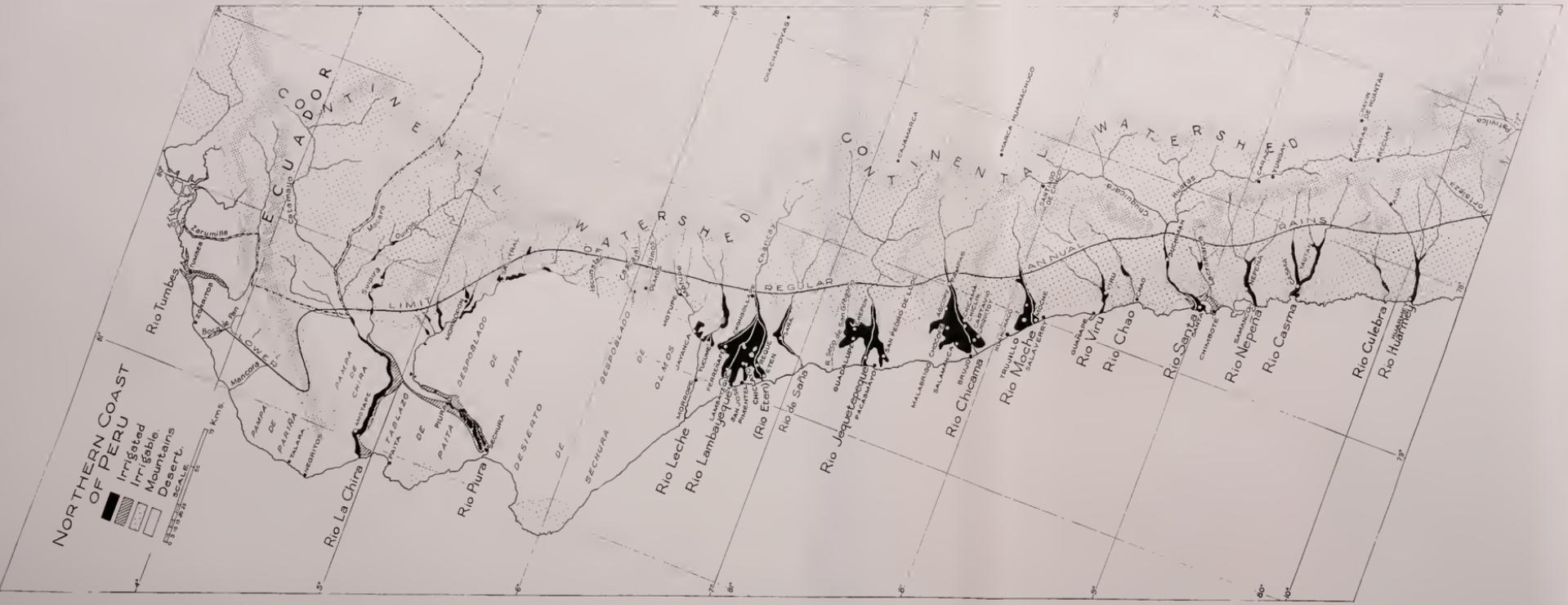
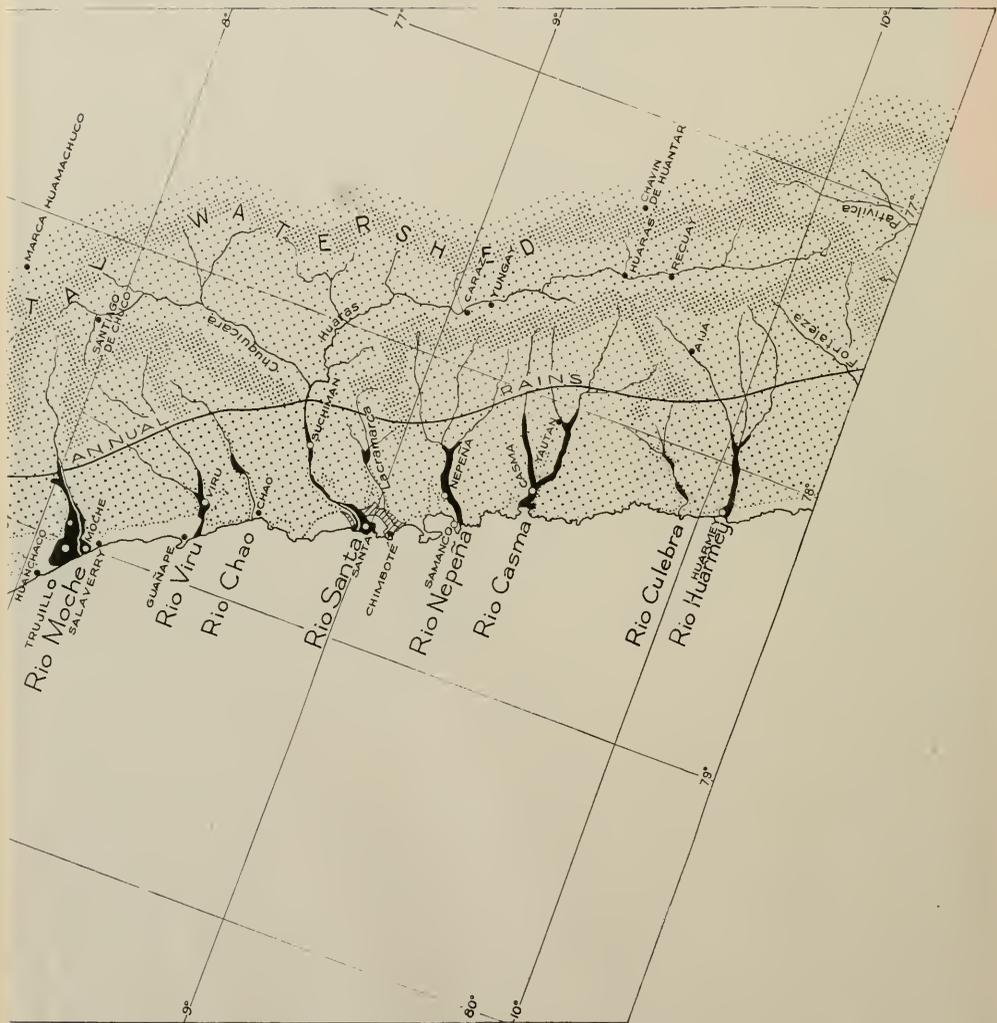


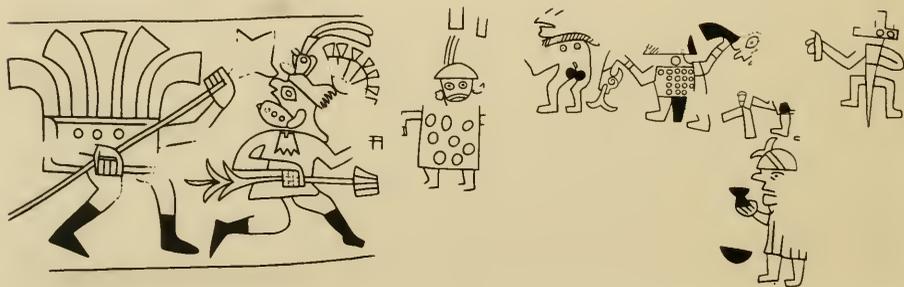
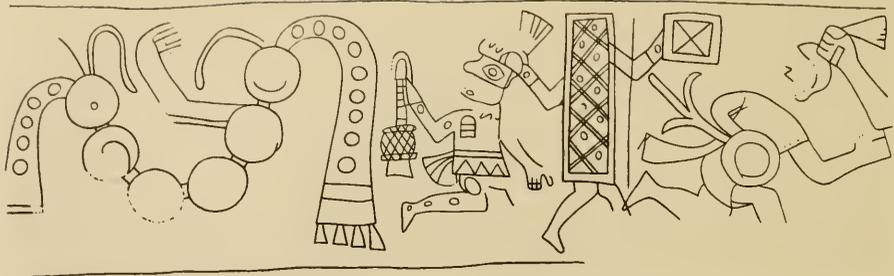
NORTHERN COAST OF PERU

-  Irrigated
-  Irrigable
-  Mountains
-  Desert

SCALE
0 10 20 30
Kms.







FRESCOS, HUACA DE LA LUNA, MOCHE

BLACK, WHITE, RED, YELLOW, LIGHT BLUE, PINK, BROWN

FIELD MUSEUM OF NATURAL HISTORY

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ANTHROPOLOGY, MEMOIRS

VOLUME II, No. 2

ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART II

THE NORTHERN COAST

BY

A. L. KROEBER

PROFESSOR OF ANTHROPOLOGY IN THE UNIVERSITY OF CALIFORNIA
RESEARCH ASSOCIATE IN AMERICAN ARCHAEOLOGY IN FIELD MUSEUM

18 Plates, 3 Text-figures

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BERTHOLD LAUFER
CURATOR, DEPARTMENT OF ANTHROPOLOGY

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ARCHAEOLOGICAL EXPLORATIONS IN PERU

PART II

THE NORTHERN COAST

INTRODUCTION

This monograph presents the results of the Second Marshall Field Expedition of 1926 in northern Peru. In both the First and Second Expeditions the main objective was the coast area from Lima to Nazca. In both cases, however, a reconnaissance was made to the northern coast—in 1925 for a week, in 1926 for a month. During a fortnight of this month I had a motor car available, and was able to visit the valleys from Virú to Leche inclusive, seven in all, whereas during the preceding year I saw only the valley of Moche or Trujillo. The 1926 reconnaissance was planned and largely executed jointly by Dr. J. C. Tello, the official representative for archaeology of the Peruvian government, and myself, on behalf of Field Museum. The car used belonged to Field Museum; the driver was in the service of the national government. Dr. Tello and I were together in Trujillo and on the road as far as Chiclayo and Pimentel; thence he left by ship for Lima. I remained several days longer in the vicinity of Chiclayo and Lambayeque, drove north as far as Túcume on the Rio de la Leche, returned to Trujillo, and visited, on the last day available, the valley of Virú south of that city. This means in short that I was able to inspect some of the principal ruins, cemetery débris, and collections in somewhat more than half the territory of each of the two recognized Chimú or north Peruvian coast areas: that of Chimú-Moche-Chanchan-Chicama, in which both an Early and a Late Chimú culture have been determined; and that of Pacasmayo-Saña-Etén-Chiclayo-Lambayeque-Leche, from which available collections showed only a ceramic ware similar to the Late Chimú of the first area. The objective was to determine the culture relations of these two provinces and the culture sequences within each; and up to a certain point this objective was attained. Excavations would hardly have been feasible in the brief time available and were not attempted. But several sites were determined as important for systematic exploration, either on account of the extent of their ruins or the strategic significance of the wares in their cemeteries, as Ciudad de la Barranca, El Purgatorio, Taitacantin. It is hoped that the descriptions here given will serve as a stimulus to intensive work at these and other sites.

