleton found in 1946 within a compartment of balsa wood, even though it was located atop the pyramid (see "The Central Eminence," Section V, above).

But little earth was removed to make room for each of the burials. The urn of Stratitest C was contained entirely within the Layer VIIIC, while not even Layer VIIIB, immediately above, had been disturbed. The urn in Trench C was probably deposited under similar circumstances. Only one layer had been cut through in depositing the burial of Stratitest D; the evidence even suggests that it was covered
over largely by alien soil brought in for the purpose. In all 3 cases, the soil line lay very close to the deposit, suggesting that the burial made was in haste and that no more effort than necessary was expended digging in the soft, sandy soil.

No cemetery was found in connection with the Chusis site. Rather, from the evidence at hand, one would judge that the standard practice was to bury the dead within one's own dooryard, perhaps even under one's own floor. (Most floors were probably composed only of a layer of sand, hence cannot always be distinguished as floors by the excavator.) A lack of fear of the dead, or rather, a willingness for the living to continue their residence in close proximity to the departed dead, seems then to characterize the ancient culture.

Scattered, and fragmentary human bones were found in the exterior trench of the House Excavation, in Trench C, east of Layer VII-C of Stratitest C, and at 2 different places during the excavation of Stratitest D. Such evidence suggests that human burials were frequently encountered by the ancients of Chusis on the occasion of whatever sort of excavation, whether for storage, house foundations, burial or any other purpose, and that bones so encountered were simply scattered without any concern for preserving the coherence of the burial. (Such digging would not, of course,
have taken place where the digger actually knew of the existence of a burial.)

The presence of an earthen temple pyramid as the dominant structure of the entire site certainly has its implications as to ancient religious forms, in view of the known function of similar structures elsewhere in the Andean world. In the first place, it must have been built as a cooperative community project and must have served as a means for expressing the dominant religious impulses of that community. But the construction and the ritual observed therein, it seems safe to assume, were carried on under the leadership of a priestly class. Although no other evidence of a class system was discovered, the priests involved may have been so few in number as to escape easy detection by the archaeologist.

Whether the precise orientation of the temple pyramid and other structures to the cardinal directions has implications as to ancient religious beliefs, is problematical. Such a practice could possibly be connected with a considerable astronomical knowledge and worship of celestial bodies.

Whether the decorative motifs found on Chusí's pottery portray objects of religious veneration is likewise problematical. Incised, finger-pressed, appliqué, and painted serpents are common, and this may be considered a clue to theological belief. On the other hand, there is no sure way
of knowing that it is the serpent that is actually meant to be portrayed; if the actual head or rattles of a snake had been discovered, the identification of wavy lines as snake bodies would be more convincing. The practice of placing a human face on the vertical neck of a vessel is in the same category as to religious significance: problematical.

The small stone effigy of a fish (AST-17) may also become the subject of such a tentative hypothesis. If used as a weight for a fishing net, it may be thought of as an example of sympathetic magic: a fetish to help insure the success of the fishing trip.

The feline, usually thought to be the puma, is a well-known religious and artistic motif of prehispanic Peru. Chusís is a most unlikely natural habitat for the mountain lion. It seems almost a certainty that the animal, whether dead or alive, was brought to the settlement at the cost of great exertion and therefore probably figured in the local religion in some important capacity.

Chronology. The percentages of the sherd counts of every layer of Stratitests A, B, C, and D have been calculated by series and type and "bombshell" diagrams constructed, in an effort to discover the pattern of ceramic succession. The result is negative: No succession of types is revealed. All 4 series were there at the earliest discovered occupation, and in approximately the same proportions as during later times.
The statistical data were even refined so as to compare the 2 red series with the 2 black ones; the 2 very fine-tempered series with the 2 medium-tempered ones; and the thin wall-thickness types with the thick ones (except in the case of the Sechura Black series). No significant tendency as to change in color through time was detected, except that at Stratitest D the black series evidence a sudden increase in proportion at the expense of the red series in Layers IX, VIII, VII, and VI, mounting up to 36.2% of the total in Layer VIII. This increase is not confirmed in the other test blocks, however, and is assumed to be fortuitous in Stratitest D.

Also, Stratitest B shows a distinct decrease in the very fine-tempered series from bottom to top, and a corresponding increase in the medium-tempered series, a tendency which is repeated, although less clearly, in Stratitest D but is confused in Stratitest C.

Stratitest B shows a slight but steady decrease in the thin wall-thickness types from bottom to top, to the gain of the thick wall-thickness types. This tendency is confirmed in an ambiguous fashion in Stratitests C and D.

The vertical distribution of non-ceramic specimens was also studied with a view of throwing light upon the problem of relative chronology, but with inconclusive results. The 5 metal objects of Stratitest C were all found within the
bottommost meter, a tendency not confirmed, however, by the other excavations. The occurrence in Stratitest C is therefore assumed to be fortuitous.

Despite these efforts at statistical manipulation of the sherd counts, as well as counts of other specimens of the 4 stratigraphic test blocks, it does not seem possible to construct any chronology upon this basis. Notwithstanding the large midden accumulation at Chusís, there appears no evidence of any important culture change until certain European influences appear. As far as the prehistoric portion—much the greater part of the volume of the deposit—is concerned, it is a one-period site; and that period appears to be the last one before the Spanish occupation.

Nevertheless, on the basis of certain surface sherds and other lines of evidence, it is possible to establish the following chronology, which summarizes the results of the present investigation as far as the Chusís site is concerned:

A. Prehistoric Period, A.D. c. 1000(?) to c. 1540.

B. Early Historic Period, A.D. c. 1540 to 1925.
   Phase I. A.D. c. 1540 to 1800(?).
   Phase II. A.D. c. 1800(?) to 1925.

C. Late Historic Period, A.D. 1925 to 1950.

PREHISTORIC PERIOD. Human occupation at the Chusís site began at a time previous to the accumulation of any
wind-blown sand on the surface of the cliff. Potsherds were found lying directly upon the underlying bedrock. That date need not be particularly early, however; for, wherever I have examined the cliff up and down the valley's edge, its surface is concealed by only a very thin soil.

The culture brought in by the first occupants was already fully developed, and does not in fact show any important evolutionary change until historic times. It must therefore represent an actual movement of people onto the site, even though the source of the colonization need not have been far away, in fact was probably in the same valley.

The beginning date, 1000 A.D., is very approximate; yet, it is somewhat better than a pure guess. The initial occupation of the site could not have been very much earlier; otherwise there would surely be evidence of a succession in culture types. It is more likely to have taken place later. Still, the presence of the negative-painted sherds does suggest an early time level. The Negative Horizon of Bennett and Bird (1949, p. 112) seems to date to A.D. c. 300-700; yet "... Some confusion arises from the fact that resist negative painting continues into much later periods as a tradition, particularly in the North Highlands" (p. 109).

The White-on-Red and related varieties of brush painting on Chusí's sherds would suggest an even earlier date
according to Bennett and Bird, but here again the style is known to have persisted in some places until later times (p. 142). Strong and Corbett (1943, p. 90) place their White-on-Red sherds from Pachacamac at an early time level: at the beginning of, or possibly preceding, the Interlocking period. With them were associated a few sherds of a variety which they name "Punctate (and incised) type" (pp. 76-77), which bear decoration remarkably similar to the serpentine bands, one variety of face (Plate XII, H) and other details of the Sechura Textured Red type. But the lower Piura valley seems to have been a conservative provincial area where archaic traits lingered on after they had died out elsewhere. Hence, 1000 A.D. seems early enough as a beginning date for the occupation of Chusis.

The Prehistoric Period of Chusis obviously produced the great preponderence of the refuse deposit. It ended with the coming of the Spaniards. As the initial shock of the Spanish invasion took place in 1532, it seems safe to allow 8 years for the Europeans to establish themselves in this isolated area, hence the date, 1540.

EARLY HISTORIC PERIOD. Despite the political and economic domination which the Spaniards must have exercised at an early date, there is little evidence of important changes in the Chusis culture resulting from their coming. The main stream of culture seems to have flowed on pretty
much undisturbed. Notwithstanding, certain diagnostic traits appear in the uppermost layers which make it clear that European influence had arrived.

The year 1925 brought an abrupt change in the course of events at the Chusí's site, which marks the close of the Early Historic Period. The span of time between 1540 and 1925 can with reason be further divided into 2 phases, although not on the basis of stratigraphic evidence. The guess-date, A.D. 1800, has been chosen to separate them. The evidence consists in a distinctive difference in the color and texture of the soil covering the eastern and the western halves of the site, and related data.

Phase I included the final occupation of the western half. The surface is well smoothed; no stumps of house foundations protrude above the surface; few of the building stones are to be seen lying about. Evidently during this time the temple pyramid and the boundary wall were allowed to fall into disrepair. Although the latter had been re-built 2 or 3 times in the Prehistoric Period, it no longer seemed necessary under Spanish dominion. The outside was kept clear for a time, but the refuse and sand and the clay melted down by occasional rains accumulated on the inside until they reached the level of the remaining wall stump itself; then eventually all was neglected and forgotten.

The llama appears to have died out early in Phase I.
No bone identified as belonging to that species was found in any possible historic context.

Layer I of Stratitest A contained a piece of bamboo cut apparently with a metal tool, and a sherd of dark green bottle glass. Layer II, immediately beneath, was a floor level and corresponded with the flared-out footing at the base of the repaired portion of the walls of the House Excavation. This represents the last occupation of the structure. The crude workmanship suggests that the occupants repaired their house during a time of poverty and distress. Some time afterwards, it was abandoned and the walls reduced to their present state, Layer I representing merely unintentional fill.

It was perhaps during Phase I that the open pitcher spout (above) was in use. This trait seems to represent European influence.

The mold-pressed stamped, and glazed sherds (Plate XI, M), with one exception (see below), undoubtedly date from Phase I. No example of any of the 3 varieties was found at Chusís, except on the surface. The glazed sherd, which also bore mold-pressed chevrons was of course certainly historic, very likely from soon after the Conquest. Other stamped and pressed pieces could be from as early as the Tiahuanacoid period of the Lambayeque region (see Kroeber and Muelle, 1942, pp. 19, 23), but in view of their total absence from
the sub-surface strata at the site, must represent a later period of time. No doubt, alien influences from elsewhere in northern Peru were set in circulation by the ferment of European contact.

Phase II includes the final occupation of the eastern half of the site. Here, the house remains are obviously newer. The surface is generally much rougher. Foundation stumps frequently protrude visibly above the surface, and rough building stones are lying about in large numbers. It is my impression that a considerably higher proportion of such stones were used during the latest occupation of the eastern portion. The storage cists beneath the eastern edge of the cliff were undoubtedly in use at this time, as suggested by the abundant corn husks which still remain; the fired bricks, which are a post-contact trait; and the memory of living persons who still recall their use.

LATE HISTORIC PERIOD. A great rain and flood in the year 1925 not only brought to an abrupt end the Early Historic Period but also very likely washed the uppermost layers of the midden accumulation into the sea. There have been many such floods, but that of 1925 is reported to have "... overshadowed all other years within living memory" (Murphy, 1925, p. 53), an opinion which was confirmed by my own informants.

The ruin of Chusis, located as it is in immediate
proximity to an auxiliary arm of the Piura river, must have lost a considerable proportion of its total midden accumula-
tion. The lost portions came, of course, from the upper layers. This means that the stratigraphy of the site is doubtless not complete in some places. For this reason, the Early Historic Period (covering nearly 4 centuries) is so little represented by discovered materials.

At the time of the investigation herein reported, there were only 14 occupied huts in existence at the hamlet of Chusís, all constructed of wattle-and-daub. A few more had been recently abandoned, and traces of several more were still visible. Not one was composed of solid clay. There is thus a distinct break in the continuity of domestic architecture as between the Early Historic Period and the Late Historic Period, for, aside from the few shreds of what appears to be carrizo found in Stratitesta D, there was not recognized the least evidence of wattle-and-daub construc-
tion among any of the excavated materials; rather, all walls were composed of either solid clay or individual adobes. Very little of the present refuse accumulation, it seems apparent, has resulted from occupation by the present poverty-stricken inhabitants.