Inasmuch as the pottery problems of northern Peru have already been treated in a report published after the First Expedition (No. 1 of this volume), the illustrations in the present memoir have been devoted principally to views and sketch plans of the ruins. However, the new experience gained has somewhat consolidated the interpretations previously drawn, so that the former

analytic approach can begin to be replaced by a more simple and synthetic one. For this reason the whole matter of ceramics is reviewed.

I employ the term "Early Chimu," instead of "Proto-Chimu," which was introduced by Uhle and used by myself heretofore, because "Proto" implies a formative stage and the culture in question is already a fully formed one with an aesthetic development never again equaled in quality in the area. Exactly the same applies to "Proto-Nazca" and "Proto-Lima" and makes "Early Nazca" or "Nazca" and "Early Lima" more appropriate terms. The literal Proto-Chimu period is as yet wholly unknown. "Epigonal" no longer means to me, and I understand it no longer does to Dr. Uhle, a culture type derived from or decaying out of that of Tiahuanaco, but a general, widely spread style or type, of which that of the monuments of Tiahuanaco is a specially developed or classic phase. As regards time periods, therefore, "Epigonal" and "Tiahuanacoid" are here used as synonyms; when stylistic strains are in question, Epigonal denotes the more widely distributed and carelessly executed; Tiahuanaco, the more rigorous and pretentious phase of what in the main was a single culture current.

The preceding and the present monographs deal with only a small part of my explorations in Peru under the Marshall Field Expeditions. Both collections and data obtained in the central and southern parts of the country are fuller. They necessitate, however, much more intensive classification and study, which have led into some specialized fields, such as textile techniques; and the preparation of a full report necessitates a longer time. It is with some reluctance, therefore, but due to an unwillingness to delay all results, that Dr. Laufer and I have considered it best to issue at once the less extensive materials dealing with northern Peru.

I. GENERAL FEATURES OF THE RUINS

THE NORTH CENTRAL LINK

Between Lima and the Chimu region, or more exactly between Ancon and Virú, is a stretch of coast which I have not visited. This stretch comprises first the valleys of Chancay and Huaura, where there flourished at the time of the Conquest the culture of Chancay, characterized by a special type of black-on-white pottery to which the contemporary and less characterized Sub-Chancay (Chancay-like) style of Chillón and Lima valleys is an approximation. Next north are the valleys of Supe, Pativilca, Fortaleza, Huarmey, and Casma¹ (Map, Plate XIV), in which the Chancay style is no longer found. The black Chimu ware of the north makes its appearance apparently in isolated cemeteries, and the local ware bears a strong highland impress. This local style is known from collections made by Uhle at Supe (Kroeber, *Supe*, U. C., XXI, 1925) and by Tello at Huarmey, the latter as yet undescribed. Next north are the valleys of the Nepeña, Santa, and Chao, with which the Chimu culture begins. The Santa is the one river of the Peruvian coast whose heads lie back of the first range of the Andes. Its upper and longer course thus is through a valley which is unique in being longitudinal instead of transverse. This is the famous Callejón de Huaylas, whose ancient culture, however, belongs to the highland, so that the lower or transverse part of the course of the river, that which alone is locally recognized as the Santa, and which falls within the range of the Chimu culture, resembles all the other coast rivers except in being larger and more permanent. It has also but little irrigable plain along its lower course. One effect, however, of the unusual course of the upper Santa, or of the arrangement of the Andean chains which determine its course, is that the streams from the Fortaleza to the Virú inclusive do not head in the continental watershed, are not fed by snows or the heavier rains, and thus carry less than the usual amount of water to their lower valleys. This stretch of coast, therefore, was and is relatively poor and culturally backward.

CHIMU LAND AND CULTURE

The Chimu coast, from the Santa north (Map, Plate XV), divides into two archaeological areas, whose distinction is primarily cultural, although it coincides also with certain geographical differences. Linguistically, it may be remarked, the whole Chimu coast, or most of it, was a unit, its speech having been local varieties of the Mochica (Yunca, Yunga, "lowland") language.² The southerly part of the tract, comprising the Santa, Chao, Virú, Moche (Trujillo),

¹ Casma has not been explored and may prove to be transitional, or even more Chimu than Central Peruvian.

² Rivet (in Meillet and Cohen, *Les langues du monde*, p. 678) distinguishes a Sek family on the La Chira and Piura Rivers from the Yunka or Mochica farther south.

and Chicama valleys, shows two forms of Chimu culture, a red or Early and a black or Late Chimu, besides evidences of highland intrusions falling probably between the two (Kroeber, *Moche*, p. 224, 1925). The northern Chimu area comprises the Jequetepeque, Saña, Lambayeque-Etén-Chancay, and Leche-Motupe drainages, which I have visited; and, to judge by reports and specimens, those of the Olmos, Piura, and La Chira also.¹ This northern tract has to date yielded evidence of only one form of Chimu culture, corresponding closely to the black or Late phase of the southerly province. The line of cleavage is sharper on the ground than at a distance: Jequetepeque, which on the basis of the attributed localities of museum collections appears somewhat transitional, is wholly northern or Late Chimu in local collections and site débris.

The geographical counterpart of the difference between south and north Chimu culture is the greater departure of the northern province from central and south Peruvian conditions of precipitation and valley separation. In the latter point, the Santa-Chicama stretch is still typically Peruvian; but the Jequetepeque is separated from the Saña and this from the Lambayeque by only low swells of desert, and the plain of the Lambayeque runs imperceptibly into that of the Leche. The intensive cultivation is farther and farther from the sea to the north, approximating the condition of the wholly inland valleys of Olmos and La Chira.

As regards precipitation, even the south Chimu province appears to have somewhat more than central Peru, and north Chimu more yet. This is first of all apparent in the ruins, which are more washed and torn into gaps the more northerly they lie. Then, south Chimu has record of one destructive rain as against none in central Peru, but north Chimu of several. In the abnormal year of 1925, there was heavy damage on the central and south Peruvian coast, but it was done essentially by floods caused by rains in the lower Sierra. In south Chimu, it rained heavily on the coast itself. Yet the fact that one of the pre-Spanish adobe arabesques of Chanchan was destroyed by this rain, after having stood with little impairment for four centuries (Holstein, p. 21, Figs. 13-18), indicates the extremely long periodicity and local character of the rains in this sector. For north Chimu, however, we have record of a similar catastrophic precipitation in 1578 (Brüning, I, pp. 14, 28) and legendary accounts of earlier ones. For the practical purposes of daily life, all the Peruvian coast is rainless; but in a long range of years the "exceptions" grow more and more numerous to the north. At Piura there is said to be a local belief in seven-year rains.

The general status of precipitation is reflected by the fact that, from the Jequetepeque south, the plains or ridges between the coastal valleys are wholly

¹ The cultivable valleys of the Olmos, Piura, and La Chira lie chiefly at the foot of the mountains which here run at some distance from the shore; and deserts separate the settlements from the ocean. This geographical difference is likely to have had a cultural reflection, which may yet prove to have been of sufficient importance to necessitate the separation of the Olmos, Piura and La Chira into a third Chimu province; although not according to the scant indications at hand.

desert, whereas from the Jequetepeque north at least to the Leche they bear some vegetation rooted in the soil.

As usual on the Peruvian coast, the position of ancient sites with reference to cultivation, streams, and beach indicates that there has been no appreciable change since prehistoric times in elevation of the land, quantity of available water, or, generally, even the agricultural usage of water. The one partial exception is that in some of the northern valleys large seaward portions are now bare pampa, or pasture watered by infiltrations from irrigating water entering the soil higher up, but that these lower stretches contain ancient constructions of considerable size, as at Brujo in Chicama, or refuse accretions, as at San José in Lambayeque (Map, Plate XIV). The probable explanation is that formerly maize, other food crops, and a little cotton were everywhere grown, and the water sufficed to the sea; whereas with the modern plantation system, which concentrates on sugar cane and rice, plants that require an abundance or excess of irrigation, the water no longer suffices for the whole valley. As a matter of fact, the cane and rice fields are all in the upper reaches, evidently because there they can be sure of water, and the lower levels have gradually been left to semi-cultivation. Farther south in Peru, where cotton or vines largely replace sugar as the staple hacienda crop, there has been less abandonment of the seaward parts of valleys.

CONSTRUCTION

STONE, ADOBE, TAPIA, FILL

Like the remainder of the coast, Chimuland is an area of adobe, not stone construction. The latter was not unknown; there are stone foundations at Chanchan (Plate XVII, Figs. 2, 4); but broadly speaking adobe and stone are direct functions of environment here, as farther south. The open valley uses adobe; where it narrows and the rocky sides are close, or even furnish the sites for structures, stone walls begin to appear, even though the culture is still coastal; with the ascent into the Sierra, stone more and more preponderates. The imposing ruin of the Castillo in Virú (Plate XVI, Fig. 1; see also Holstein, Fig. 36), set on a rocky spur jutting into the higher valley, is an example of stone and adobe used side by side, the former chiefly in high retaining walls facing the natural rock. A little upstream are two small pyramids entirely of stone. On the other hand, the Purgatorio at Túcume on the Leche (Plates XX, XXXI), while half surrounding a rocky *cerro*, is set in a plain, and is wholly of adobe except for some unimportant low walls whose relation to the main structures is not clear.

Chimu construction is typically of adobe bricks. Tapia, continuous mud construction, is conspicuously rarer than in central or southern Peru. So is the system of alternating wall and fill, a method abundantly practised in the Early Lima culture, as well as in the later constructions of Lima, Cañete, and Chincha. Chimu fill is not lacking, but is rarer. Moche seems almost without it; Barranca

in Jequetepeque shows considerable, whence the masses of coarse refuse sherds which characterize this site. Chanchan, on the other hand, possesses some massive walls of *tapia* full of coarse gravel (Plate XVII, Fig. 4). Nearly all the Chimú ruins have the surfaces so washed as to hide most of the original construction. A cut generally reveals adobe where *tapia* seems indicated. Possibly I have overestimated the amount of correction to be so made. Systematic cleaning of the surface would render the situation more precise.

ADOBE BRICK

The Chimú adobe brick is substantially alike for the Early and Late periods, as shown by comparison of the Huaca de la Luna at Moche with Chanchan.¹ It is large, form-made, rectangular, rather flat. It is not quite as large nor as true as the Inca or Late adobe used in the best surface construction farther south—at Pachacamac, for instance, or the Tambo de Mora group at Chíncha, or even at Paredones in Nazca. Perhaps its constant use for the hidden interior of solid structures contributed to the habit of not finishing it with the greatest regularity or uniformity of size. The length averages 30 cm. or a little over; the breadth, from three-fifths to three-fourths as much, in the mean about two-thirds; the thickness is from one-fourth to one-half of the length, on the whole more rather than less than one-third. There is no standard set of proportions adhered to—only a vague approximation to an ill-defined shape. The same is true of size: at Chanchan I have measured adobes of 26 and of 46 cm. length. A series of measurements is given below. If the Chimú had any system of normalized weights and measures, which is doubtful, it did not enter into their brick-making. The variability of the adobes is in line with the rather ragged laying of them. Plate XVII, Fig. 4, for instance, shows two courses merging into one without any structural reason, from pure slovenliness; and the breaking of joints is only haphazardly observed.

In the north Chimú area there occur adobes with rounded tops, although otherwise rectangular. I observed these first at Chotuna near Lambayeque (Plate XVIII, Fig. 4), and subsequently in the Leche and Jequetepeque valleys (Purgatorio, Huaca de los Estacos, in the latter only to a mild degree). They probably occur in many other northern ruins; but these have their surfaces so smeared with rains that only a tunnel or fresh cut into a wall shows the original shape of the bricks. Graves in the Brujo group of Chicama seemed to contain rounded adobes; but these were all exposed to the weather and had probably been manufactured flat. The southern province uses flat-topped adobes exclusively, so far as I observed at Brujo, Chanchan, Moche, and Virú. The round-topped adobe shows most plainly where its end has been laid toward the wall surface or exposure, since it is chiefly the upper surface that curves cylindrically. From the side, round-toppedness is usually first evident through the apparent

¹ So far as there is a difference, the early adobes at Moche perhaps average a little the larger, as I stated previously (No. 1 of this volume, p. 15), and as the figures given below suggest. But the variability within each style is greater than the mean difference between them.

thickness of the mortar between courses. All Chimu adobes are laid in abundance of mud mortar; the round-topped ones seem to have the usual quantity above the center of the brick and therefore even more than usual at the edge.

The purpose of the top-rounding is obscure. It recalls the hand-formed adobes of Early Lima structures, and the rounded and handmade or "odontiform" adobes characteristic of the Nazca culture and its influences. But it is hardly credible that the north Chimu pyramids should be early—at any rate that they should antedate the Early Chimu period structures of the south Chimu area, especially as their pottery is the equivalent of the southern Late ware. The top-rounding is therefore a local peculiarity; possibly also a partial survival from an earlier stage of handmade adobes.

I have spoken of form-made adobes. I have seen a few with plain impressions of small reeds (*totoras*); but there is no indication that these were regularly used in shaping. Nor have I seen positive evidences that a wooden form was employed, such as is in use today. Adjacent bricks vary in size, and their surfaces often fail to be true planes; so that it seems doubtful whether they were actually molded in a frame. It may be that they are tool-made rather than form-made. On the other hand I have not seen on Chimu adobes the finger impressions which are so characteristic of Early Lima and Nazca adobes. The whole subject of Peruvian adobe manufacture is in need of a thorough examination as to material, process, shape, and measures.

Some specific observations follow:

The hole or attempted tunnel in the front of the main platform of the Early Huaca de la Luna at Moche has exposed to view adobes that have not suffered from weather and are still partly embedded in the mud mortar. The commonest size is $(33 \pm 1) \times (25 \pm 3) \times (9 \pm 2)$ cm., with occasional larger variations. Others, too high to reach for measurement, show exposed sides (and ends?) of 40 and 45 cm. In other parts of the Moon cluster I found $30 \times 22 \times (10-12)$, each dimension ± 1 cm.; and again, series that ran around $(27-28) \times (17-18) \times (13-14)$. Two cuts found in the east face of the Sun pyramid gave more consistent results: $(39 \pm 1) \times (25 \pm 1) \times (15 \pm 1)$. In every case there are occasional bricks which depart more than the indicated variation from the norm.

At Chanchan, in one wall: lengths, 26, 28, 30, 35 cm.; breadths, 15, 16, 19, 25 cm.; thicknesses, 9, 14, and, in groups of several bricks with included mortar, averages of 12.5, 13, 14 cm. Leaving aside the aberrant length and breadth maxima, this would give about $28 \times 17 \times 11$ as norm, but with frequent departure of a full 2 cm. in each direction for each dimension.

Another Chanchan wall was built of large adobes whose substance (not only the bottom) contained much coarse gravel. These ran $(37-46) \times (26-28) \times (16-18)$, or a mean of $40 \times 27 \times 17$, with the variability greatest in the length. The breadth and thickness of these is close to the length and breadth, respectively, of the previous series; they have therefore more than three times the bulk. They are slightly larger than the measured adobes in the Moche Sun pyramid, and of the same proportions.

A third Chanchan wall showed at its exposed top six adobes set on edge lengthwise the wall, standing each about 24 cm. high (i.e., broad in laid position) and measuring 206 cm. in line, or 34.5 cm. each with included mortar, equivalent to a net average length of 32 cm. Immediately adjoining this course were smaller bricks, also set on edge, but across the wall. These stood 18 cm. high (i.e., broad) and 26 cm. long; the combined thickness of

four with included mortar was 44 cm. As the mortar was thinner, the mean net thickness was 9.5 cm. This case is instructive as to Chimu building process. The large adobes had their largest faces to the surface of the wall, the small ones the smallest faces; they were laid in adjacent groups on the same level. As the two sizes have no dimensions in common or in simple multiple relation, the two parts of the course differed in both height and thickness. As long as bricks are regularly laid in different positions in distinct courses, the motive may be either decorative effect or an attempt to break joints. An unconformity like the present one indicates that the Chimu often proceeded rule-of-thumb fashion in laying their adobes, as they did in making them. The same thing is shown by two courses that merge into one in the Moon pyramid. To be sure, this is work in the concealed interior of a large mass, and I have not seen similar crudenesses in exterior surfaces. But the work is slovenly to a degree. These big piles were evidently the labor of population masses working communally, and not of professional artisans.

Reduced to percentages, the previous series run:

| | | | |
|-----------------------|--|----------------|---|
| Moche, Moon, Early | $\left\{ \begin{array}{l} 100 \times 76 \times 27 \\ 100 \times 73 \times 37 \\ 100 \times 64 \times 50 \end{array} \right.$ | Chanchan, Late | $\left\{ \begin{array}{l} 100 \times 61 \times 39 \\ 100 \times 67 \times 42 \\ 100 \times 75 \\ 100 \times 69 \times 36 \end{array} \right.$ |
| Moche, Sun (2), Early | | | |
| | | | |

The breadth varies from 61 to 76 per cent of the length, the thickness from 27 to 50 per cent, in *series means*; the absolute length of individual bricks, from 25 to 45 cm. Thickness ranges from 36 to 78 per cent of the breadth. The two stand in a roughly inverse relation to each other, as long as the length remains the same. This is the sort of relation that might arise among a people who thought in terms of approximate weight and not of dimensions.

Uhle (Pachacamac, pp. 102-103) comes to similar conclusions. He cites adobes 8x7x4 in. and 2x1x0.5± ft. In one flooring the length varied from 14 to 20 in. In one terrace, containing five sizes, the length ran from 13 to 18, the breadth from 8 to 15, the thickness from 3 to 6 in. In general, the smaller bricks are used for fill at Pachacamac, the larger ones on exposed surfaces. On the whole, late adobes seem somewhat larger than earlier ones; but no safe inferences as to age can be drawn from size of adobes, nor from relative frequency of tapia and bricks. Pachacamac has more brick, but tapia is more frequent in most valleys of the central coast.

It is hard to conceive from the above figures that the Chimu aimed at any simple numerical relation in the proportions of their adobes; and harder still to believe that they used any standard of measure for them.

It is also clear that Early and Late Chimu adobes are about equally variable and are practically indistinguishable.

LAYING OF THE ADOBES

The mud mortar, as already mentioned, is laid rather thick. Mostly it does not differ much in color or consistency from the adobes. In one of the Moche huacas at Lambayeque a calcareous or whitish mud has been used, giving a first impression of lime mortar and Colonial construction.

The usual construction of the Chimu pyramids and platforms is a system of adjacent thick walls. These are not bonded, but are separated by clean though concealed vertical planes often many meters high. The massiveness of the edi-

fices overcame the structural weakness of the plan. In fact, I do not recall serious fissures along the cleavage planes. Usually the planes show only where the huaca has been cut into. I have already commented on this construction being visible on the undercut side of the Sun pyramid at Moche (No. 1 of this volume, p. 13). The Virú Castillo shows on its north face a large, nearly vertical sheet only one adobe thick; about half the sheet is still in place against the steep face of the pyramid. This was very likely a supplementary facing. Brujo in Chicama has a cut in its south face several meters wide and more than ten meters deep, almost to the center of the huaca. This cut is said to have been made to secure adobes, not gold. The two sides of the cut are perfectly smooth walls, giving the impression of being part of the original construction. If there had been any joint-breaking, the surfaces of the cut would of course have had every alternate brick projecting. Down the faces of the cut there extend straight lines representing other cleavage planes at right angles. This pyramid is therefore built up of a series of high and thick juxtaposed walls, each consisting of a series of juxtaposed rectangular columns. This seems the typical Chimu construction wherever the decayed surface is penetrated.

The reasons for this construction may be social, each contingent of a community building its own wall or column. In any event, the impression which I have previously expressed is strengthened; namely, that most Chimu edifices appear to have been largely reared as units rather than by the gradual accretion which is so often indicated in central and southern Peru.

Within the walls and columns, a partial equivalent to joint-breaking is sometimes obtained by laying successive courses of adobes at right angles, so that the sides of one course and the ends of the next face the same way. At Chanchan there are also courses of adobes set on edge. This I have not observed in the visible exposures in the north Chimu province; perhaps the round tops militated against it. But the different horizontal placing of adobes appears everywhere, and is a feature of interiors as well as surfaces. It is therefore essentially a construction feature; though it may also have been used decoratively on outsides.

Many Chimu huacas show horizontally projecting stakes, layers or mats of reeds, or both, among the adobes, especially at terrace levels. These are visible in several of the Purgatorio pyramids (Plate XX, Fig. 3); also in La Rajada, and in the Virú Castillo. The latter shows a few stakes laid a meter or so below the others at right angles to them, parallel to the pyramid surface. It seems that none of the stakes were originally exposed, but have come to view owing to crumbling or washing away of the surface. They suggest bonding, especially at Virú; but the reed layers can hardly have served such a purpose effectively. Purgatorio F also has layers of small stones at the stake levels. It seems more likely, accordingly, that these non-mud materials served to protect the adobe at the terrace edges.

It is well to state expressly that all the construction features here discussed, except where the contrary is specifically mentioned, as in the case of the round-top bricks, are common to Early and Late ruins of south Chimu and the undated

ruins of north Chimu. Substantially the same uniformity holds for structural plan, although here there is greater variability from huaca to huaca.