Nevertheless, the topmost layer in Trench B, Stratitesta B, Trench C and Stratitesta C is heavily loaded with goat manure, obviously resulting from the custom now practiced
of keeping goats in pens atop the cliff at night. Also, Layer I-C of Trench C, is a lens of clean clay having the appearance of having been water-laid. In fact the curvature of the lens around a stone at one point suggests that the direction of flow of the water at that point was from east to west. Here we have further evidence of destruction by flooding. A trace of iron is present in Layer I of Stratitest C.

One surface sherd (Plate XI, M, bottom) carries a paddle-stamped flower design closely similar to that on a modern labradora (pottery stamp) observed at the village of Simbilá (Christensen, 1955, Fig. 5); also, to the design on a modern chicha pot belonging to the administrator of the Hacienda Chusís (ibid., Fig. 3). This I assume to be not only historic but to fit into the quarter century herein labelled the Late Historic Period.
IX. THE PROBLEM OF CONTACT

BETWEEN COASTAL PERU AND COASTAL ECUADOR

Barriers to Diffusion of Culture. The Illescas-Jubones coastland was a relatively isolated area in prehistoric times. On the north the sudden transition of climate from desert to savannah appears to have served at least as a partial barrier in slowing down the diffusion of culture. On the south the Sechura desert was also an effective barrier, being the largest desert on the coast of Peru. Within the area, however, there seems to have been no particular barrier to communication.

This partial isolation of the Illescas-Jubones coast is a real factor in evaluating either its role in Peruvian-Ecuadorean contacts or its culture history. Except in the latest periods, its culture undoubtedly underwent a largely independent development from that of the conventional "North Coast" lying to the south. Also, the greater part of it appears to have existed largely free of influences from the north. The off-hand judgment that the area was a mere frontier extension of the better-known areas lying in the south is not acceptable. Nor is Uhle's assertion (1920, p. 166) that the "historical character of all of it is absolutely
known."

It is clear from the present study that the Illescas-Jubones area possessed a complex regional specialization within its own borders. Although outside influences entered in late times under the Chimu and Inca regimes and perhaps earlier under other regimes, the entire area should be taken as a unit by itself, with here and there cultural islands or enclaves where the more cosmopolitan influences scarcely touched. The fact that the chronology proposed below follows in general outline that of the "North Coast" merely indicates that both chronologies are of comparable antiquity and that some influences from the North Coast have been detected in the Illescas-Jubones coast.

Probable Routes of Diffusion. It is not claimed, however that the isolation of the Illescas-Jubones coast was complete. Certainly, the Chimu and the Inca civilizations in turn spilled over into the area, as will be shown below, as well as other influences at earlier times.

No important physical barrier to the overland diffusion of culture exists between the Illescas-Jubones area and south coastal Ecuador on the north. Diffusion could theoretically have taken place along almost any line drawn within the coastal strip. Whatever resistance to diffusion there might have been must have been related either to the abrupt change in climate (see above) or to political and
sociological factors within the culture itself.

At least 2 overland routes connected the Illescas-Jubones coast with the North Coast of Peru lying to the South:

One may be called the Olmos, or foothills, route. It leaves the Illescas-Jubones coastland via the upper Piura valley passing Chulucanas and Morropón, traverses the foothills of the Cordillera de Huancabamba, and enters the Lambayeque valley via Olmos. It has the advantage of completely by-passing the Sechura desert. The road may be difficult at points within the foothills sector, but travel is more pleasant and less hazardous. The route contains no vast unsettled and waterless stretches. The builders of the modern-day Pan-American Highway have chosen this alternative.

The other alternative may be called the Sechura, or desert, route (see Section VII, above, under the heading "Trade and Travel"). There probably existed an actual highway, or at least a regularly frequented travel route, connecting the Sechura-Chusís zone with the Lambayeque valley to the southeast, via Mórrope. The Sechura-Chusís zone in turn was probably no more than a link in the connection with such important centers to the north as La Huaca and ultimately Tumbes. (See the mention of a highway construction near Paita in the discussion on the Chira valley in Section III, above.) Since the first World War a great deal of trucking
has been routed over the Sechura desert between Mórrope and Sechura, according to verbal reports. This has been done without benefit of any formal road construction and would be hazardous in the event of break-down, because of the lack of water and settlements.

In ancient times, however, settlements certainly existed near a line connecting Mórrope and Sechura. Several of these are discussed in Section III, above, under the heading, "Sechura Desert." One explanation for these extensive sherd deposits in the midst of what is now a vast, inhospitable desert may be that they were way stations along the Sechura highway, the inhabitants of which were charged with maintaining and servicing the highway, deriving their living from imported food and water. Another possibility is that a slightly moister climate made practical the cultivation of limited tracts of land which would have supported the population. It is noteworthy that all archaeological remains of the Sechura desert reported in the present study, as well as the 2 or 3 tiny hamlets which still exist, are located in or near quebradas. Still another possibility is that the ancient occupants of the zone were much more adept at husbanding every source of water than are those of the present day. In any event, the settlements existed, and the population was certainly more dense than at present. Whatever the explanation, or whether a combination of explanations is
required, it would seem that the ancient settlements were built at least partially in support of an ancient highway system.

It is doubtful that the Sechura highway had anything to do with the road-building activities of the Inca; no trace of Inca culture has appeared in any territory serviced by that road. The Olmos route, however, was probably utilized by the Chimú and then by the Inca in their respective programs of expansion. It was, in fact, incorporated by the latter power, in its famous coastal highway which began at Tumbes (von Hagen, 1955, p. 284). The upper Piura valley and the nearby Chira valley show strong Chimú, and some Inca, affinities.

Ancient travel appears to have descended the upper Piura valley to the vicinity of Tambo Grande (this name itself suggests an Inca way station), whence it crossed over into the Chira valley in the vicinity of Sullana. Between that point and Tumbes, there are 2 alternate routes: (1) northeastward up the Chira valley, across the Amotape mountains to the great bend of the Tumbes river, thence downstream to the city of Tumbes; or (2) down valley (westward) to the vicinity of La Huaca, thence around the coast line to Tumbes. The modern Pan-American highway takes the latter alternative, but it seems likely that the Inca highway followed the more direct route through the Amotape
mountains (cf. von Hagen, 1955, map on p. 277). Regardless of the details of routing, however, it is certain that both the Chimú and the Inca cultures diffused as far north as Tumbes.

Quite apart from the land routes, a highly important means for the diffusion of culture, both to and within the Illescas-Jubones area, has been marine navigation. Lothrop (1932), Means (1942), and Heyerdahl (1952) discuss navigation off the west coast of South America in prehispanic times. Saville (1907-10), Verneau and Rivet (1912-22), and Jijón y Caamaño (1952) discuss the extensive mercantile activities of the nations of coastal Ecuador. The expert fishermen of coastal Peru, particularly the Sechura Bay, have been referred to under the heading, "Man and the Natural Environment," in Section II, above.

All known sites which could possibly represent the paleo-Indian in the Illescas-Jubones coastland are situated near the shore, as is the case with most such sites throughout South America. This would suggest that the maritime tradition is a very ancient one. It is likely that the sea has been an important means of culture diffusion from earliest times.

The ancient pottery-using colony in the Quebrada Nunura on the western shore of the Illescas peninsula (Section III, above) very probably maintained communication with the
outside world by marine navigation. The presence of typical Chimu pottery clearly connects it with the North Coast of Peru to the south, while paddle-stamped ware seems to connect it with both the Chimu coast to the south and the Pariñas coast to the north.

**Architectural Boundary.** There are impressive differences between the architecture of coastal Ecuador and that of coastal Peru, but the transition between the 2 areas has never been satisfactorily defined. The present study of the Illescas-Jubones coast offers a contribution to that end.

The large, rectangular temple pyramid of adobe, so characteristic of the North Coast of Peru, is found in numerous examples throughout the upper Piura valley as far south as Catacaos and in the Chira valley, and in one known example as far north as Tumbes. Smaller structures of adobe which are the remains of tombs, supply depots, palaces, and other lodgings are also to be found throughout the upper Piura and Chira valleys (Uhle, 1920, pp. 165-166; Cieza de Leon, 1945, p. 180). The constructions of the Piura-Catacaos sector, in the opinion of Uhle, are identical with those of the North Coast from Trujillo to Lambayeque.

The Huaca del Sol de los Incas at Tumbes is in the same class of massive adobe pyramids.

In my own reconnaissance, I saw no such structures in the Province of El Oro, nor heard of any in my conversations
with local residents. The tolas of coastal El Oro are apparently largely burial mounds without architectural features.

One small mound on the Hacienda La Esperanza (see Section III, above), however, is rectangular in ground plan and possesses an upper and a lower platform. Perhaps its builders were the Cañari, a rather advanced folk from highland Ecuador who occupied portions of the southern coast during late pre-Spanish times. The chiefs of the Cañari had "... large, rectangular houses with a patio in front where they addressed their followers." (Murra, 1947, p. 799). With its upper and lower platforms, the smaller mound of the Hacienda La Esperanza may have been the base for just such a rectangular house and patio.

G. H. S. Bushnell has made the suggestion (personal letter, September 26, 1953) that the small, rectangular tola may have affinities with certain mounds in the Manta district. Those described by Saville (1907-10, Vol. 2, pp. 36-56) are rectangular in outline and have only one step or stage. They were used for burial and ceremonial purposes.

Gordon R. Willey (personal letter, September 5, 1953) has suggested that this small, rectangular mound may represent "... a diffused trait from Peru—a sort of feeble reflection of the big time farther south." However, it is only 18 m. long. For the time being, at least, I am considering it to be distinct from the massive pyramids of the North
Coast of Peru, i.e. as having much more in common with mound constructions of the Ecuadorian area.

Verneau and Rivet (1912-22, No. 1, p. 58) have given a brief description of Tumbes as first viewed by the Spaniards based upon a careful study of the Chronicles. The Huaca del Sol de los Incas (Cabeza de Vaca), together with the fortress site, La Garrita, described in Section III, above, is almost certainly identical with the city of Tumbes which Pizarro conquered. The inhabitants of the city, as well as of the surrounding territory, were undoubtedly the Tumbes (or Tumbecino) Indians of the Chroniclers.

Verneau and Rivet (1912-22, No. 1, p. 58) state that the Tumbes occupied the territory between the Huancavilcas and the frontier of Peru, and on their ethnic map (Map I, frontispiece) they are shown as filling the coastal strip from the Rio Naranjal down to a little south of present-day Tumbes. It is not clear by what authority the French authors place the Tumbes Indians in the coastal strip along the western shore of the Gulf of Guayaquil; their proposal may be little more than a guess, made to fill a void which would otherwise have to be labelled "unknown." But it is certain that they did occupy the land around the city of Tumbes itself, and it seems equally certain that the Tumbecinos were closely related to the Mantas, Huancavilcas, and Puná to the north (Verneau and Rivet, 1912-22, No. 1, pp. 58-61),
although they had been under Inca domination longer and were more acculturated than any of their northern relatives.

Complex and extensive irrigation systems in which large canals are sometimes lined with adobe or stone are clearly in evidence in the Piura and Chira valleys, the Cabo Blanco zone and the Tumbes zone. Likewise, the practice of building highways extended northward to Tumbes. No evidence has appeared that either canals or highways existed in what is now Ecuadorian territory, however. While there is no doubt that the Incas practiced these traits during their occupancy of the area, it is highly probable that they had also been practiced well before their arrival.

The Inca culture appears to have been an overlay imposed upon that of the Tumbecinos, but however that may be, the architectural complex of massive, adobe pyramids and large-scale highways and irrigation projects seems to have extended northward to Tumbes and no farther. In other words, the architectural boundary between coastal Ecuador and coastal Peru seems to correspond approximately with the present-day international boundary.