PYRAMIDAL STRUCTURES

The typical Chimu huaca is a rectangular block, without outer works, rising steeply with very narrow terraces, or none at all, the faces sloping inward at a slight angle from the perpendicular; there is often a ramp approach, either along the sides or extending straight out from the top (see plans in Plates XXVII-XXXI). This top is most often a cemetery in the northern sub-area. Sometimes there are two or three successive levels toward the front only, the back falling sheer; sometimes there is a large burial terrace, from the rear of which rises the pyramid proper. Both plan and appearance are suggestive of Mexican structures, especially as compared with the huacas between Lima and Chincha. The latter have wider terraces in the pyramid proper, and vertical or nearly vertical steps; usually show no indications of inclined approaches though there may be stairways, as at the Pachacamac Sun temple; are not stepped up from a low front to a high back; are often grouped or partly connected, either with each other or with smaller buildings; and usually seem not to have carried cemeteries on their summits or terraces, but rather to have had these placed near their foot. A fair-sized Late huaca at Infantas in the Chillón valley is an exception in having its long summit surface a cemetery.

The descriptions I was able to record on Chimu huacas will be found in detail in Part II; some of the more general features will be summarily discussed here, in connection with an attempted classification.

Class I. Owing to weathering, it cannot always be decided without clearing whether a pyramid always rose sheer or originally possessed narrow terraces. Of one or the other type, however, and rising to a fairly bold height, are the following, those with preserved terraces being indicated by a "T": Castillo (T) in Virú; Brujo, Huaca Blanca, Cartavio 1 (T), Sonolipe, Pan de Azucar, Chicamita in Chicama; Dos Cabezas in Jequetepeque; probably La Rajada in Saña; Chotuna in Lambayeque; and Purgatorio A and E (T) and Huaca Grande at Túcume in Leche. Most of these stand substantially isolated, although Dos Cabezas, La Rajada, and Purgatorio E have other structures near them, and Cartavio 1 is surrounded by a walled court.

Class II. Fundamentally of the same type, though relatively low and large, and one-storied, are: Sinán at Pacasmayo; La Mesa in the Dos Cabezas group, Barranca B, D, E, F, in Jequetepeque; Moche B and C in Lambayeque. These are all northern Chimu.

Class III. Large platforms with superimposed pyramid at one end: Sol at Moche; Purgatorio I and to a degree F.

Class IV. Rising in terraces from front to rear: Barranca A, C, G, H, Estacos near Guadalupe, in Jequetepeque; Etén in Lambayeque; and in a measure Purgatorio F and I, perhaps G. These also are all northern.

The last two classes cannot be rigidly distinguished.

They are further connected by possessing a ramp, in all the cases cited, except apparently Barranca G. Ramps also appear in the following: Virú Castillo (a rocky spur built up with adobes); Chotuna; perhaps the Grande at Túcume, though this is badly torn up;

and, so far as can be judged from a distance, Gallinazo in Virú and Cartavio 3 in Chicama. Others of the Chicama huacas may have ramps not visible from the sides viewed.

The ramp projects out from the mass of the pyramid in Gallinazo, Huaca del Sol, Cartavio 3, Barranca H, Purgatorio F, G, I. It runs over the front face of the huaca in Barranca A and C (with some added projection), Etén, and perhaps Purgatorio C. It clings to one or more sides in Estacos and Chotuna, in the latter plus a projection.

A Class V might be set up to include huacas that appear to be essentially reared of refuse, and which Uhle would probably call shell mounds. They seem, however, to be more than incidental heaps of débris; at any rate were used for burial; and approximate Class II. They include: Huaca Negra near Brujo and several low mounds at the beach of Salamanca in Chicama; Huaca Blanca near Pimentel, and the group consisting of the Huacas San José, del Panteon, and de la Cruz, in Lambayeque. These are all at the edge of the beach.

Huacas built on the summit of a rocky hill, or against the side of a hill, are the Castillo, the gigantic Santa Clara, and the three of Zaraque, all in Virú; and the Luna of Moche. The Sol of Moche may be of the same type if Major Holstein's conjecture that it conceals a *cerrito* is confirmed. It appears that this placing is typical of the southern valleys; I have not observed it in Chicama, although the northern half of this valley contains rock outcrops and hills that would have lent themselves to such construction. Chicama in this matter goes with the northern province instead of the southern one with which its pottery affiliates it. In the whole northern stretch the pyramids stand free, either within cultivation or in pampa just outside. The Túcume Purgatorio is built around a rock *cerro*; but the only ones of its numerous structures that lean against the hill or conform to it, are the small B and the low and ill-defined J. The center of the hill-building custom seems to have been Virú, a narrow and short valley more subject to influences from highland culture, which evidently extended nearly to its center. It is in Virú that the only stone-built pyramids were observed (San Juan) and that the cemetery showing the most marked inland pottery styles has been found (Taitacantin).

Chimu pyramids are high as well as steep-sided, surpassing those of the central and southern coast both on the average and in extremes. The tallest that is usually regarded as a clear construction is the Huaca del Sol, 41 m. high according to Uhle. The Castillo and Santa Clara in Virú surpass it with altitudes which I estimate at 50 and 55 m. above the plain; but they are both built on natural rock outcrops. At that, however, there is construction for the heights mentioned, if the lower facings and retaining walls are included. Other structures in the Chimu area rise to heights which I estimate, without enough practice to make me very confident as to accuracy, as follows:

In Chicama: Blanca, 22 m.; Brujo, 18; Pan de Azucar, Chicamita, Cartavio 1, about 20; Sonolipe is said to surpass all these. In Jequetepeque: Sinán, 10; Dos Cabezas, main huaca (A), 25, La Mesa (D) and B each about 12; Barranca, none over 12; Estacos, 12. In Saña, La Rajada, 20 or more. In Lambayeque, Etén, 16, Moche, 11, Chotuna, 15. In Leche, Purgatorio F, 18, C, D, G, I, each 15, Huaca Grande, 20. The Chanchan huacas, which are badly torn up and which I did not examine with care, are not unusually large or high.

In central and southern Peru the greatest elevations are attained by the Early Lima huacas of Aramburú and Juliana, which appear low on account of their length, but are estimated by Uhle at 30–35 m., by myself about 5 m. less; the Sun Temple of Pachacamac, which caps a natural hill; and the group at Tambo de Mora in Chíncha, for which Uhle estimates 30 m. The Cahuachi terraces at Nazca rise to at least 30 m., but are adobe facings of hills, not pyramids.

The distribution in Peru of pyramidal or terraced structures, and of their types, can be outlined roughly.

The Chimu coast has the largest edifices, with the steepest sides, and with inclined approaches. On the central coast, along with smaller size, there is a tendency to change from truncated pyramidal to terraced profile, and the ramp is less developed or lacking. The most southerly large structures are at Chíncha; Pisco and Ica still have huacas, but no very notable ones; Nazca only miniature ones—mastabas rather than pyramids—or terraced hillsides; from beyond there are no reports and presumably nothing more than rudiments.

In the interior, in order from north to south, there are the following. Seven leagues from Cajamarca, at Coyor or Incatambo, a low elliptical cone of nine stages, according to Wiener, whose reliability is often questionable; even if his plan is correct, it is doubtful whether this structure could be construed as a pyramid. At Marca Huamachuco, the great ruins appear to be true walls, not a pyramid shell. Near Pomabamba, in Marañon drainage, Tello figures what may be a pyramid at Yayno, 3.5 leagues southwest of the town, and Wiener a six-stage cone (!) called Huinchuz at Culluc. In the upper Santa valley or Callejón de Huaylas, Tello mentions a series of pyramidal structures, apparently of moderate size: Tumchu-kayko at Caraz; Wansakay at Yungay; Wilka-waín, Okopampa, Killkay, Poma-kayan at Huaraz; Wari-raxa at Recuay. Chavín de Huántar, east of Recuay in Marañon drainage, has a pyramidal temple with interior galleries. Huánuco Viejo, farther up in the same drainage, has an impressive one-story platform which in the illustrations looks as if it might be a high enclosing wall but is spoken of as a *terre-plein*, or as nearly filled with earth and stones. At Jauja, in Mántaro drainage, is another one-story platform, with stairway. At Vilcas-huaman, in Apurímac drainage and ancient Chanca territory between Ayacucho and Andahuaylas, there is a small, oblong pyramid, or platform, according to Wiener of three stages, according to Middendorf of two, with staircase. By Middendorf's plan, the platform measures less than 20 by 10 m. All the foregoing highland structures are of stone, and most of them either wholly megalithic, or of alternate layers of great stones and slabs.¹

From this list it appears that the inland areas for which true step-pyramids are as yet attested are the upper Santa and Marañon drainages. Only Vilcas-huaman lies isolated far to the south; but it is small.

¹ Descriptions and illustrations by Tello, *Antiguo Perú*; Wiener, *Pérou et Bolivie*; Squier, *Peru*; Middendorf, *Peru*, III. Cajamarca: Wiener, pp. 131, 132. Huamachuco: Tello, Figs. 10, 11; Wiener, p. 152; Middendorf, pp. 292–296. Pomabamba: Tello, p. 130, Fig. 7; Wiener, p. 191. Caraz, Yungay, Huaraz, Recuay: Tello, p. 44, Figs. 15, 16; Middendorf, pp. 29, 81. Chavín: Tello, p. 46, Fig. 17; Wiener, pp. 199–205; Middendorf, pp. 93–103. Huánuco Viejo: Wiener, pp. 210, 215, 217; Squier, p. 217; Middendorf, pp. 116–122. Jauja: Wiener, p. 243. Vilcas-huaman: Wiener, pp. 265, 266; Middendorf, p. 553.

The coast then is the part of Peru of which the step-pyramid is essentially characteristic, and within the coast region the north seems the center of development. It is probably significant that the dependably reported highland occurrences are from the one coastal stream, the Santa, which flows through a true interior valley, and from the western or nearer slope of that part of the Marañon basin which lies abreast the Santa. The distribution, in short, indicates a Chimú area origin, within Peru, for the pyramid, with a penetration inland at the point of easiest access, and a considerably greater irradiation southward along the coast. Whether this Chimú center of diffusion is in turn to be connected with Mexico-Guatemala, to which it lies both nearest and open by sea, is a more difficult problem.

It is possible that the coastal predominance of pyramids is to be connected with adobe-building habits. A large pyramid of stone must be tremendously laborious to erect, and a small one unimpressive. After all, the substance of the great pyramids of Mexico and Central America is adobe or rubble-lime concrete. The stone to which the Peruvian highland was addicted as material gave much greater effect, for effort expended, in walls.

OTHER STRUCTURES

The highest and probably the bulkiest pyramidal structures in the north are Early Chimú: Huaca del Sol, Santa Clara, Castillo. The first of these is the highest pyramid recorded in Peru as rising presumably from a plain.