Ceramic Boundary. If there is a boundary between the architecture and the Peruvian portion of the Illescas-Jubones coast and that of the Ecuadorian portion, there is also a boundary between the ceramics of the 2 sectors, although one which is perhaps not so distinct.
The negative painted sherds discovered at Chusís and the white-on-red pottery reported from Chusís, Minchales in the Sechura desert, Quebrada Nunura on the Illescas peninsula, and the Chira valley, are of some significance in establishing a ceramic boundary. Nothing comparable has been reported from the coastal portion of El Oro. Negative wares are common in highland Ecuador, however, while white-on-red is also well known there. Also, these 2 varieties of pottery are not actually specific styles, but merely decorative techniques. The mere fact of their being found in the Department of Piura and again in highland Ecuador does not in itself prove a historical relationship. What we probably have is 2 widely separated manifestations both ultimately connected with early negative and white-on-red horizons, which would imply a very remote historical relationship. But the fact remains that the Ecuadorian portion of the Illescas-Jubones coast is distinguished from the Peruvian portion on this basis.

A similar situation is probably true for the textured types discovered at Chusís. Nothing similar has been reported for El Oro, but sherds somewhat similar to those bearing appliqué serpentine elements of the Sechura Textured Red type have been reported from Trapichillo, in the Catamayo valley, southern highland Ecuador (Collier and Murra, 1943, Plate 12). These 2 widely separated manifestations are
perhaps ultimately historically connected to an early ceramic tradition which was widespread over the Andean world.

More specific in its significance is the presence of paddle-stamped pottery in the Sechura desert, the Illescas peninsula, the Piura and Chira valleys, and the Cabo Blanco zone. This variety of pottery is late in time, and distinctive in characteristics wherever found. It is not reported, to my knowledge, from any place north of the Cabo Blanco area.

Typical Chimu pottery is present on the Illescas peninsula and is abundant in the Piura valley as far south as Catacaos and in the Chira valley. The double-lobed vessel examined at the Huaca del Sol de los Incas near Tumbes (Fig. 6) is of Chimu affinity. Beyond Tumbes along the coast I know of no further example, although a few Chimu vessels, undoubtedly trade pieces, have been reported from the Ecuadorian highlands and Manabí.

The ceramics of the El Oro zone of the Illescas-Jubones coast seem to represent an entirely distinct tradition from that of the Peruvian portion. Such decorative techniques as combing are absent from the Peruvian portion of the Illescas-Jubones coast, while the latter sector possessed mold-pressing, paddle- and medallion-stamping, and glazing, not possessed by the former. An example of the pedestal dish (compotera) was found at the Hacienda La
Esperanza, El Oro, which has no parallel in the Peruvian portion.

One important medium of artistic expression among El Oro ceramics was the figurine (idolillo). In the Peruvian portion of the Illescas-Jubones coast the only example of which I have any knowledge is a single figurine of very different style, in the municipal museum at Piura. Means (1919, p. 8), however, mentions figurines for his Piura "Archaic Culture," but the figurines are not described, nor is the culture defined (see below).

Chávez Rodríguez (see Section III, above) describes at great length the numerous figurines found throughout the El Oro coastland. They are modelled in the full round in a free style. Painting is not mentioned, but appliqué, incised, and punctate elements are often added. Both humans and animals in a variety of poses are portrayed, features of the 2 often being combined.

From Chávez' description of El Oro figurines it is highly possible that they are affiliated with the Manteño culture as described by Jijon y Caamaño and Bushnell (1951). "Manteño" is an archaeological term coined by Jijon y Caamaño to designate the culture of the last pre-Inca stage of the Province of Manabí—a culture identified with 3 closely related peoples, the Manta, the Huancavilca, and the Puná, as described by the Chroniclers.
Unfortunately, Chávez' figurines are not illustrated.

It is therefore to another important medium of artistic expression—the ceramic spindle whorl—that we turn for a more cogent comparison. Since the El Oro whorls and their affiliations have been rather fully discussed elsewhere (Christensen, 1954; see also Section III, above), it will be sufficient at this point merely to summarize previous conclusions. A careful study of available sources leaves no doubt as to the identity of the El Oro whorls with those of the Manteño culture. Numerous arbitrary parallels, both in technique and motif, are apparent among the whorls of El Oro, Puná Island, Santa Elena peninsula, and Manabí. This conclusion is confirmed by an examination of other remains of material culture, such as metallurgy and pottery. However, once the boundary is crossed into Esmeraldas territory to the north of that occupied by the Manteño culture, or Cañari or Palta territory on the east and southeast, these parallels immediately disappear.

Such evidence demonstrates the major affinity of discovered archaeological remains of the El Oro coast with the Manteno culture. Jijon y Caamaño and Bushnell convincingly identify this archaeological culture with that of closely related nations of coastal Ecuador known to the Chroniclers as the Manta, the Huancavilca, and the Puná. Also, Verneau and Rivet make it clear, on the basis of ethnographic data
drawn from the Chronicles, that the Tumbes were culturally closely related to the first 3, except that they had been under Inca acculturation longer than their northern neighbors. However, with the exception of a single sherd found at Vaquería on the Tumbes river (Section III, above; Plate II, C), I know of no example of Manteño-like remains either in the Tumbes zone or anywhere to the south. The Hacienda La Esperanza whorls were shown to Georg Petersen, a professional geologist and amateur archaeologist of some 15 years’ experience in the Department of Tumbes, but presumably no experience in El Oro. He stated he had never seen anything like them.

Jijon y Caamaño (1952, pp. 242-247) describes and illustrates the pottery found in refuse deposits within houses of the Manteño culture. One variety is incised with shallow lines made while the clay is still wet. The elements are always small, symmetrically-repeated textile designs. There is no question but that the Vaquería sherd belongs to this ceramic type.

The evidence thus far discovered suggests that the El Oro coast definitely belongs to the Manteño culture and that the ceramic boundary between this and the remainder of the Illescas–Jubones coast, except for the Vaquería sherd, is to be drawn somewhere near the present boundary between Peru and Ecuador, i.e. the Zarumilla river. However, the
ceramic history of the Tumbes zone, when fully known, is likely to be a complex one.

**Conclusion.** It is clear, judging from the discovered evidence on architectural and ceramic types, that there exists a cultural boundary between the Ecuadorian and the Peruvian portions of the Illescas-Jubones coast. Whether the boundary may be sharply defined in space and if so its exact location cannot yet be stated with certainty. It seems justifiable, however, to locate it somewhere near the Rio Zarumilla, which forms the present international boundary between Peru and Ecuador.

A modern political boundary has no significance, of course, in a study of archaeological cultures, but a boundary between climatic zones may be highly significant. In the discussion on "Climate" in Section II, above, it was pointed out that the Illescas-Jubones coast embraced portions of 2 distinct climatic zones: (1) The southern portion is a desert zone in which rainfall is insignificant in most years. (2) The northern portion is in a savannah zone in which there is a pronounced contrast between the annual dry and rainy seasons. Murphy (1926, pp. 52-53) states that the transition between the 2 zones is abrupt and that the line of separation runs southward from Tumbes, i.e. approximately along the Tumbes river. Here, then, is evidently the really significant factor in determining the cultural boundary
between the south and the north. The Manteño culture, adjusted by centuries of group experience to a hot, humid environment, evidently made scant progress in penetrating the dry desert lands to the south. Conversely, the Chimu and other cultures of coastal Peru were repelled by the damp lands to the north, as was also the mountain-loving Inca culture. This climatic boundary may have served not only as a barrier to movements of the peoples themselves, but also to the culture traits which they bore.

In the words of Gordon R. Willey, "... the coincidence of natural environment and culture types along this coast is striking, indeed" (personal letter, September 5, 1953).

There remains, however, the puzzle of the Tumbes nation. If, as represented by Verneau and Rivet, the Tumbes were closely related to the Manta, the Huancavelca, and the Puná; if the Manteño culture of archaeology is correctly identified with that of those 3 nations; and if the Tumbes occupied not only the immediate vicinity of their principal city but northward along the coast to the Rio Naranjal; it is difficult to understand why Manteño remains are not found (with the exception of the Vaquería sherd, which may be a trade piece) in the Tumbes zone. The answer may lie in the fact that our present knowledge of that zone is sketchy—that all that we do know about it has to do only with the Chimu and Inca occupations. However that may be, if the Manteño
peoples who occupied the eastern coast of the Gulf of Guayaquil between the Rio Zarumilla and the Rio Naranjal, including those of coastal El Oro, are to be called Tumbes, following Verneau and Rivet, then perhaps we should call those of the Tumbes zone itself, the Inca-acculturated Tumbes, and those of the Zarumilla-Naranjal sector, the free Tumbes. I know of no evidence, either documentary or archaeological, that the Inca ever entered the latter sector.
X. THE PROBLEM OF CHRONOLOGY

Previous Chronologies

A number of attempts have been made before the present one to order man's occupancy of portions of the Illescas-Jubones coast into some sort of chronological framework. In each case, however, only a limited portion of the total area was taken into account. In no case, to my knowledge, was stratigraphic evidence utilized.

García Rossel. Beginning in 1903, Ricardo García Rossel published a historical monograph on the Department of Piura in several parts. In his first installment (García Rossel, 1903) he divides the past of Piura into 3 successive periods:

PRIMITIVE TIMES (pp. 199-212). In a "most ancient epoc" the department was occupied by "men before civilization and culture... unhappy ones who were obliged to dispute their food with wild beasts and to battle against evidence for the existence of such an epoc is presented, however, aside from the assertion that its remains do exist. Following this, 3 families occupied Piura: Yuncas, Mochicas, and Tallancas. At the end of this period, the territory was in possession of the king of the Chimú (p. 212).

INCA EMPIRE (pp. 212-224). Between 1450 and 1470, in the reign of the Inca Tupac Yupanqui, Piura, along with the rest of the kingdom of Chimú, passed under the control of the Inca empire.
SPANISH CONQUEST (pp. 224-242). Beginning in 1532, the entire Inca empire, including the Department of Piura, was conquered by the Spaniards under the leadership of Francisco Pizarro.

Unfortunately, García's work is all but completely undocumented. Nor does there appear any evidence of a knowledge of the antiquities of the area, either first-hand or otherwise. The reader is therefore altogether dependent upon the author's trustworthiness in interpreting the documentary sources. And it is precisely here that his results are most disappointing. He is not only highly imaginative, but freely appropriates early source materials from chronicles written about the Kingdom of Chimor for his elucidation of the Piura region, without giving the reader any means of distinguishing between the 2. This is done apparently on the assumption that the Piura region possessed a common culture with the Trujillo region. While the Piura-Tumbes sector did come under Chimú influence in late times, it is not safe to describe Piura customs on the authority of chronicles written for the Trujillo area. Moreover, his treatment of the Yunca, Mochica, and Tallanca as 3 distinct peoples is extremely questionable (see below). Frankly, a reading of García's paper adds more confusion than elucidation to an inquiry into Illescas-Jubones prehistory.

Nevertheless, he does make one worthwhile contribution: He clearly recognizes the distinction between the Inca and the pre-Inca cultures, a point still obscured in much of the
popular thinking among modern Piuranos.

Means. Philip Ainsworth Means (1919, p. 8) proposed a chronology which he called, "Table of the Ancient Cultures of the Department of Piura." A verbatim translation follows:

I. ARCHAIC TYPE or ARCHAIC CULTURE. Figurines and vessels with simple designs, either incised or painted. Red clay and black clay.

II. TIAHUANACO TYPE. Related to the Chimu on the one hand and to the Incaic on the other. Intrusive.

III. CHIMU TYPE. Vessels of red, black, and white clay. Forms and designs characteristic of that culture. Objects of this class are generally somewhat coarse, as if provincial.

IV. INCAIC TYPE. Very similar to the same type in other regions. Considerably influenced by previous cultures. The quality of the vessels generally somewhat coarse.