On the other hand, the Late Chimú culture possesses in Chanchan, whose pyramids are relatively few and moderate in size, the largest described ancient city of the country. Chanchan extends two kilometers inland, and is a full kilometer broad. Its special features are enormous high-walled courts or "palaces," some empty and some filled with a maze of smaller walled structures; and "*pozos*," rectangular depressions down to the water table, too large to be called wells in English. Dr. Tello has in progress a study and preliminary survey of Chanchan which should soon make available a much needed plan of the whole city, the plans of Squier (pp. 152, 157, 159, 160) being of single courts, unplaced in the larger complex.

In the south Chimú province, nothing else comparable to Chanchan is known. In fact, the few other known Late south Chimú sites are without structures: Purpur in Virú, and the plain between the great huacas at Moche C.

In the northern province, which is all Late in pottery types, there are at least two aggregations that may be called cities. One of these is the Ciudad de la Barranca on the north side of the mouth of the Jequetepeque; the other the Purgatorio on the Leche at Túcume. Plates XX, XXVIII, and XXXI show views and sketch plans of these. Barranca is about 1 km. long and half as wide. It is most conspicuously a collection of huacas more or less arranged in two alignments (Plate XXVIII). None of these pyramids is great; but there are several times as many as in Chanchan. There is an enclosing wall with exterior ditch, extending from the river edge of the town nearly to its seaside

edge. Internally there are many walls which my plan does not show. Most of these are low; their slight thickness indicates that they could not have approached those of Chanchan in height. There is an internal ditch, probably for drainage in case of rains or wash from the *cerros*; but nothing like the Chanchan *pozos*. The "palace" courts of Chanchan, however, have their counterpart in the court P of Barranca, even to the numerous walls that fill most of its interior (Plate XX, Fig. 4). This court approximates those of Chanchan in size: about 170 m. on a side. Of everything I saw in the northern province, Barranca comes nearest in its resemblances to Chanchan, though it falls far short in size and differs in plan and many features. It is an important ruin, not much smaller in area than Pachacamac, and presents much of interest. If it contained a single huaca of the first magnitude, it would probably be better known. It should be designated by its proper ancient name, which I could not learn, but which research would probably recover. "City of the Cleft" is commonplace and unspecific as a designation.

The second large aggregation is the Purgatorio (Plate XX, Fig. 1) on an arm of the Leche at Túcume. This site evidently is the ancient Túcume, as Brüning suggests. It was not mentioned to me at Chiclayo or Lambayeque, although an insignificant Huaca Pintada not far from it was referred to several times. Brüning (I, p. 13), however, realized the importance of the Purgatorio; and it was on the basis of his statement that its ruins are "las mas conspicuas y grandiosas de esta provincia de Lambayeque" that I looked it up. As shown in the plan (Plate XXXI), it is primarily a complex of pyramidal huacas. As at Barranca, there are walls that are not indicated in my sketch; but the pyramids are large, set close together, and high. At that, there are walls, like that east of pyramid D, which approach those of Chanchan in height and massiveness. There is also an area of open courts, Q, and a larger area, P, filled with a labyrinth of walls. The adjacent area I is a vast raised burial platform, more or less divided by cross walls, and bearing two small huacas, Ia and Ib. The areas adjoining pyramid F on the east and C on the east are similar combinations of platform and walls. The general arrangement of the more important structures is along two axes at right angles, A-F and F-I. This arrangement contrasts with the parallel line-up of the main axes and intervening clear space at Barranca. A collection of pottery from the Purgatorio (Plates XXI, XXII) is of the usual north Chimú type. I regret that the setting sun put an end to my examination of this site and that return proved impossible. It is an important ruin, and an impressive one; more so perhaps than Chanchan, whose unrelieved interminableness tends first to stun and then to weary.

Dos Cabezas on the south side of the mouth of the Jequetepeque (Plate XVII, Fig. 2), opposite Barranca, perhaps occupies third rank among the northern clusters seen. Mocce is a group of pyramids, La Rajada a pair, and La Chotuna has high-walled courts and outworks. Description and plans of these are deferred to Part II.

BURIALS

Burial in extended position seems characteristic of the Chimu area. Having made no excavations, I must speak somewhat hesitantly. But the evidence is pretty consistent.

Uhle (Moche, p. 107, Fig. 12; reproduced in Kroeber, Moche, p. 196, Fig. 3) reported seated position in Early Chimu burials at La Luna, Moche. His published tomb plans show skulls and circular areas for bodies, though the length of the rectangular tombs might suggest stretched bodies. Similar tombs, adobe-lined, occur in Chicama valley in the cemeteries of the vicinity of Brujo and Salamanca beach, apparently Early Chimu. Local informants in Chicama usually spoke of burials as being both stretched and seated, and sometimes added "standing"; but the extended posture was emphasized most. At Virú, it was the only one mentioned to me. A child's partial skeleton which I found *in situ* at Taitacantin lay horizontal. At Chimbote and on the lower Santa Dr. Tello tells me that he saw and heard of extended burials only. In the north Chimu province, extended bodies were almost always mentioned in answer to my queries. The rifled tombs that pit the tops of most of the northern huacas usually seem oblong, so far as their shape can occasionally still be recognized amid the destruction worked by man and weather. Hrdlička (p. 8), speaking of excavations made by him in Chicama valley, says that the burials are for the most part simple, "the body being laid in the ground"; that "more elaborate mummy bundles" were occasionally encountered; that nothing pointed to intentional mummification as at Pachacamac; and that, as at Pachacamac, "burials in the contracted position were the rule." Bastian (Culturländer des alten America, I, p. 185, 1878) states that at Chimbote bodies are found both in recumbent and in squatting position. Tello (Antiguo Perú, p. 155) reports three extended bodies from Chongollape near the head of Lambayeque valley.

The significance of these indications is first that they seem to point to the same practice, or a similar variability, for all Chimu periods; and second that it leaves the frequent Chimu custom of horizontal burial paralleled in Peru only by that of the Early Lima culture. Following Uhle and Tello, I was at first inclined to suspect horizontal burials as Colonial, but this is no longer admissible for Chimuland.

SKULLS

Three skull shapes appear in the Chimu area—a longish type, natural; a short form, with more or less occipital flattening; a short and broad shape definitely distorted by fronto-occipital deformation. The first and third seem often to occur together in the same cemetery, wherever enough skulls have been left by *huaqueros* to allow of a judgment. This association is confirmed by Hrdlička, who excavated for skeletal material in Chicama, especially at Chiquitoy. Dr. Tello and I agreed that in many cases the fronto-occipital deformation is as pronounced as in the average Nazca culture skull, and of similar type. The forehead recedes; the occipital and the posterior parts of the parietals form

SHAPE AND INDEX OF CHIMU SKULLS

| Locality | Cat. No. | Collector | Type | C.I. | L. | B. | H. | Sex | Age | Remarks |
|--------------------|----------|-----------|----------------|-------|-----|------|-----|-----|-----|------------|
| EARLY | | | | | | | | | | |
| S. Clara, Virú.... | 171615 | K | O | 94.6 | 149 | 141 | | | | Skew |
| S. Clara, Virú.... | 171616 | K | N | 78.5 | 163 | 128 | | | | |
| S. Clara, Virú.... | 171617 | K | N | 75.4 | 167 | 126 | | | | |
| Moche, E..... | 12-1781 | U | N | 81.7 | 169 | 138 | 133 | F? | -25 | WU |
| Moche, E..... | 12-1782 | U | N | 82.9 | 164 | 136 | 130 | F | -25 | |
| Moche, E..... | 12-1783 | U | FO | 106.5 | 138 | 147 | 127 | F? | -20 | WU |
| PROBABLY EARLY | | | | | | | | | | |
| Facalá, Chicama. | 12-1882 | U | N | 75.8 | 182 | 138 | 137 | M | 40 | |
| Facalá, Chicama. | 12-1883 | U | N | 79.2 | 173 | 137 | 142 | M? | 30 | |
| MIDDLE | | | | | | | | | | |
| Taitacantin, Virú | 171608 | K | FO | 100.0 | 156 | 156 | | | | |
| Taitacantin, Virú | 171609 | K | FO | 111.1 | 144 | 160 | | | | |
| Taitacantin, Virú | 171610 | K | FO | 115.6 | 141 | 163? | | | | |
| Taitacantin, Virú | 171613 | K | N | 78.9 | 166 | 131 | | | | |
| Moche, A..... | 12-1821 | U | N | 82.5 | 171 | 141 | 132 | M | -25 | WU |
| Moche, A..... | 12-1822 | U | O | 87.6 | 161 | 141 | 139 | F? | 35 | Skew |
| LATE | | | | | | | | | | |
| Purpur, Virú.... | 171614 | K | FO | 97.4 | 156 | 152 | | | | |
| Moche, B..... | 12-1767 | U | FO | 98.7 | 156 | 154 | 131 | M | 35 | Skew |
| Moche, B..... | 12-1769 | U | O | 82.7 | 173 | 143 | | M | 50 | |
| Moche, B..... | 12-1772 | U | O | 87.7 | 156 | 137 | 126 | M? | 35 | Skew |
| Moche, B..... | 12-1774 | U | O | 87.7 | 156 | 137 | 123 | F | -25 | |
| Moche, B..... | 12-1775 | U | O | 81.7 | 169 | 138 | 129 | M | -25 | Skew |
| Moche, C..... | 12-1776 | U | O | 87.2 | 156 | 134 | 132 | F | 30 | |
| Moche, C..... | 12-1777 | U | O | 89.7 | 156 | 140 | 126 | F? | 25 | WU |
| Moche, D..... | 12-1811 | U | FO | 90.4 | 166 | 150 | 139 | M | 45 | |
| Moche, D..... | 12-1812 | U | FO | 87.6 | 161 | 141 | 138 | M | 60 | Skew |
| Moche, D..... | 12-1813 | U | FO | 89.4 | 160 | 143 | 124 | M | 60 | Copper |
| Moche, D..... | 12-1815 | U | O | 85.1 | 154 | 131 | 126 | | 12 | CU; Copper |
| Moche, D..... | 12-1816 | U | O | 90.5 | 168 | 152 | 135 | M | 35 | Skew |
| Moche, H..... | 12-1784 | U | O | 87.8 | 156 | 136 | 129 | | 15 | |
| Moche, H..... | 12-1785 | U | O | 86.1 | 158 | 136 | 130 | | | Skew |
| Moche, H..... | 12-1786 | U | O | 90.1 | 152 | 139 | 120 | F | -25 | WU |
| Moche, H..... | 12-1787 | U | N | 78.0 | 168 | 131 | 131 | F? | -25 | WU |
| Moche, H..... | 12-1789 | U | O ^p | 78.4 | 171 | 134 | 128 | F? | -25 | Skew |
| Moche, H..... | 12-1790 | U | N | 75.3 | 174 | 131 | 133 | M? | -25 | WU |
| Moche, H..... | 12-1792 | U | N | 80.5 | 159 | 123 | 120 | F? | -25 | WU; Copper |
| Moche, H..... | 12-1793 | U | FO? | 84.1 | 164 | 138 | 126 | F? | 35 | |
| Moche, H..... | 12-1794 | U | FO? | 82.7 | 156 | 129 | 123 | M? | 35 | |
| Moche, H..... | 12-1795 | U | O ^p | 74.9 | 167 | 125 | 117 | F | -25 | WU |
| Moche, H..... | 12-1796 | U | O | 86.0 | 157 | 134 | 120 | M | 50 | |
| Moche, H..... | 12-1798 | U | FO | 100.7 | 142 | 143 | 115 | M? | -25 | WU; Skew |
| Moche, H..... | 12-1799 | U | FO | 100.0 | 147 | 147 | 116 | M | -25 | |
| Moche, H..... | 12-1800 | U | FO | 89.7 | 155 | 139 | 118 | M? | -25 | WU; Skew |
| Moche, H..... | 12-1801 | U | FO | 94.6 | 148 | 140 | 121 | F | 35 | Skew |
| Moche, H..... | 12-1803 | U | O | 80.5 | 153 | 137 | 131 | F | 40 | |
| Moche, H..... | 12-1805 | U | N | 73.4 | 177 | 130 | 131 | F | 35 | |
| Moche, H..... | 12-1806 | U | O ^p | 74.6 | 169 | 126 | 134 | F | -25 | WU |
| Moche, H..... | 12-1807 | U | O ^p | 77.3 | 176 | 136 | 128 | F? | -25 | WU |
| Moche, H..... | 12-1808 | U | O ^p | 77.2 | 171 | 132 | 131 | F | -25 | WU |
| Moche, H..... | 12-1809 | U | O ^p | 78.7 | 164 | 129 | 126 | F | -20 | WU |
| NORTH (LATE) CHIMU | | | | | | | | | | |
| Purgatorio, Leche | 171506 | K | N | 74.0 | 169 | 125 | | | | |