Means made at least one trip through the Piura-Tumbes sector (Means, 1918), made one brief excavation at the Hacienda Sojo in the Chira valley, and examined local collections (Means, 1919, pp. 6-8; 1936, p. 179). His chronology should, therefore, have the advantages of a personal acquaintance with local antiquities, as well as mature, scholarly judgment on the part of its author. But it has as a matter of fact a number of deficiencies. In the first place it is so brief as barely to hint at the content of the cultures referred to. In none of his later writings does he repeat or refer to his chronology, but he does add details on the basis of which it is possible to understand it
better (1936, pp. 144-145, 178-181).

Why Means uses the word "type" instead of "period" or "stage," is not apparent, unless it is because he realizes that the actual evidence upon which the scheme is based consists almost exclusively of ceramics, and none of those stratigraphically excavated. However, the arrangement is unquestionably a chronological one.

It has never been clear to me what Means wishes understood by his term "archaic" as used with reference to the Andean field. Is it a discovered period of culture? If so, he seems never to have so identified it. He uses it as if it were a discovered stage but without discussing the data which support its existence.

As for the "Archaic Culture" of the Department of Piura, neither figurines, vessels, simple designs, incising, painting, nor red nor black clay is in any way distinctive. There exists one Gallinazo-type figurine, the only figurine in the department that I know of, in the municipal collection at Piura, but there is no way of knowing whether Means would have considered it to be archaic. In fact, it is not clear what artifacts or sites he had in mind in setting up such a culture period.

Means recognized that the tall vessel from the Hacienda Chapica, near Chulucanas, then in the Elías collection at Morropón (see above), belonged to the Chavín decorative style
(1919, p. 6), but he regarded that style as being Tiahuanacoid
and the vessel as representing a "degenerated variety" of the
Tiahuanaco culture. It is to be realized, of course, that
neither the correct chronological position of the Chavín
culture, nor the very existence of the Gallinazo culture, was
appreciated until some years later (Tello, 1943; Bennett,
1939). But in addition to the Chapica vessel, which as is
now realized cannot be assigned to the Tiahuanaco horizon,
Means later pointed out at least one other vessel which per-
haps properly could be (1936, Fig. 121, D; p. 181), as well
as certain vessels of Cursive style (Figs. 115, 116, and
120, H).

The Chimú and Incaic types of the Means chronology
appear from the present viewpoint to be perfectly valid.

Jijon y Caamaño. The Ecuadorian archaeologist and
linguist, Jacinto Jijon y Caamaño, has proposed a "probable"
145) as follows:

I. TALLANES(?)

II. CARANQUIS-CAYAPAS-COLORADOS

III. CANARIS (PURUHA-MOCHICAS)

IV. PALTAS

V. INCAS (QUECHUA)

VI. ESPANOLES

It is necessary to realize that this chronology is
based entirely on toponymics. The existence of a Palta period, for example, is postulated on the finding of 3 place names in El Oro which appear to be of Palta origin. If there is any archaeological evidence for the existence of any of the first 4 periods, it has not come to light.

Another precaution to be observed is that the chronology is intended to cover the entire Province of El Oro, not merely the coastal portion included in the present study of the Illescas-Jubones coast. Linguistic evidence for the presence of the Cañari and the Palta may well be confined to the mountainous portion of the province.

The last period seems to be perfectly valid. The Inca period is undoubtedly valid for the highlands, but for coastal El Oro it is questionable; at least the archaeological evidence—or lack of it—would make it appear that the Inca ruled the latter zone in absentia, if at all. The Chimu element is absent, but this is not surprising, since El Oro lies on the opposite side of the climatic boundary from the Chimu homeland.

An unexpected absence is that of any equivalent to the Manteño culture, which from archaeological evidence was so obviously present in the region. The language spoken in El Oro at the time of the Inca conquest is given as Cañari, which may be true for the highland portion but seems doubtful for the coast.
Petersen. The geologist and amateur archaeologist of the Tumbes region, Georg Petersen, has developed a local chronology probably based largely on typological evidence. I have discussed it with him, but since he has not yet published it and intends to do so I do not feel at liberty to reproduce it here. It is intelligently constructed, however, and will be an important contribution when published.

Haemmerle and Schaedel. The ceramic collection from a cemetery at the Hacienda Pabur in the upper Piura valley was mentioned in Section III, above. This is in the possession of Sr. Haemmerle of Jequetepeque and was classified by Richard P. Schaedel, a North American, Andean archaeologist. A sequence based on pottery types has been published in briefest form (Anonymous, 1955b). It does not pretend, however, to be complete for the entire zone, but merely to express the ceramic succession found at a single cemetery. It is as follows:

MIDDLE LAMBAYEQUE II (Bennett)

CHIMU

INCA

Wendell C. Bennett's Middle Lambayeque II period (Bennett, 1939, p. 122) is a local manifestation in which Mochica (Early Chimu) elements are strong and Coast Tiahuanaco elements are also clearly present. Inca influence, however, is absent. It is assigned by Bennett to the
"Tiahuanaco-influenced Middle periods."

The presence of Chimu and Inca periods at a site in the upper Piura valley is not surprising, considering what is known from other sources.

Archaeological Types for a Tentative Chronology

For a variety of reasons none of the foregoing schemes is fully satisfactory. Not one covers the total area under consideration. Not one is based on stratigraphic evidence. Not one makes a serious attempt at dating.

The task of setting up more satisfactory chronology for the Illescas-Jubones coast will now be attempted. However, this effort may not in any sense be regarded as definitive; it, also, is limited by a minimum of stratigraphic evidence. But a synthetic scheme will be presented which will cover the entire area, as well as a suggestive framework of dates.

The method may be designated as primarily typological. Archaeological remains of the Illescas-Jubones coast are examined with a view to isolating specimens and types which by their physical attributes can be related to cultures of known relative antiquity from outside the area. It will then be assumed that cultures of somewhat comparable antiquity existed within the Illescas-Jubones coast, and a
chronological framework will be set up with those cultures ordered in their correct relative positions.

The strictly typological evidence will be supplemented with limited evidence drawn from the Chronicles, as well as from the stratigraphic testing of the Chusís site (see above).

Such a method admittedly has its uncertainties of interpretation: Specimens of outside affiliation may be trade pieces; therefore, the cultures which they illustrate need not have existed within the Illescas-Jubones coast at all. But, if so, at least there must have existed contemporaneous cultures, which subsequent research can more clearly define.

Also, the presence of such specimens may be the result of "sloping" time levels: That is, the Illescas-Jubones coast, by virtue of its isolation, may have been a backward or retarded area where certain traits or stages of culture lingered on long after dying out in more cosmopolitan neighboring areas. Period designations, under such circumstances, could not be calibrated to the same absolute scale that seems acceptable for areas to the north and the south. But at least, the same relative order of the archaeological types in question ought to prevail.

Although this method has its limitations, the result will at least have a tentative validity and may serve as a
framework against which the results of future research may be compared.

**Paleo-Indian Materials.** In 2 zones of the Illescas-Jubones coast are to be found archaeological materials which are probably of paleo-Indian antiquity. "Paleo-Indian" is here understood to refer to all New World physical and cultural types, as revealed by archaeology, existing in the remote past before the rise of agriculture. On the Illescas peninsula, and again in the Cabo Blanco zone, remains of such groups have apparently been discovered.

The cemetery around the base of a rocky outcrop near the Quebrada Nunura, Illescas peninsula, appears to contain paleo-Indian materials. The fact that neither sherds, cloth, nor metal was observed in the excavated soil suggests a pre-ceramic horizon. The very few sherds seen lying on the surface are probably to be assigned to a later occupation of the nearby quebrada. Considerable skill is shown in the working of bone and stone, however. The thin, polished, and incised stone bowls show a masterful control of that medium.

The female skull examined at this cemetery has a cranial index of 71.0, which compares closely to that of the Paltacalo skulls of southern Ecuador, 71.43, as reported by Rivet (1943, p. 136), while photographs of one of the Nunura skulls compare closely with Rivet's photographs and drawings of a Paltacalo skull (1943, Fig. 34). The malars are prominent, the forehead is sloping, the vault is somewhat scaphoid,
and the nose is prominent and 'aquiline.' The supraorbital ridge is not so pronounced as that of the Paltacalo skull, however, a point in which the Nunura skull compares more closely with the Punín skull of northern Ecuador (cf. McCown, 1950, Plate I).

(In this connection, some of the skulls observed at one of the burial caves of the Quebrada Nunura—located at some distance from the pre-ceramic cemetery and containing cloth and pottery—are of interest. Some specimens were distinctly dolichocranic, while the males possessed heavy supraorbital ridges and sloping foreheads. Since the cave and the vicinity of its mouth had been badly disturbed by huaqueros, it is not certain, however, what the original associations of the skeletal remains were.)

The limited evidence observed at the Quebrada Nunura and herein reported (Section III) is not sufficient to warrant a dogmatic conclusion as to its significance, but it seems probable that there is located here (1) a pre-ceramic culture which, because of its proximity to the sea, was perhaps dependent in its economy upon fishing; and (2) a dolichocephalic physical type, not unlike that of Paltacalo, hence probably belonging to the Lagoa Santa "race" (McCown, 1950, pp. 2, 6-7). A further systematic investigation of the apparently paleo-Indian culture and physical type or types of the Quebrada Nunura would seem a worthwhile undertaking.
A number of sites in the Cabo Blanco zone and one west of Paita, reported by Brown (1926) and Wetzel (1939), have yielded materials of apparently paleo-Indian affinity. No evidence of physical type has come to light, although a charred human parietal at El Estero suggests the practice of cremation. A similar practice characterized the first occupation period of Palli Aike and Fell's caves near the Straits of Magellan (Bennett and Bird, 1949, p. 24).

Seven sites (Punta Pico, Punta Sal Chica, Fernández, El Estero, Quebrada Honda, Quebrada Pozo Siches, and Paita) have produced percussion-flaked stone tools. Of these, El Estero and probably Punta Sal Chica and Quebrada Honda have yielded such stone artifacts retouched by pressure. In addition, El Estero, Quebrada Pozo Siches, and Lobitos have produced stone artifacts which were worked by techniques of abrasion.

In the present state of knowledge, it cannot, of course, be conclusively demonstrated that the lithic sites of the Cabo Blanco zone are pre-ceramic, but the likelihood seems great. It seems improbable that purely lithic sites would be formed after the introduction and widespread use of pottery in the Illescas-Jubones coast. Quebrada Honda (Brown), with its stone house walls and mingled stone tools and potsherds, appears to be a likely site for the stratigraphic testing of the time relationship between the lithic
and ceramic components.

It seems justifiable to propose at least a hypothetical sequence for the Cabo Blanco zone:

I. LITHIC AGE
   A. PERCUSSION-WORKED TOOLS ONLY
   B. PRESSURE-WORKED AND ABRATED TOOLS ADDED

II. CERAMIC AGE

Four of these lithic sites are located beside the sea shore (Punta Pico, Punta Sal Chica, Lobitos, and Paita), while the rest are located at a considerable distance inland. Yet marine shells were observed at El Estero, the farthest inland of all 7 sites. It appears likely that this ancient lithic culture was principally dependent upon the sea for a livelihood.

Any sort of projectile point is conspicuously absent. Thus, hunting was probably not the basis of economy. Nevertheless, if Brown's identification of the cuboid stone found at Lobitos is correct, bola hunting was practiced. Also, the disc found at Quebrada Pozo Siches could conceivably qualify as a bola.

Gathering may or may not have been important, depending on whether the climate was somewhat damper than at present. The present climate would hardly allow the growth of anything worth gathering.

Agriculture seems unlikely as a source of livelihood,
although at Quebrada Pozo Siches the finding of a fragment of what may be a mano suggests either insipid horticulture or the grinding of gathered seeds.

The practice of pressure chipping in the Cabo Blanco zone is unusual. The technique is rare throughout South America. The paleo-Indian cultures appear first to have entered South America before pressure chipping had been diffused to them. I am not aware of a single instance in which it is found in association with any advanced Andean culture. It is not present at the Chusí site (see Section VIII, above). The stone tool industries of the advanced cultures are in general rudimentary, perhaps because of the use of metallic and other substitutes.

The pressure chipping at El Estero, and perhaps Punta Sal Chica and Quebrada Honda (Brown), appears to be exceptional. Bird (Bennett and Bird, 1949, p. 25) reports that pressure flaking was completely absent from pre-ceramic middens of rather recent date excavated at Beagle Channel, yet it is present from the earliest pre-ceramic level in middens on the north coast of Chile (Bird, 1947, Fig. 49). A thorough investigation of the Cabo Blanco lithic sites, especially of the above 3, with a view to verifying the presence of the pressure technique, would be desirable.

Other apparently early-man manifestations in western South America with which those of the Quebrada Nunura and
the Cabo Blanco zone should be carefully compared are the
skulls discovered by Paul Rivet in rock shelters near
Paltacalco and elsewhere in southern highland Ecuador, 1901-
06 (1908; Anthony and Rivet, 1908); a stone tool industry
at the pampas of San Pedro, Los Fósiles, and Paiján, in the
Chicama-Pacasmayo sector (Larco Hoyle, 1948, pp. 11-12); a
lithic industry found in rock shelters near Huancayo in
central highland Peru reported by Harry Tschopik, Jr.
(Tschopik, 1946); and a lithic industry discovered in the
high sierra between Lake Titicaca and Arequipa, discovered
summaries follow:

The 17 Paltacalco skulls closely resemble the dolicho-
cranic Lagoa Santa skulls discovered by Lund in Minas Geraes,
Brazil, 1835-44 (Mattos, 1938, pp. 62-89). They were removed
from rock shelters in the Jubones valley in a mountainous
sector well above coastal El Oro. Although no associated
artifacts or other evidence is reported by which the Paltacalco
specimens might be dated, they, together with the Lagoa Santa
skulls, are usually regarded as belonging to an era which
preceded the introduction of agriculture. Because of their
proximity, it is not unreasonable to hypothesize an affinity
between the Nunura skulls and those of Paltacalco.

The stone tools discovered by Bird and Larco in the
Chicama-Pacasmayo sector are points, knives, scrapers, and
drills fashioned by percussion.

Tschopik's brief report brings to light a lithic culture with an emphasis on hunting and skin-dressing tools. End scrapers and oval side scrapers are included in high proportion. Small, narrow projectile points show delicate retouching by the pressure technique. Thus, in view of the points, they stand out as distinct from anything reported from the Cabo Blanco area. No associated skeletal material is reported.

Miss MacBain's discoveries are of chipped points and other implements of jasper and obsidian associated with field-stone alignments and potsherds. No pressure technique is mentioned.

It is of course impossible at the present time to date with any accuracy the Illescas and the Cabo Blanco cultures. But the same may be said concerning South American paleo-Indian remains in general. The initial occupation of Fell's Cave, near the Strait of Magellan, has been dated by Bird at 5100 years ago on the basis of changes in land level relative to that of the sea. Considering its extreme southern location, it seems not unreasonable to assign the first peopling of the rest of the continent to a somewhat earlier date (cf. Bennett and Bird, 1949, p. 26). Since the Illescas and Cabo Blanco material are in a general way typologically similar to those of Fell's Cave and to most other South
American Paleo-Indian materials, it is probably not amiss to think of them as belonging to the first 3 millennia B.C.

**Chavin Materials.** A specimen from the Illescas-Jubones coast of very probable Chavin origin was found at the Hacienda Chapica, near the Rio Yapatera, a tributary to the upper Piura river (Uhle, 1920, p. 166). It is a tall, stirrup-spout vase (see description in Section III, above).

Lothrop (1948, p. 60) observed a white, stirrup-spout bottle decorated with black, geometric designs in the municipal museum at Piura, which he identified as Mochica. However, it possessed angled shoulders, a feature which is typical of coastal Chavin ceramics. It apparently represents a Chavin persistence.

Perhaps a systematic search of the Yapatera valley and the vicinity of Chulucanas would reveal additional material bearing on the time period that these specimens represent. Uhle understood that further excavation had been carried out at the place where the Chapica vessel was unearthed in a quest for similar material, but without success.

**Early-Period Materials.** The term "Early Periods" is here understood to embrace a number of Peruvian cultures which existed between the Chavin and the Tiahuanaco horizons. In the North Coast of Peru 3 clearly distinguished cultures are in evidence, beginning with the earliest: Salinar, Gallinazo (called Virú among Peruvian archeologists), and
Mochica (also called Early Chimú or Proto-Chimú). In the Illescas-Jubones coast traits related to all 3 have been isolated. There is no sure way of knowing, however, that the Illescas-Jubones cultures bearing Early-Period traits are necessarily coeval with the Early Periods of the North Coast. In fact, in the cases of Salinar-like and Gallinazo-like materials, it is probable that they are not coeval.

The Salinar pottery style is a North Coast manifestation of the pan-Peruvian White-on-Red Horizon (Willey, 1948, pp. 10-11). Kroeber (1944, p. 74 and Plate 36, D to F) mentions and illustrates a previously unreported white-on-red style which he observed in Chiclayo and Lambayeque. In the present study, at least technologically related white-on-red sherds and vessels have been reported from Talara(?), Sullana, and Minchales; and in the lower Piura valley, from Narigualá, Cerro Amarillo, Hacienda Vega de Loro, and Chusís. The Chusís White-on-Red and Sechura White-on-Red types found at the last-named site have been fully described in Section VI, above.

There is apparently no close stylistic similarity between white-on-red pottery from the Illescas-Jubones coast and that from other places in Peru. But then, as Willey pointed out in his original formulation of the White-on-Red Horizon (1948, p. 11), that horizon lacks the stylistic specificity of the Chavín horizon. It "... embodies a
technological rather than a stylistic innovation. It is quite possible that the idea of white painting on a red ground as a mode of pottery decoration was related to the widespread shift from the reduction-firing to the open-kiln firing of ceramics. This changeover took place at the end of Chavín periods.

Close stylistic similarity among the various ceramic wares among which the idea diffused is not to be expected. The presence of white-on-red pottery in the Illescas–Jubones coast cannot be much used for dating purposes. For in addition to there being a White-on-Red Horizon, there is a white-on-red pottery tradition, that is, a broad category of ceramic technology and decoration which persists through time. As Willey points out (1945, p. 53; cf. Bennett and Bird, 1949, p. 142), "... From post-Chavín times up to the Inca conquest the White-on-red tradition was expressed through various styles on the northern and central coast and in the northern highland."

As with the White-on-Red Horizon, so with the Negative Horizon: It does not seem to have specific stylistic content but is merely a technique. Its position in the time scale is immediately following the White-on-Red Horizon and immediately preceding the Regional Classic (Mastercraftsmen) styles, such as the Mochica on the North Coast. Three examples of material which is undoubtedly to be related to
the Negative Horizon are reported in the present study: A figurine in the municipal museum at Piura; 2 rare pottery types at Chusís (Chusís Negative Painted and Sechura Negative Painted); and a high proportion of the spindle whorls of Chusís.

These Negative Horizon materials of the Illescas-Jubones coast are in all 3 cases closely similar to comparable materials of a specific culture of the North Coast: the Gallinazo. The figurine is clearly of this type, while several of the potsherds could be mistaken for Gallinazo, sherds (cf. Plate XIII, A and I, below, with Bennett, 1950, Fig. 25 and Plate II, G). Many of the Chusís spindle whorls are closely similar to Gallinazo whorls shown in Bennett, 1939, Fig. 11, a-p. (They are somewhat less similar to Mochica whorls illustrated in Bennett, 1939, Fig. 6, a-h, and in Kroeber, 1944, Fig. 7). Also, a number of the decorative techniques of the textured pottery types of Chusís, such as appliqué bands, rim denting and cutting, incising, and punching, are at least approximately similar.

The figurine examined at Piura may possibly represent a Piura valley culture contemporaneous with, and closely related to the Gallinazo culture of the Virú valley. But for reasons detailed in Section VIII, under "Chronology," the Chusís manifestation is assigned to a later date. There is good reason to postulate the existence of White-on-Red
related and Negative-related cultures in the Piura and Chira valleys approximately coeval with their counterparts of the Early Periods of the North Coast, but I am inclined to believe that at least much of the possible evidence which we have viewed above is to be explained as a lingering-on of ceramic traits in the relatively isolated area of the Illescas-Jubones coast after they had died out in other places to the south. Actually, in our present state of knowledge there is no reason why both explanations cannot be postulated: Some of the evidence may represent Early-Period cultures of high antiquity in the Illescas-Jubones coast; while other of the evidence may represent Early-Period "persistences," as Kroeber would put it, in a somewhat isolated area.

In the case of Mochica-related materials in the Illescas-Jubones coast, the present study seems to be on somewhat surer ground. There are several examples of actual Mochica vessels from the Pariñas, Chira, and Piura valleys, mostly reported by Lothrop (1948). Lothrop illustrates and discusses briefly (1948, pp. 57, 65, and Fig. 50) an effigy vessel of a seated, bound human, possibly a captive warrior, from Malaca, Pariñas valley. The style and paste, he believes, may be local, but the stirrup handle attached to the back clearly brands it as Mochica. It may be a local imitation.
Rowe (1942) illustrates and discusses rather fully a double-spout-and-bridge vessel from Sullana which clearly portrays a typical painted Mochica bean-and-messenger scene. The form and coloration, however, appear to derive from the Coast Tiahuanaco influence. Rowe believes that it represents a merging of the 2 influences. There are known to exist several other examples of this same distinctive style (see Section III, above). Means (1936, Figs. 110-114; p. 181) illustrates vessels which he thinks are possibly Mochica. One of them (Fig. 110), a modelled lord-and-prisoner effigy vessel, seems undeniably Mochica. Uhle (1920, pp. 165) states that Mochica-style bottles are found in the Piura-Catacaos sector, but he does not illustrate nor elucidate. Lothrop (1948, p. 60) examined 3 different groups of vessels in the municipal museum at Piura which in his opinion represented the Mochica period (2 examples illustrated in his Fig. 49). In his description of the Piura ceramic collection of the Peabody Museum of Harvard University, Kroeber (1925, p. 228) finds an "occasional minor Mochica persistence."

There seems little question but that a distinct Mochica influence reached the Pariñas, Chira, and Piura valleys of the Illescas-Jubones coast. What cannot be established is that this influence was contemporaneous with the Mochica civilization of the Chicama and Moche valleys to the south.
I prefer to believe that it was, though. The design style of the illustrated vessels seems too unadulterated for them to be assigned to a local, delayed phase of the Mochica culture in the northern valleys; they seem to represent the actual culture itself. But whether the influence diffused by trade, colonization, or some other means is not clear.

In view of this presence of Mochica influences in the Illescas-Jubones coast, it seems strange that Bennett found no trace of it in the Lambayeque region, which lies between the Sechura desert and the Chicama valley (Bennett, 1939, pp. 120-121). Its apparent lack may result purely from chance factors which have prevented us from finding its remains. The presence of a hostile kingdom in the Lambayeque valley seems a less likely explanation, for then the overland Sechura and Olmos routes would both have been sealed off; under that circumstance it seems difficult to account for the apparent concentration of Mochica influences in the Piura valley above Catacaos when there is no trace of them in the valley below that point, through which contact via marine navigation would have had to come.

Middle-Period Materials. There is clear evidence in the Chira and the Piura valleys of a penetration of Middle-Period influences. Both the Cursive and the Coast Tiahuanaco ceramic styles are involved.

Lothrop (1948, Fig. 52, B; p. 65) illustrates a stirrup-spout effigy jar representing a house, which is painted in
Cursive style. Rowe (1942) illustrates and discusses at length a vessel of a heretofore unreported style which combines the coloration and vessel shape characteristic of Coast Tiahuanaco with Mochica motifs. Three other vessels and a sherd of this same composite style are known to exist. All 6 of the above specimens are reported from Sullana in the Chira valley. The 5 Tiahuanaco-Mochica specimens would appear to have originated at the nearby Hacienda Garabato.