EXPLANATION OF TABLE

Numbers above 171000, in Field Museum, collected by Kroeber (K), measured by Professor Frank E. Wood; numbers with prefix 12-, at University of California, collected by Uhle (U), measured by Dr. A. H. Gayton and Kroeber. *Types*: N, natural, undeformed; O, occipitally flattened; O^p, occipitally flattened mainly in posterior region of parietals; FO, fronto-occipital deformation. *Measurements*: C.I., cephalic index; L, B, H, cranial length, breadth, height. *Age*: -25, 25 or younger. The proportion of youthful individuals from Moche is remarkable, and makes sex determination difficult. *Remarks*: WU, wisdom teeth not completely erupted; CU, canines not fully erupted; Skew, asymmetrical occipital region; Copper, green stains about nose, palate, or ear, due to copper ornaments, normally a sign of Late period. *Period*: Facalá is an unidentified site, but the majority of sites in Chicama are Early; Moche C is Late Chimu over R-W-B Geometric graves (Kroeber, Moche, p. 197); Moche D, probably Late (*ibid*); Moche H, probably Late, on the basis of textiles (O'Neale and Kroeber). *Addendum*: Uhle collected some fifteen skulls at "Cerro de Trujillo," an unidentified site (U. C. Nos. 12-1823-1841). Of these ten are natural, five occipitally flattened; two show copper stains about the mouth.

a nearly vertical plane, which is often heavily bilaterally asymmetrical. The second or medium-length type of skull is sometimes flattened, chiefly in the region of the lambda or above (parietally rather than occipitally). There is no indication of frontal pressure. This is the shape spoken of by Hrdlička as undeformed or deformed only by accident; and it is the type that prevails on the central Peruvian coast in Late cemeteries, except that on the central coast the main area of flattening is perhaps generally somewhat lower, on the occipital bone proper rather than on the posterior part of the parietals. Its associations in the Chimu area are also prevalingly Late.

The following are some observations: Chotuna, north ramp, a long skull; Taitacantin, Middle period, of forty or more skulls seen, the majority were deformed, many of them heavily so; but a minority were natural and long (see also list below); Barranca F, about ten skulls, deformed, most of them fronto-occipitally; cemeteries near the coast in the Brujo and Salamanca sectors in Chicama, most of them seemingly Early Chimu, fronto-occipitally deformed skulls associated with a small number of long natural ones (samples from both areas left with Tello); a Late Chimu beach cemetery south of the Huaca Negra near Brujo, no long skulls, deformation usual, but not always pronounced.

In the table on page 68, I have brought together measurements of nearly sixty Chimu skulls in Field Museum and the University of California, all of exact provenience and at least probable period. The cephalic index is given as a check on the observations of deformation.

I add a diagram (Fig. 1) showing the distribution of the three types according to cephalic index, irrespective of period. It will be seen that the mean of the natural Chimu skull is about 78. The mean of the back-flattened skulls is around 85; but if six Late specimens are omitted whose flattening is so high up (parietal rather than occipital, O^p in the tabulation, P in the diagram) that the head length is not affected, the mean is about 87. The mean index of all fronto-occipitally deformed skulls is 97, with a wide variability. But when these are segregated according to period, the Late skulls average 94, the Early and Middle ones the astonishingly high figure of 108.

When the data are condensed, they stand as follows as regards head shape:

| | Natural | Occipitally deformed | Fronto-occipitally deformed |
|--------|---------|----------------------|-----------------------------|
| Early | 6 | 1 | 1 |
| Middle | 2 | 1 | 3 |
| Late | 5 | 19 | 11 |

This suggests that the Early Chimu favored natural skulls; the Middle period people, fronto-occipital bandage deformation; the Late Chimu, occipital pad flattening. However, these are only preferential trends. Each of the three practices was known and followed in all periods. Still, it is of interest that fronto-occipital deformation seems to have been most prevalent, or most extreme,

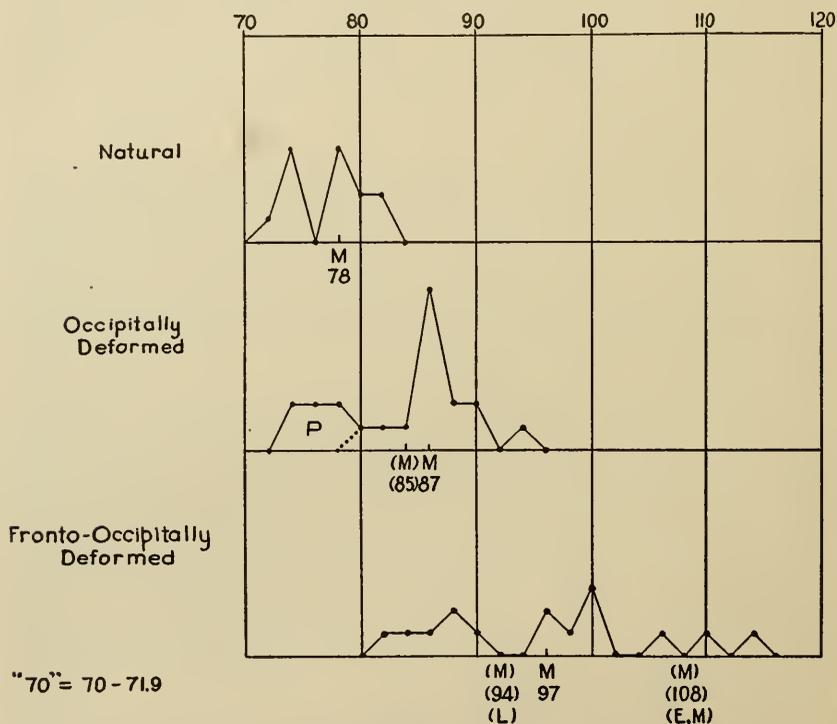


FIG. 1
Cephalic Index of Chimu Skulls

in the Middle period of highland influences. The series to be sure is small; but it is probably significant that the eleven fronto-occipitally deformed Late skulls range from 83 to 101 in cephalic index, the four Early and Middle ones from 100 to 115.

Hrdlička's suggestion of an early brachycephalic type which was replaced by a deformed one that included a long-headed strain of different origin, is inadmissible on the basis of the culture associations reported by him; though his data seem thoroughly correct. The sequence was rather the reverse, though custom was never rigid. The natural head form seems not to have changed in the Chimu area from Early to Late times.

As regards Peruvian skull shapes in general, the first need seems to be to distinguish the cultural problem of pressure and kind of deformation from the

biological one of congenital type. Obvious as this distinction is, it has not always been made. Uhle (Moche, p. 117), for instance, compares the natural long skulls of Early Chimu to the Nazca type deformed long skulls of Chincha and Ica. Of special importance are unselected series of some size. The skulls that drift into museums singly or in small lots have usually been preserved because they are extreme. Deformation, when its types and distributions have been worked out, promises to be an important and convenient criterion of culture classification, because of the ease with which cranial material is usually obtainable. The biological problem of Peruvian race classification on the other hand may be impeded by the difficulty of recovering natural types from areas and periods in which deformation prevailed. At any rate, attempts to link racial types and cultures are premature as long as the facts as to artificial deformation have not been adequately assembled.

MURAL PAINTINGS

In 1910 Seler (*Abhandlungen*, V, pp. 127, 132, Plate VII, Fig. 5) discovered a wall painting in the Huaca de la Luna at Moche. With the years, this has disappeared or been covered with drift sand. In 1925, parts of another wall painting were found in the same huaca. By November, 1926, some meters of wall had been cleared of sand, revealing a series of scenes, mostly of combats. Of these I traced the outlines, with indication of the flat colors in the contained areas. It is likely that further clearing of this part of the ruin will reveal other frescos. The newly formed Archaeological Society of Trujillo, under the presidency of Major Otto Holstein, plans to make the necessary explorations and reproductions, and will try to preserve the paintings from the ruin that has befallen those previously found.

The present set of paintings, shown in Plate XV, and in part from photographs in Plate XVI (see also Holstein, Figs. 31, 32), were executed by whitewashing the mud-plastered adobe walls, incising the figure outlines, painting the incisions black, and then filling in the areas with red, pink, yellow, light blue, and occasional black and brown in small areas. The style is typical Early Chimu, as known from the black (brown) or red on white (buff) paintings on stirrup mouth jars. The frescos give a freer rein to fancy than is usual in vase paintings. The strokes, as I soon learnt from following them through the tracing paper, are vigorous and unhesitating, the conceptions of form definite if somewhat conventional; the execution shows both imagination within the traditions of a school and skill based on practice.

The site of these paintings is the walls of the inner southeast corner of the highest structure of La Luna complex. This structure looks down southwesterly on the main platform at whose foot Uhle made his type excavation of Early Chimu graves (Kroeber, *Moche*, Plate 52*a*, background). The relative position of the paintings on the walls of the chambers which they line is shown in Plate XXVII, Fig. 1. The Arabic numerals in this diagram indicate the elevation in centimeters above the datum; the Roman ones, the sections of the paintings as traced.

It will be seen that more of the wall surfaces was once decorated than is preserved. The left or east end of Section I is outlined, but not filled in with color, as if the site, or at least the work, had been abandoned before completion. In several spots there are traces of underlying coats of plaster that had been painted on. It appears, therefore, that these rooms were repeatedly painted. It seems very probable from the position of the frescos that they were not confined to the limited areas in which they or the plaster now show. Somewhat off center in the painted stretch is a seat or throne-like elevation, whose floor has been taken as the elevation datum. The sides of this are flanked by a low wall in three steps, the two lower of which are painted on top as well as on the sides. This feature suggests that the niche between the salient step-walls contained an altar, idol, or seat. The total height of the frieze of painting nowhere reaches a meter, and on the sides of the steps is much less.

The white plaster is soft. The outlines were first scratched in with decisive, often long strokes. In cross section the incisions are wedge-shaped, not quite as deep as broad, but sometimes penetrate through to the underlying adobe coating which surfaces the laid bricks. Strokes that are meant to meet occasionally fail to do so, showing that the execution was free-hand and unhampered by meticulousness; the fact that strokes usually join well is proof of the practice and skill of the artists. The strokes were subsequently painted over with black, giving a definite but not over-prominent delimitation to the flat color areas which they enclose.

The colors, including black and white, number a total of seven. The commonest are red, yellow, and a light blue. Somewhat less frequent is pink. Black is used especially for feet or footgear, and, as in Early Chimu vase paintings, for knees; also occasionally elsewhere. White invariably forms the background and sometimes enters into the design. Brown was observed only in a few small areas representing artifacts, and seems to be the natural adobe. I suspect the red and yellow to be ochers; the pink a mixture of red ocher with the white of the plaster; and the blue a strong dilution of black (perhaps charcoal) with the same white. Analysis of samples may establish a greater complexity of pigments used.

The style of the art in these frescos, as well as the associations of the huaca of which they form a part, makes it certain that they are Early Chimu, and therefore well anterior to the Inca era. Whether the Late Chimu culture will reveal anything analogous, remains to be seen. The Chanchan arabesques are of adobe in relief, either outright geometrical or of simple figures treated geometrically (Holstein, Figs. 13-18, 21). They have close parallels in the adobe arabesques and paintings of the Centinela in Chincha,¹ and are therefore evidently characteristic of the generic Late culture of the Coast rather than in specific Chimu style.

¹ Uhle, *Excavations at Chincha*, p. 78, 1924. Others may have become exposed since Uhle's visit. I saw both frescos and adobe relief in 1926.

The subject of the Moche frescos is evidently a battle between human beings and personified implements. Krickeberg has recently shown that this "revolt of the artifacts" was a Peruvian as well as Mexican myth, that a Chicama stirrup mouth vase in Berlin depicts this contest, and that the Moche fresco described by Seler evidently had the same scene for its subject. Seler's principal figure of a personified war club is similar to that in portion IVc of my reproduction, but not identical. Seler's frescos are evidently also from the same part of the same ruin, but their precise situation was not fixed by him. The vase painting shows a dozen or more implements already victorious, two human prisoners, and a third besieged indoors. The frescos depict the battle itself, in a series of individual combats, with the artifacts winning; a helmet, a shield, a club, are smiting their armed but helpless human opponents.

II. DESCRIPTION OF SITES VISITED

COASTAL VALLEYS OF PERU

It seems desirable to preface this section with certain statistics on the rivers, valleys, and irrigable areas on which subsistence depended and still depends. Since these data are not always readily accessible outside of Peru, or to archaeologists, they will be given for some distance to the south of the Chimu area.

The coastal streams of Peru are classified into three groups. Those of the first class originate in the continental watershed, which, except in the area of the Santa, is always the most seaward of the Cordilleran ranges. Streams of the second class do not head at the continental divide, but draw their affluents from the zone of regular annual rains. Those of the third class head wholly or almost wholly in the zone of "periodic" or variable rains, and their flow is therefore both scant and rare.

The official classification of Peruvian coastal rivers is as follows, in order from north to south, and including the provinces of Tacna and Arica:

COASTAL STREAMS OF PERU
(After Adams, 1906)

| CLASS 1 | CLASS 2 | CLASS 3 |
|--------------|-------------|--------------------|
| Tumbes | Zarumilla | |
| | Boca de Pan | Mancora Pariñas |
| La Chira | | |
| Piura | | |
| Olmos | | |
| Leche | | |
| Lambayeque | Saña | |
| Jequetepeque | | |
| Chicama | | |
| Moche | Virú | |
| | Chao | |
| Santa | | Lacramarca |
| | Nepeña | |
| | Casma | Culebra |
| | Huarmey | |
| | Fortaleza | |
| Pativilca | Supe | |

COASTAL STREAMS OF PERU—*Continued*

| CLASS 1 | CLASS 2 | CLASS 3 |
|---|--|----------|
| Huaura Chancay Chillón Rimac | Lurín | Chilca |
| Mala | Omas | |
| Cañete | | Tupará |
| Chincha Pisco Ica Rio Grande Lomas Yauca | | Atiquipa |
| | Chala Chaparra Atico Caravelí | |
| Ocoña | | Manga |
| Majes | Chili | |
| Tambo | Moquegua | |
| Locumba Sama | Tacna | |
| Luluta Azapa Vitor Camarones | | |

The run-off in cubic meters of the principal streams in the Chimu area is given in the following table as condensed from the original monthly observations compiled by García in 1921. For comparative purposes there are added the corresponding data for certain of the rivers as far south as Ica. It is clear that the Santa, with its coastwise course and long intermountain basin, is by far the largest stream, although the coastal area irrigated by it is one of the smallest. The next two largest streams are the two northernmost, the Tumbes and La Chira, the first wholly within the zone of rains, and the second with an enormous catchment area in the mountains far from the shore. Next are the Etén-Lambayeque, the Jequetepeque, and the Chicama; the other Chimu rivers fall far behind. Several central coast streams, such as the Pativilca and Cañete, much surpass these three of the north, and others equal them in annual volume. It is also clear that the Chimu rivers normally irrigate a larger area than those of

similar size to the south, due evidently to the more open configuration of their lower valleys; and that important archaeological centers are often situated in valleys of relatively small run-off: Moche, Chincha, Ica, for instance.

RUN-OFF OF CERTAIN PERUVIAN COASTAL RIVERS
(After García, 1921)

| | Basin Km ² | Irrigated Hectares | Years Observed | Run-off in Million M ³ per Year | | |
|-----------------------|--------------------------|-----------------------|-------------------|--|---------------------------------|------------------|
| | | | | Aver. | Max. | Min. |
| Tumbes. | 3,380 | 0 ¹ | 9:12-20 | 3,425 | 6,100 | 2,600 |
| La Chira. | 12,500 | | 6:12-17 | 3,473 | 4,200 | 2,900 |
| Piura. | 3,000 | | 6:12-17 | 525 | 760 | 130 |
| La Leche. | 1,250 | 4,000 | 6:13-16, 19-20 | 241 | 390 | 150 |
| Chancay (Etén-Lamb.) | 4,000 | 30,000 | 8:13-20 | 971 | 1,200 | 750 |
| Zaña. | 1,900 | 3,500 | 4:14-16-18 | 299 | 620 | 130 |
| Jequetepeque. | 4,600 | 15,000 | 7:14-20 | 1,082 | 1,330 | 730 |
| Chicama. | 4,200 | 30,000 | 8:12-16, 18-20 | 956 | 1,400 | 670 |
| Moche. | 800 | 10,000 | 4:14,16-18 | 268 | 340 | 210 |
| Virú. | 900 | 5,000 | 4:12,14-16 | 101 | 120 | 50 ² |
| Santa. | 11,500 | 5,000 | 4:12,14-16 | 5,093 ⁺ | 7,030 ⁺ ³ | 3,900 |
| Pativilca. | | 12,000 | 9:12-20 | 1,646 | 2,350 | 1,040 |
| Huaura. | 3,400 | 10,000 | 9:12-20 | 921 | 1,180 | 680 |
| Chancay. | 2,200 | 10,000 | 9:12-20 | 605 | 770 | 310 |
| Rimac. | 2,500 | 18,000 ⁴ | 9:12-20 | 878 | 1,130 | 660 |
| Mala. | 1,800 | 4,000 | 4:14,17 18,20 | 504 | 780 | 90 |
| Cañete. | 5,200 | 14,000 | 9:12-20 | 2,173 | 2,840 | 1,380 |
| Chincha. | 2,200 | 14,000 | 5:12-15,17 | 442 | 660 | 160 ² |
| Pisco. | 4,300 | 10,000 | 7:13-19 | 920 | 1,110 | 680 |
| Ica. | 1,500 | 20,000 | 8:13-20 | 281 | 390 | 150 |

¹ Agriculture from rains.

² From Virú to Chincha the minima are all of 1912.

³ December flow of 1916 not included for Santa.

⁴ Besides diversion of water for use of city of Lima.

Another list is added from Adams, giving somewhat different estimates of catchment basins and irrigated areas of the streams from the Jequetepeque south to the Huarmey:

| River | Class | Basin, Km ² | Within Rain Zone, Km ² | Under Irri- gation, H | In Actual Cultivation, H |
|-----------------------|-------|---------------------------|--------------------------------------|--------------------------|-----------------------------|
| Jequetepeque. | 1 | 5,800 | 4,000 | 30,000 | C. 15,000 |
| Chicama. | 1 | 4,800 | 2,200 | 35,000 | C. 17,000 |
| Moche. | 1 | 1,950 | 800 | 10,000 | C. 5,000- |
| Virú. | 2 | 1,500 | 900 | 5,000 | C. 2,500 |
| Chao. | 2 | 1,300 | 600 | 500 | 300 |
| Santa. | 1 | 10,500 ¹ | | 5,000 ² | 3,000 ² |
| Lacramarca. | 3 | 800 | 200 | 100 | |
| Nepeña. | 2 | 2,500 | 1,200 | 8,000 | 4,000 |
| Casma. | 2 | 2,600 | 1,300 | C. 10,000 | |
| Culebra. | 3 | 950 | 100 | 250 | |
| Huarmey. | 2 | 2,700 | 1,700 | 2,000 | C. 2,000 |

¹ Whole drainage; basin below confluence of Huaraz and Chuquicara, 800 km² only.

² Below confluence of Huaraz and Chuquicara.

VALLEY OF VIRÚ

The name is usually pronounced and written Virú. The valley does not head in the continental watershed, and is therefore rather short and poor in water. It is also narrow, and where it opens toward the sea is mostly uncultivated. The largest patch of intensive cultivation is around the town of Virú, largely in maize and pasture. Above is a ribbon of sugar plantation.