Uhle (1920, p. 167), after examining the Elías and the Egueguereen collections in Piura and Morropón, mentions having seen a single vase that reminded him of the Tiahuanaco style, "... in certain decorations that seem epigonal..."

Lothrop (1948, p. 60) tells us, after examining the municipal collection at Piura, "Of an earlier period than the Chimu were a number of vessels with red, black, and white geometric decoration. Also there were examples of cursive black-line adornment, a type also found in the Chira valley." Both types are usually assigned to the Middle Periods. He adds (p. 65, "... we have seen a blackware vessel with flaring spouts connected with a flat bridge. This stands on a flaring base. The type is usually considered Tiahuanacoid."

Means (1936) illustrates 2 vessels from the Eguigureen collection at Piura (Figs. 115 and 116) and one from the Elías collection at Morropón (Fig. 120, H) which are painted
in the Cursive style. The last-mentioned is "... a double jar with a charming group of three birds surmounting a rectangular vessel..." (p. 181). He also illustrates (Fig. 120, D) a vessel portraying "... a strange animal with its tail in its mouth and a painted design reminiscent of the step-motive in Tiahuanaco II art..." (p. 181).

Kroeber (1925, p. 228) feels that the Peabody Museum collection of Piura vessels shows no "... direct Tiahuanaco or central Peruvian influences." But photographs of 2 vessels from that collection sent to me by Lothrop (Nos. 40031 and 40036; see Plate III) appear to be decorated in the Cursive style.

Ceramics of the Middle Lambayeque II style as defined by Bennett (1939, p. 122) were excavated by Haemmerle at the Hacienda Pabur in the upper Piura valley (Anonymous, 1955 b, p. 103). The Middle Lambayeque II period, "... well represented in the Lambayeque region..." according to Bennett (p. 122), embodied a combination of Mochica characteristics with "... Many characteristics of the Tiahuanaco-influenced Middle periods of Moche-Chicama valleys..."

It thus seems clear that there was a distinct influence from the North Coast of Peru playing upon the Illescas-Jubones coast, at least the Piura valley as far south as Catacaos and the vicinity of Sullana in the Chira valley, in Middle Period times. It is of course impossible to know,
for the time being, whether the Cursive and Coast Tiahuanaco specimens resulted from trade or were made by actual colonists from the more southern valleys. Means (1919, p. 8) felt that they were "intrinsic." It is interesting to note that the examples are concentrated in the upper Piura valley and the vicinity of Sullana in the Chira valley, a distribution which implies contact via the Olmos route.

Late-Period Materials. In the Illescas-Jubones coast are to be found an abundance of archaeological remains representing the Chimú and the Manteño cultures. The climatic and cultural boundary between coastal El Oro and the Tumbes-Sechura region has been defined in Section IX, above. To the north of this boundary, only Manteño materials are reported; to the south, almost exclusively Chimú and other Peruvian-type materials.

It is as yet impossible to date the beginning of the Manteño culture in coastal El Oro. But it was certainly there before the coming of the Incas, and it seems reasonable to postulate its presence during a time coeval with the Chimú occupation of the Tumbes zone. How much earlier than this it might have existed there would be guesswork to say. Its principal diagnostic traits in the El Oro zone, as revealed in the present study, are the ceramic spindle whorl and the ceramic figurine, both of which are abundant.

Only in one instance do I know of Manteño material to
the south of the cultural boundary: a Manteño-style sherd discovered at Vaquería (see Section III, above). But this offers us no help in dating the materials.

Actually, the original Tumbes culture, as unaffected by Chimu or Inca influences, should theoretically be a desert adaptation of the Manteño culture, since the Tumbes were clearly related to the Puná, Huancavilca, and other peoples of the Manteño culture of coastal Ecuador to the north. But no archaeological remains of a Tumbes culture as distinct from the Chimu-Inca culture of the Tumbes fortress has been revealed, unless it be that represented by the Vaquería sherd. Nevertheless, on the evidence of the Chronicles, a distinctive Tumbes culture in the Tumbes zone prior to the arrival of the Chimu must be postulated.

Of the presence of the Chimu culture in the Illéescas-Jubones coast, there is abundant and widespread evidence. The Chronicles clearly envisage Tumbes as the northernmost outpost of the Chimu. Cieza de Leon understood from certain Indians that the fortress associated with the Temple of the Sun at Tumbes (evidently the structure here identified as La Garrita) had been built previous to the coming of the Incas. The double-lobed, blackware vessel I saw at the Huaca del Sol de los Incas (Section III, above) is clearly of Chimu origin. The measurements made of the rectangular adobes at the Huaca del Sol de los Incas at Tumbes seem to
fulfill Chimu specifications; Inca adobes would be consider-
ably larger (cf. Bennett, 1949, p. 59).

Lothrop (1948, p. 55) mentions that architectural re-
mains are rare in the Pariñas valley. As a matter of fact,
not a single mention of a pyramidal structure of any kind
has come to light in the entire Cabo Blanco zone. House
walls are mentioned at Los Órganos, Quebrada Honda (Brown),
and Cerro Huaco, however. Throughout the Chira valley
huacas are abundant (Uhle, 1920, p. 166; Means, 1936, p.
179). While, as Bosworth points out (1922, p. 313), there
are no stone structures of any kind, adobe pyramids are to
be found, as specifically mentioned, near Sullana, at
Capilla, Hacienda Sojo, La Huaca, and Tamarindo. The upper
Piura valley contains many of them (Uhle, 1920, p. 166;
Espejo Núñez, 1951, p. 136), while Uhle (1920, p. 165) notes
that the Piura-Catacaos sector contains numerous artificial
hills (huacas), similar in principle of construction to
those of the Lambayeque region. Huacas are specifically
mentioned at Chiclallito and Narigualá, and are probably
located at Puyuntalá, Tablazo, and Vice.

Irrigation works near Tumbes, in the Cabo Blanco zone,
particularly near Máncora, and in the Chira and the Piura
valleys may or may not be associated with the Chimu culture,
but to so assign them seems consistent with the great
emphasis placed upon irrigation agriculture in the Chimu
homeland.

A study of the ceramics of the Illescas-Jubones coast makes clear the presence and distribution of the Chimú cultural influences in a striking manner. Typical Chimú monochrome pottery, largely effigy vessels, appears near Tumbes and exists abundantly in the Chira valley and the upper Piura valley downstream to the vicinity of Catacaos (Uhle, 1920, p. 166). Specifically, Chimú vessels or sherds are mentioned for the Huaca del Sol de los Incas in the Tumbes zone; Sullana, Tangarárâ(?), Hacienda Sojo, Nomara, Amotape, and Vichayal in the Chira valley; Morropón, Hacienda, Pabur, Puyuntalá, Santa Clara, and Chuchal (near Chulliyachi) in the Piura valley; and Quebrada Bapon and Quebrada Nunura on the Illescas peninsula.

An important technique which often appears in Chimú pottery is what is called relief-molding or mold-pressing. Raised dots (usually called stippling), lines and other naturalistic and geometric elements arranged in panels, always in low relief, are achieved by pressing the clay, or perhaps in some cases the already-shaped half-vessel itself, into molds. This technique is distinct from regular molding, whereby the objects portrayed stand out in the full round. This feature appears to have been introduced into Chimú ceramics via the Coast Tiahuanaco influence (Kroeber, 1944, p. 67). Relief-molding is explicitly mentioned for several
sites in the Illescas-Jubones coast: Sullana, Nomara, and Amotape in the Chira valley; Narigualá, Santa Clara, Cerro Amarillo, and Chusís in the Piura valley; and the Quebrada Nunura on the Illescas peninsula. Of the 104 vessels of the Piura collection of the Peabody Museum of Harvard, 11 carry relief stippling (Kroeber, 1925, p. 228).

Means (1936, p. 180) mentions the finding of yellow woolen cloth with Chimu figures worked into it at the Hacienda Sojo in the Chira valley.

Kroeber's study of the Piura collection at Peabody Museum of Harvard reveals "... essentially a ... Chimu pottery done two-thirds of the time in red..." (1925, p. 228). Other sources confirm the emphasis on red paste of the Piura-Chira variant of Chimu pottery. In the Chimu homeland to the south, the emphasis is on black at the expense of the red. Other features in which the northern variant differs from that of the homeland are alluded to by Uhle (1920), but precisely what those features are, are not stated. Kroeber's listing (1930, p. 98) is significant:

Piura, which I did not visit, appears to constitute a somewhat separate sub-province of north or Late Chimu, so far as can be judged from the one available collection of 104 pieces in the Peabody Museum—probably highly selected. Blackware here sinks from three-fourths of the total to about a third; painted design is more frequent; lug-handles or loops occur on stirrup mouths; bridged shapes are perhaps less common; there occurs a jar with tall, somewhat flaring mouth carafe; Lothrop, 1948, p. 60 that has no analogue in the Chimu area proper; handles are solid or twisted as well as flat...
Lothrop (1948, p. 60) finds that the Chimu specimens in the Piura and Chira valleys "... tend to be relatively simple in form and provincial in style. There is no reason to think they were imported rather than manufactured in the vicinity. ..."

A variant which I noticed at the municipal collection at Piura was Chimu effigy vessels done in a white or pale pink paste (cf. Means, 1919, p. 8).

No mention of Chimu-style pottery or any other trait diagnostic of the Chimu culture is made for the Cabo Blanco zone or the Sechura desert. The latter zone is not well known, but if the Chimu occupied the former, from which a considerable number of sites are herein reported, traces of their presence would surely have been mentioned.

Paddle-stamping, or paddle-marking, is a ceramic decoration technique characteristic of portions of the Illescas-Jubones coast, in common with the Lambayeque-Virú coast to the south. Kroeber and Muelle (1942) amply discuss its technology, together with its distribution in time and space, as then known. The first occurrences in the main Chimu area are in association with Middle Period graves, probably of a late phase (Lothrop, 1948, p. 65). It continues in popularity to the Inca period (Kroeber and Muelle, 1942, p. 23). Its center of distribution seems to be between the Leche and Sana valleys (p. 24), in other words the north Chimu area,
of which Late Period (Chimu) material is typical.

A little later, Kroeber came to feel that the center of the paddle-stamping technique may be elsewhere than the Leche-Sana sector (Kroeber, 1944, p. 74). "... Lothrop found paddle-marked ware exceedingly abundant in Piura, and it is to be hoped that he will publish his findings soon, since the far north appears to be the center of highest development, if not of the origin, of this technique." All that Lothrop has published to date concerning his 1941 reconnaissance to which Kroeber refers is his preliminary report of 1948.

The southernmost occurrence of paddle-stamping known to Kroeber and Muelle (1942, p. 23) is the Virú valley. However, Uhle (1920) states that among the pottery of the Piura-Catacaos sector are found "... jars with relief decoration in the form of crossed lines, which belong to the final period. ... according to a cemetery of similar vessels which I discovered near Chimbote in 1897, as well as other little jars of the same character that are found in a half-Chimu, half-Inca cemetery outside the north wall at Pachacamac. ... ."

Kroeber and Muelle (1942, p. 23) give the northern limit of distribution of paddle-stamping as Piura, their conclusion being based on the 104-piece Peabody collection.
At that time it was not possible to define its northern limit more precisely.

In Lothrop's 1941 reconnaissance from Cabo Blanco southward to the city of Piura (Lothrop, 1948) he noted that, at refuse sites, "... the predominant decorated ware is the paddle-marked type..." (p. 61). The northernmost limit of distribution is indicated at Nicaragua in the Parinas valley (p. 57), where it is "... by far the commonest type..." It is, in fact, typical of the Parinas and Chira valleys.

The present study defines the distribution of paddle-stamped pottery in the Illescas-Jubones coast somewhat more fully than does Lothrop's. Specifically, it is mentioned at Nicaragua, Quebrada Honda (Lothrop), Cerro Huaco, and Talara in the Cabo Blanco zone; Hacienda Sojo, Tamarindo, Amotape, and Vichayal in the Chira valley; the Piura-Catacaos sector, Narigualá, Cerro Amarillo, Hacienda La Isla, Chusís, and Sechura (in a local collection but probably not of local origin) in the Piura valley; Quebrada Bapon and Quebrada Nunura on the Illescas peninsula; and Minchales in the Sechura desert. In addition, several paddle-stamped vessels are included in collections at Piura and in the Peabody Piura collection. The distribution of this ware in the Illescas-Jubones coast, then, includes the Parinas, Chira, and Piura valleys, the Illescas peninsula, and the Sechura desert.
It will be noted that the distribution of paddle-stamping in the Illescas-Jubones coast is not coterminous with that of the Chimu culture, as defined by the presence of typical monochrome effigy pottery and adobe pyramids. There has come to light no evidence of paddle-stamping in the Tumbes zone, nor any evidence of the Chimu culture in the Cabo Blanco zone or the Sechura desert. It seems justifiable to attribute the manufacture of paddle-stamped ware to a people in late times who were in close association, but not identical, with the Chimu people. And judging by its associations at the Hacienda La Isla and Chusís (see Sections IV and VI, above), the trait continued in use up to the historic period. Georg Petersen states that one variety is still manufactured.

It seems reasonable to postulate the existence of at least four distinct peoples dwelling in the valleys of the Illescas-Jubones coast at the coming of the Incas: The Tumbes, the Chimu, the Tallan, and the Sechura.

1. TUMBES. The people which occupied the valley of the Tumbes river were originally affiliated with the Manteño culture of the Manta, the Huancavilca, and the Puná, judging from the ethnological analysis of Verneau and Rivet. This nation was ruled first by the Chimu and later by the Inca, hence were noticeably acculturated to the culture of the Central Andes.
In coastal El Oro dwelt a kindred people, also called the Tumbes by Verneau and Rivet (1912-22, No. 1, p. 58; Map I). This people was affiliated with the Manteño culture, judging from the archaeological evidence. The Tumbes of the El Oro coast, however, should be called the Free Tumbes, for there is no sign of their ever having been dominated by the Chimu. Later, they may have become nominally subject to the Inca empire, since the remainder of coastal Ecuador was so reckoned, but there seems to be no evidence that the Inca ever actually entered the zone.

If there is any justification for Murra's statement (1947, p. 807), that the Tumbes occupied the territory southward to the mouth of the Chira river, either in the Chronicles or any other source, it has not become evident.

2. CHIMU. The Chimu people occupied a position of military and political dominance in the Illescas-Jubones coast, having invaded the area from the Kingdom of Chimor to the south. (Rowe, 1948, suggests the use of the original native term, Chimor, to designate the political entity, while reserving the Quechuaized form, Chimu, for the archaeological culture and periods.) Numerous huacas and monochrome effigy pottery vessels attest their presence in considerable numbers. They actually occupied the Tumbes and Chira valleys, the Piura valley as far south as Catacás and Narigualá and sporadically beyond, and the Illescas
peninsula. They did not occupy, judging from the archaeological evidence, coastal El Oro, the Cabo Blanco zone, nor presumably the Sechura desert.

3. TALLAN. The Tallan were apparently the indigenous occupants of much of the territory of the Illescas-Jubones coast before the invasion of the Chimu. They were referred to and described by several of the Chroniclers. I personally identify the Tallan with the makers of the paddle-stamped pottery. Their original homeland may have been the Pariñas and Chira valleys (the Chimu later sharing the latter valley with them), in both of which paddle-stamped ceramics are abundant. Petersen (1955) calls the ancient inhabitants of Los Órganos, Tallan. He describes the lip plugs of the Los Órganos women, which seem identical with those described for Tallan women by the chronicler Pedro Pizarro (1921, Vol. 1, p. 170, as quoted by Lothrop, 1948, pp. 54-55). Groups of Tallan were also located in the Piura valley, the Illescas peninsula, the Sechura desert(?), the valleys of the Peruvian North Coast south to the Santa, and even as far as Pachacamac; or else their ware was traded to the more southern communities. I regard the application of the term Tallan to the Chimu archaeological materials of the Illescas-Jubones coast, as is done for example by the Museo Nacional de Antropología y Arqueología (Lima), as incorrect.

4. SECHURA. The Sechura were an indigenous people
occupying the lower Piura valley, specifically, the sites of Chusís and Sechura. Their ceramic culture seems to incorporate elements related to the Early Periods of the North Coast, such as white-on-red pottery, Gallinazo-related negative painting, and incised spindle whorls. The preservation of these archaic features may be perhaps in part accounted for by the isolation of their terrain. Paddle-stamping is definitely a late intrusion into Sechura territory, as is made clear by the stratigraphy at Chusís, where it is found on the surface only, and by the association of paddle-stamped sherds with historic artifacts at the Hacienda La Isla.

An undated and unsigned Relación de Piura (Anonymous, 1885) is cited by Lothrop (1948, p. 55) as declaring that there were 3 nations between the Sechura desert and Tumbes, each with its distinctive language, and that they needed interpreters to converse with one another.

The botanist Richard Spruce in 1863 collected a vocabulary of 40 words at Piura and learned important information concerning the native languages of the Illescas-Jubones coast. As reported by Markham in his introduction to Cieza de Leon (1864a, pp. xlii-xliv, footnotes), Spruce declares that there then existed remnants of 3 distinct nations to the north of the Sechura desert, each with its distinctive language, none of which was in any way related to the Quechua
and at least the first and third of which were "entirely distinct" from each other. They are: (1) the Catacaos, their language being extinct but formerly spoken in the village of that name; (2) the Colan, formerly very numerous in the lower Chira valley and at present in the village of that name and at Amotape, their language being extinct; and (3) the Sechura, their language being nearly extinct and spoken in the large village of that name (were these the speakers of the language called "Sec"?). Means (1936, p. 114, Footnote 12) states that he found the native language still "faintly surviving" near Sechura in 1918. Stiglich (1918, p. 412) mentions that the people of Sechura had a "special dialect of Spanish." It is at present totally extinct, as far as I could learn on the occasion of my sojourn in 1950.

I postulate that the 3 nations or languages of Piura known during colonial and republican times correspond to 3 native peoples in existence at the coming of the Incas:

(1) The Catacaos are descended from the Chimu. The principle concentration of the Chimu appears to have been somewhere in the vicinity of Catacaos, Piura, and Chulucanas. (2) The Colan are descended from the Tallan. Regardless of whether there is any significance in the slight similarity of the 2 names, the Colan occupied a general vicinity where paddle-stamped ware is found in abundance, which trait was assigned, above, to the Tallan. (3) The Sechura are descended from
the bearers of the archaeological culture herein called Chusis. Although slight Chimu influences are detectable at various sites in the lower Piura valley, the Chusis culture probably filled the entire valley south of Narigualá.

The term Yunca, or Yunga, it should be noted, is not the name of any ethnic group. It is merely a Quechua word for dwellers in the hot (i.e. coastal) lands. Thus, while García Rosell's statement that there were 3 pre-Incaic peoples in Piura seems sound, his use of Yunca as the name of one of them is unfortunate. His use of the term Mochica seems justified, since this may be regarded as a synonym for Chimu and seems to be derived from the name of the Muchic language. His third people he calls Tallanca.

One suspects, from the abundance of Chimu remains in the Piura and Chira valleys that strong Chimu influences reached the area well before the actual conquest by the Chimú. Minchancaman, the great conqueror from the Kingdom of Chimor and its last king before it fell in its turn to the Inca, is credited with having subdued all the territory north as far as Tumbes (Vargas Ugarte, 1936, pp. 231-233, as cited in Rowe, 1948, pp. 28, 30, Footnote 2). His reign may easily have accounted for Chimu remains at Tumbes, but it seems too short to account for the evidences of intensive Chimu occupation of the Piura and Chira valleys. The date, c. 1425, as the approximate beginning of the Chimu period in
the Illescas-Jubones coast, has therefore been selected, which, as will be seen below, allows about 40 years before the coming of the Inca.

There is also the distinct probability that the Chimu culture extended well into, if not throughout, the period of Inca political control. The glazed vessels observed by Lothrop at Piura (1948, p. 60) were Chimu, not Inca (see below, under "Contact Period Materials").

The distribution of Chimu remains puts one in mind of Means' opinion as expressed in 1930 (1936, p. 179):
"... It seems to me that, although the lord of Chan-Chan may have been theoretically the liege of the chief of Tumbez, his real power began, on the north, in the Chira valley. From there southwards the archaeology—so far as we know it up to the present—of the country reveals consistent evidences of intensive occupation of the land by people closely akin to, if not identical with, the folk of Chan-Chan as they were during the Late Chimu period. . . ."

It is likely that Minchancaman was more than a "theoretical" king of Tumbes, but in any event there is no trace of Chimu occupation in the intervening Cabo Blanco zone.

**Inca-Period Materials.** Inca archaeological remains in the Illescas-Jubones coast are rare. So far as indicated in the present study, the El Oro coast has produced none. The Tumbes zone contains the Huaca del Sol de los Incas and
the associated monastery, fortress, and canal system, all
of which fit the descriptions found in the Chronicles of the
Tumbes that was occupied by the Incas at the time of Piz-
arro's landing.

The Cabo Blanco zone has produced nothing which is
explicitly Incaic. However, at La Breita, Negritos, and La
Brea are to be found prehistoric pits and related structures
which were undoubtedly utilized by the Incas or their sub-
jects for the extraction and refining of petroleum.

Cieza de Leon implies that the numerous ruins which he
observed between Poechos and Sullana in the Chira valley
had been built by the Incas.

Uhle (1920, p. 166) mentions that Inca style pottery
is to be found "... in the entire region between Catacaos
and the valleys of Chira and Piura..." Means (1936, p.
181) also notes Inca examples in local collections. He ob-
serves (1919, p. 8) that local Inca pottery, although some-
what coarser, is very similar to that of other areas.
Kroeber (1925, p. 228), after his study of the Peabody col-
lection from Piura, concludes that Piura pottery was "... under some slight but positive Inca influence..." One red-
ware aryballoid was included. Lothrop (1948, p. 60) exam-
ined, in the municipal museum at Piura, Inca "... aryballoids
are ... a pedestal bowl with a single horizontal-loop
handle."
Delgado (1936, p. 97) makes mention of the quipus which are frequently found by diggers in the Department of Piura.

Whether the remnant of a dam in the river bed between Castilla and Piura is actually of Inca construction, as claimed, cannot now be said. But from what we know of Inca irrigation practices it seems probable.

The Haemmerle collection of pottery dug from an ancient cemetery at the Hacienda Pabur contains, according to Schaedel, examples which represent an Inca period (Anonymous, 1955b). Whether these are pure Inca or simply Inca-influenced, is not stated, however. The lord of Pabur, we learn from the Chronicles, was a local potentate whose domain had been much despoiled by the armies of Atahualpa.

The archaeological evidence of an Inca occupation of the Illescas-Jubones coast is seen to be scanty, in fact completely lacking from the Cabo Blanco zone, the Piura valley below Catacaos, the Illescas peninsula, and the Sechura desert. Yet, it is known from historical sources that they held the area from about 70 years before the coming of the Spaniards. Rowe, who has made a careful analysis of the Chronicles, calculates (1948, p. 39-44) that the great campaign of Pachacuti against Cajamarca, a mountain kingdom of northern Peru allied to Chimor, took place about 1462. This gain consolidated, the next move was against Minchan-caman, himself, at Chanchan. This completed, the Pacasmayo
valley to the north was occupied and the army returned eastward to Cajamarca, thence northward for a year's campaign in Ecuador. The return from Ecuador was via Tumbes, from which point they proceeded to make good their claim over the Kingdom of Chimor. The Inca occupation of the Illescas-Jubones coast, then, must date to about 1463 or 1464.

The Inca occupation continued of course until the coming of the Spaniards in 1532. It is not easy to understand why archaeological evidence of the 70-year occupation should be so scanty, until one realizes what the Inca colonial policy entailed. Generally, it was their practice to insist on loyalty to the authority of Cuzco and to the Inca caste, to require participation in the vast Inca work projects, in some cases to exact tribute, and to require official worship in the patterns of the state religion and set up facilities (temples of the Sun) to do so. Otherwise, the people were left free to carry on their own religion and generally to live out their own culture. It was only in cases of recalcitrant groups that such severe measures were taken as to move whole populations to new and distant locations. It should be remembered too that the climate of the coast was not pleasing to the mountain-dwelling Quechua. It is to be expected therefore, that vast stretches of coastal territory, as long as its inhabitants remained peaceable and obedient, would have been governed only by
occasional garrisons of Inca soldiers and periodic visitations of officials. The material culture of the coastal dwellers was for the most part left intact. Thus, Rowe, speaking of the territory of the conquered Kingdom of Chimor (1948, p. 46), says, "... By archaeological evidence alone it would be very difficult to establish an 'Inca period' in the area."

**Spanish Contact-Period Materials.** Archaeological remains of the period after the coming of the Europeans but while native material culture continued in force are rare. One reason doubtlessly lies in the fact that no researcher, apparently, has been interested in such remains. Another reason may be that artifacts created in native style but decorated with some feature of obvious European origin, as for example Chimu effigy vessels covered with glaze, have been thrown out of collections as fakes (cf. Rowe, 1948, p. 55, Footnote 31). Another reason is that, unless the article exhibited some non-native feature, it would be impossible to distinguish it from a pre-Conquest artifact, even though it had been manufactured 2 centuries afterwards. Also, such remains as cemeteries, if they show European-influenced features, are branded as Christian and therefore not available for archaeological inquiry.

The "Inca" dam at Castilla contains fired bricks in its upper portion. This seems to label at least the upper part
as historic, and since a dam already existed at the site when the city of Piura was located there in 1588 (Delgado, 1936, p. 95) it may with logic be assigned to the contact period.

Lothrop (1948, p. 60) mentions having seen Chimu vessels decorated with glaze in the municipal museum at Piura. A glazed sherd decorated with lines in pressed relief was found at Chusís (see "Chusís Mold-Pressed Black," under Section VI, above). A glazed sherd was also collected from Chuchal (near Chulliyachi). Both of these sherds were found lying on the surface. At the Hacienda La Isla, a paddle-stamped sherd and one apparently from an open pitcher spout were observed lying together with bits of glass and iron in a thin deposit atop a sand dune. Paddle-stamped ware was reported verbally to be present in the vicinity of the old railway station at Bayóvar, Illescas peninsula.

Without doubt, numerous contact-period sites could be located with a minimum of effort. Modern Tumbes and Sechura have been removed from their aboriginal locations, but I believe that many, if not most, of the native villages of the Illescas-Jubones coast are now located where they were when the Spaniards first arrived. La Huaca in the Chira valley is an example. Tangarára in the same valley should be especially interesting, for it was there that Pizarro's original city of San Miguel de Piura was planted before
undergoing a series of moves which finally ended at its present location.

A contemporary ceramic industry located at Simbilá, near Catacaos, is described in some detail in Christensen, 1955. This industry is a survival of the ancient native tradition, but contains many European-introduced accretions. Continued study of this phenomenon should throw much light on acculturation as between the Spanish and native cultures.

A Tentative Chronology for Illescas-Jubones Prehistory

It is apparent that the materials are available for at least a tentative, or trial, chronology of the archaeological history of the Illescas-Jubones coast. At a time assumed to be prior to the rise of the agricultural-ceramic cultures, there existed 2 non-ceramic, perhaps fishing cultures which we call Cabo Blanco Lithic and Illescas Pre-ceramic. Very limited Chavín traces represent a doubtlessly later time, while clear Mochica influences come from still later. At a time herein thought of as during the "Middle Periods," certain influences, as observed in discovered ceramics, reached the area from coastal Peru to the south, including influences from the cultures called Coast Tiahuanaco.

Following this, the picture becomes increasingly clear.
In coastal El Oro and the Tumbes zone a Mantenõ-type culture which we herein denominate Tumbes seems to have prevailed. In the lower Piura valley a Gallinazo-related culture, identified at Chusís by excavation and at Sechura by surface reconnaissance and herein assigned to the Sechura people, existed. Elsewhere, an indigenous culture existed herein designated Tallan. The last 2 periods, dominated respectively by the cultures of Chimor and Cuzco, are well established. Fig. 40 illustrates in graphic form my view of the temporal and spacial relationships of the various prehistoric cultures of the Illescas-Jubones coast.

Only in one instance is there actual stratigraphic information upon which to build chronology: the ancient ruin of Chusís. The excavations of 1950 in the refuse deposits of this site in the lower Piura valley, together with an analysis of the material remains, constitutes the principal content of the present thesis. In no other instance has an excavation which was planned and executed to reveal stratigraphic information been reported, so far as I am aware. In very few instances have excavations of any kind been reported. Aside from Chusís, the information comes almost entirely from reconnaissance reports, descriptions of museum collections, and documentary sources (i.e., the Chronicles).

A few comments are in order concerning the reliability of the dates given in the time scale of Fig. 40, "A
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<th>Coastal El Oro</th>
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<th>Cabo Blanco Zone</th>
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<th>Upper Piura Valley</th>
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**FIGURE 40. A tentative chronology for the Illescas-Jubones coast**
Tentative Chronology for the Illescas-Jubones Coast." The Paleo-Indian periods I have guess-dated to B.C. times; it seems unsound to attempt greater precision than this at present. I have not presumed even to guess at dates for the Chavín and Early "periods." The date, c. 1000(?) A.D., for the beginning of the "Middle" period is slightly better than a guess, however. It is based on a line of reasoning worked out in connection with the Chusis site, as detailed in Section VIII, above, which requires that the bulk of the site be assigned to a single, though long-lived, pre-1540 culture. The date for the beginning of the Late period, c. 1425, is an approximation arrived at by matching 2 considerations, one documentary, the other archaeological. The Chronicles make it clear that the Chimu conquest of the area between the Sechura desert and Tumbes took place within the reign of the last monarch of Chimor. Since that reign ended c. 1464, the conquest may be dated to somewhere near 1450. But 14 years would not be nearly enough to account for the great amount of Chimu pottery and architecture in the Piura and Chira valleys. We may therefore assume that Chimu influences reached the area before the conquest of Minchana; thus the date, c. 1425, for the beginning of the period seems reasonable. The beginning of the Inca period, c. 1464, is established within rather narrow limits by documentary evidence. The date, 1532, for the beginning of the Spanish
Contact period, is firmly established by the same sources.

It is understood, of course, that the transition from one period to the next did not always take place at exactly the same time in each of the 8 zones into which the Illescas-Jubones coast has been divided. Certain zones were likely to have been less accessible than their neighbors to cultural diffusion from a given direction. For example, neither the Chimu nor the Inca influence seems to have reached the Cabo Blanco zone, nor certain sites in the lower Piura valley, at all.

It will be noticed that hyphenation of cultural names is freely used in Fig. 40. This indicates my opinion that the cultures so combined both (or all 3) occupied the zone contemporaneously. The order of the names suggests the order of arrival and of political dominance of the groups bearing those cultures. The term, "Inca-Tumbes," for example, indicates that the Tumbes were the original occupants of the zone, but that the Inca were also there during that period in the capacity of conquerors and overlords. The term "Tributary" indicates that the zone was actually occupied by the peoples indicated, but that these were subject to absentee overlords.

A caution should be observed with regard to the comparative depths of the columns in Fig. 40. The fact that only the more recent periods are shown for coastal El Oro and
the Tumbes zone does not necessarily mean that the northern portion of the Illescas-Jubones was not occupied as early as the rest. It more likely signifies merely the present lack of archaeological knowledge.

There have been presented in the preceding pages a few glimpses into the prehistory of the Illescas-Jubones coast. At least some light has been shed upon the developmental process by which culture evolved from that of simple paleo-Indian fishermen to that of subjects of the king of Spain. Light has also been shed upon the problem of relationships between the ancient cultures of coastal Peru and those of coastal Ecuador. It is hoped that some questions have been answered, and that a groundwork has been laid for future research which will answer many more.
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PLATES
EXPLANATION OF PLATES

PLATE I. A, Excavating the larger mound at the Hacienda La Esperanza. B, Sr. Ernesto Witt A. displays Vessels II (right) and III, removed from the Hacienda La Esperanza excavation.


PLATE III. Pottery vessels from Piura in the Peabody Museum of Archaeology and Ethnology, Harvard University. Museum catalogue numbers: A, 39836; B, 39846; C, 40036; D, 40005; E and F, 40031; G, 40027; H, 34220; I, 39964; J, 40023; K, 40015; L, 40009. Photographs, courtesy of the Peabody Museum.

PLATE IV. Archaeological sites in the lower Piura valley. A, Remains of an "Inca" dam in the river bed between Piura and Castilla (Tacaña), looking southward. B, Refuse deposit at Cerro Amarillo. The summit of the cerro is in the background. C, Four cisterns cut into the side of the cliff above the smaller (northern) shell mound at the Hacienda Vega de Loro, Pingo section. D, Close-up of the northernmost of the 4 cisterns at the Hacienda Vega de Loro. E, The smaller shell mound on the Hacienda Vega de Loro. F, "Inca" wall
near the Felix Chunga residence, between the Hacienda Vega
de Loro and Chusís. G, The largest shell mound of the Chuchal
(near Chulliyachi) group; taken from a smaller mound lying to
the west. H, Alejandro Zapata Benites (left) and his uncle,
Agusto Benites, examining human bones at the large mound of
the Chuchal site.

PLATE V. Sherds from the lower Piura valley. A-D,
Painted, modelled, mold-pressed, and paddle-stamped sherds
from Nariguaíná. E, Mold-pressed sherds from the Cerro
Amarillo. F and G, Sherds from Sechura. H, Sherd from
Chuchal (near Chulliyachi).

PLATE VI. Aerial view of the ruin, hamlet, and hacienda-house at Chusís. Courtesy of the Servicio Aerofotográfico Nacional, Lima, Peru.

PLATE VII. Views of Chusís. A, The cliff from a point
about 300 m. northeast of the hacienda-house; looking
approximately northwest. B, The overhanging top stratum at
the southeast portion of the cliff. C, The hacienda-house
from near the southeast tip of the cliff. Note the twin
towers of the Catholic church at Sechura (right background).
D, Home of a modern villager, located near the ancient
boundary wall. Catholic chapel, right background.

PLATE VIII. Excavations at Chusís. A, Trench A, cut
through the boundary wall; looking approximately east. B,
Burial urn in situ in Trench C; looking approximately north-
west. C, Stratitests C, looking approximately northwest.
Layer III lies exposed on top. D, Urn burial in the conical excavation of Stratitest C; looking approximately northwest. E, Storage jar discovered beside Trench D, in situ; looking approximately east. Note floor level above vessel mouth. F, Looking approximately southeast at Stratitest D. Both the upper and lower walls are visible. G, The lower wall with the channeled top uncovered in the excavation of Stratitest D; looking approximately south. H, Adult burial encountered in the conical excavation northwest of Stratitest D; looking approximately west. Stratitest on the left.


PLATE X. Vessels from Chusís and Minchales. A, Jar found to the west of Stratitest D. B, Burial urn of Trench C. C, Storage jar from beneath floor level at Trench D. D, (left) offering found within burial urn, Stratitest C; and
(right) offering from burial urn at Trench C. E, Vessels belonging to Eulauteria Anton Ayala of Chusís: (left) bottle with missing spout found by children at Chusís; and (right) stamped redware jar from Minchales in the Sechura desert.


PLATE XIV. Non-ceramic specimens excavated at Chusís.

A, Crescent-shaped object of copper (M-13). B, Net sinker(?) of stone (AST-15) (left) and net sinker(?), pendant(?), or bead(?) of stone (AST-17). C, Pot polisher(?) of shell (ASH-1) (left) and ornament(?) of bone (AB-4). D, Socket for door post(?) (AST-20). E and F, Skull of adult burial of Stratitests D.