1. The Huaca Gallinazo, inland from the port of Guañape, as seen from the road is a fair-sized squarish huaca with a prolongation, perhaps causeway or ramp.

2. Purpur, farther inland, is a flat sandy site thick with sherds and shells, without buildings, but with an adjoining cemetery containing some adobe tombs. The pottery is obvious Late Chimu; the skulls seen were deformed.

3. The Huaca Santa Clara is an enormous pyramid towering above the town of Virú, and looks like a hill. It is an adobe structure set on a rock *cerrito*. So much adobe has washed down the slopes that considerable excavation would be needed to define the line of junction. The rock outcrops in a few spots only. It is likely that much of it was faced or concealed by walls of adobe. The top is small, flat, and has apparently not been washed down much. The total height must be between 50 and 60 m.; how much of this is hill is unknown. The sides are not steep, and terraces are recognizable with difficulty. The clearest view of them is had from the Castillo, nearly 2 km. away, too distant for ordinary photographing. Holstein (Fig. 28) gives an air photograph. There would seem to have been not more than three or four terraces; which is also the impression received from going over the flanks of the huaca.

On the lower and middle slopes are cemeteries, largely in refuse fill containing much coarse, broken pottery. Nearly all of this is red, but not a single decorated sherd was seen. The site however is probably Early Chimu. A small incurved bowl that was secured (Cat. No. 171618) and a fragment of a flaring bowl seen in a house at the foot, both said to have been taken out of the huaca, are pure Early Chimu. The graves are oblong, more or less lined with adobes. The few skulls visible were either naturally long or fronto-occipitally deformed and broad. The adobes are rectangular and flat-topped. Owing to the skilful advantage taken of nature, this huaca is astounding for its size and height. In apparent mass it is easily in a class with the Sun Pyramid of Moche; in gross height it rises 10-15 m. higher. To the eye it is perhaps the largest huaca in Peru; even as a net structure it is unusually large.

4. El Castillo is perhaps the boldest ruin on the north coast (Plate XVI, Fig. 1). There is an air photograph of it in Holstein (Fig. 36). It is upstream and across the river from Santa Clara, perhaps 2 km. distant, and crowns the end of a spur that comes off the *cerros* forming the northern side of the valley. The spur juts in toward the river, which bends somewhat about it. The structure thus dominates the valley both up and down, and certainly looks like a castle; but its area seems too insignificant for a fortress, and it is probably a good Chimu

huaca, unusual only for its eminent placement. Like Santa Clara, it merges into the hill on which it stands. The southern face especially has well-preserved retaining walls covering the natural cliff down to the level of the plain. Here the total height of construction must be in the neighborhood of 50 m.

The lower half of this face has stone walls among the adobe. None of the stones have been cut; but they are laid with their flat faces flush to form the surface of the wall, which is about as even as the adobe surfaces. In one spot a break shows the interior of these stone walls to be merely rough rubble, and some of them are carried upward with a sudden substitution of adobe for stone, without setback. All the faces slope, but not far from the vertical. The greater part of the hill facing, and all the pyramid proper, are of adobe. The bricks are flat-topped. They are set in columns or walls a few adobes wide. On the north face there remains part of a large exterior sheet only one adobe thick. Near the summit, stakes project horizontally in horizontal rows, and below one of these rows are two or three sticks laid lengthwise in the adobe; the falling of the outer layers has exposed these timbers, which may have served as ties. They are rather light stakes, twisted, apparently of some species of *algarrobo*. Those laid along the wall surface have not been observed elsewhere, and the projecting ones nowhere else in the southern province. In spite of some losses of surface, the preservation of this ruin is excellent and structural details can be observed unusually well. The Castillo is in far better condition than Santa Clara, perhaps because its steepness shed moisture almost instantly without letting it cut and wash. The front seems to be the eastern face; on the west is the spur connecting with the main *cerro*. This saddle or bridge has been built up with adobes so as to make the pyramid seem to extend to the mountain side and give it more of a fort-like appearance. But it is only an approach, and the amount of construction in it is rather small. Set on the plain without the natural substructure of which it takes advantage, the Castillo itself would be a good-sized huaca, but only that. As it stands, however, especially as viewed from the foot of its sheer southern face, it is one of the most impressive ruins of the Peruvian coast.

North of the spur causeway, on the lower slopes of the main *cerro*, is an exploited cemetery or town in an area of refuse fill containing quantities of coarse sherds. The seeming graves are rectangular, shallow, and more or less lined or outlined with adobes and stones; and are placed partly in small platforms that suggest house bases. No decorated ware was visible; but the absence of blackware, the similarity to the cemeteries of Santa Clara, and the statements of the guides concur in indicating this as an Early Chimu site.

5. Zaraqe is the name of two *cerros*, a full kilometer apart, and across the valley from the Castillo, each of which is crowned with a small terraced structure of adobe. The upstream one has a similar structure at its foot. Zaraqe, Castillo, and La Luna at Moche are alike in their conforming to rocky hills, a trait which I have not seen in Chicama or the north Chimu province. But it remains to be determined whether the trait is a local peculiarity, an Early Chimu one, or will appear also in the north when its broader plains are left

behind and the valley necks are examined. Virú and Moche after all are small and short valleys, crowded close by the mountains. It may be for the same reason—or on the contrary because cultural relations as such were different—that almost all the examples of highland ceramics yet reported from the Chimú coast come from these two valleys.

6. San Juan. Upstream from the Castillo about 1 km. is another evidence of highland influence: two stone huacas. These are pretty shapeless. Presumably the facing has been lost, and the interior rubble remains exposed. One of the pair has a lower platform toward the valley whose vertical sides are laid flush with the flat surfaces of large natural rocks, chinked with smaller stones. No pottery was encountered. These are the only stone structures I saw in Chimú territory.

7. Taitacantin or Taitacaltin lies south of Virú pueblo, just outside the main area of the valley's cultivation, in an island or peninsula of sand. *Taita* means "father" in Quechua. Final *-n* is almost invariably pronounced *-ng* in Peru. Proper names ending in *-n* are usually accented on the last syllable whether the accent is written or not; but Taitacantin has the accent on the penult. There is a small adobe huaca, still in the fields; no other visible structures; and 200 m. of cemetery in the sandy plain. The graves are shallow, apparently often under 1 m.; seem rectangular; are sometimes adobe lined, but perhaps more often not; a child's skeleton still partially *in situ* was extended. The skulls, of which many lay about from recent excavations, are for the most part fronto-occipitally deformed, often heavily, some resembling skulls with pronounced Nazca deformation. A minority were undeformed and long. A fair amount of copper was visible among the débris, but little cloth, and that coarse and plain, although sand favors textile preservation. The pottery fragments, which were abundant, showed a mixture of highland styles—Epigonal, Three-color Geometric, Cursive Tripod, Huarmey-Supe Epigonal, more or less hybridized—with black Late Chimú. The latter was not classic: stirrup mouths seemed lacking, and not a trace of an aryballos or Cuzco-influenced vessel was seen. The site thus appears to represent the intrusion of a highland population or culture in post-Early Chimú times and before the Late Chimú style was fully formed. After the recession of the highland wave, Late Chimú took on its usual or standard form with increased vigor of its coastal strain, growing superseded of color by blackware, and final absorption of some Cuzco elements. Uhle had got the first indications of this intrusion from the interior, in the little lot of ware he was able to assemble from the south platform of the Sun pyramid (Moche A). Taitacantin enlarges the scope of this highland influence and will be most important to explore before the *huaqueros* have drained it. I came upon it, unfortunately, in the afternoon of my last day of exploration in Peru and had to content myself with samples of surface fragments which suggest what digging would reveal and clarify. Excavation is unusually easy. Probably the principal reason the whole site has not been worked over is that Chimú pottery, Early and Late, being standard in the region, it has become the fashion to collect this,

and the *huaqueros* may have found that they secured lower prices for the abnormal Taitacantin ware, which, like most highland ceramics, is not particularly fine in quality.

Despite its small size, Virú is obviously a valley of great archaeological interest.

VALLEY OF MOCHE¹

Chanchan (Chanchán, Chan-Chan), the largest ancient city or cluster of ruins known in Peru, is fortunately being studied by Tello, as well as by the Archaeological Society of Trujillo, with a view to the preparation of its plan, which, even if only in outline, is badly needed to give an idea of the complex as a whole,² and in order to allow the placing in this vast whole of the relatively small sections long ago plotted by Squier.³ I therefore made no systematic studies at Chanchan and will confine myself to a few observations.

As compared with other cities or clusters of ruins in the Chimu area, Chanchan is conspicuous for its poverty in pyramidal huacas. There are only three of much consequence, all situated on or near the peripheries of the complex of large walls. The largest of these seems to be the Huaca Obispo or Esperanza (Holstein, Figs. 2, 26) at the inland edge; the two others are the Concha and the Toledo or Peje Chico on the Trujillo side. None of these would be specially conspicuous elsewhere in the Chimu area. In addition, there are smaller huacas respectively at the southeast corner and near the middle of the city, for which Tello gave me the names Chaichac and Ovidada. This is an aggregate of pyramids much less in number than the smaller city of Barranca contains; and smaller in number and no greater in size than those standing in close array in the Purgatorio. On the contrary, Chanchan is unparalleled in the abundance and size of its "palaces" or courts, in the consistent height of their enclosing walls, and in its great *pozos* or rectangular depressions. Barranca and Purgatorio attain each to only one large court, and lack *pozos*.

The reasons for this uniqueness of Chanchan can be conjectured only partially. The *pozos* were probably made possible by the situation of the city on a low plain near the sea. The so-called palaces, whatever they may really have been, are possibly to be connected with the tradition that Chanchan was a political center and a late one. The paucity of pyramids is harder to understand, because domination was so strongly associated with religion in Peru, from all that is known, that a merely political or economic center of importance would seem anomalous. It is conceivable that a change of cult habits occurred. It is certain that in Virú and Moche valleys there is no Late Chimu pyramid to compare with the Early Chimu ones of the Sun, Santa Clara, or Castillo. As the Late culture and evidently dominion were much more extensive than the

¹ Also known as the Valley of Santa Catalina, but not as that of Trujillo, the principal city. Moche (cf. Mochica) is the name of the river, as well as of a town.

² Of much value are air photographs, of which Major Holstein reproduces several in his Chan-Chan (Figs. 2, 3, 26). He gives also an excellent series of ground views, large-scale and detail.

³ Cf. p. 65. Wiener gives a plan of the whole of Chanchan, but this is obviously schematized, over-regular, and without value.

Early, the difference looks significant. In Chicama, very few of the huacas have been distinguished as to age; but the facts that rather more than half the potteries collected there are Early, that the Huacas Blanca and Brujo are almost certainly Early, and that the other pyramids of the valley conform superficially to these two, make it seem likely that Chicama will prove to resemble Moche

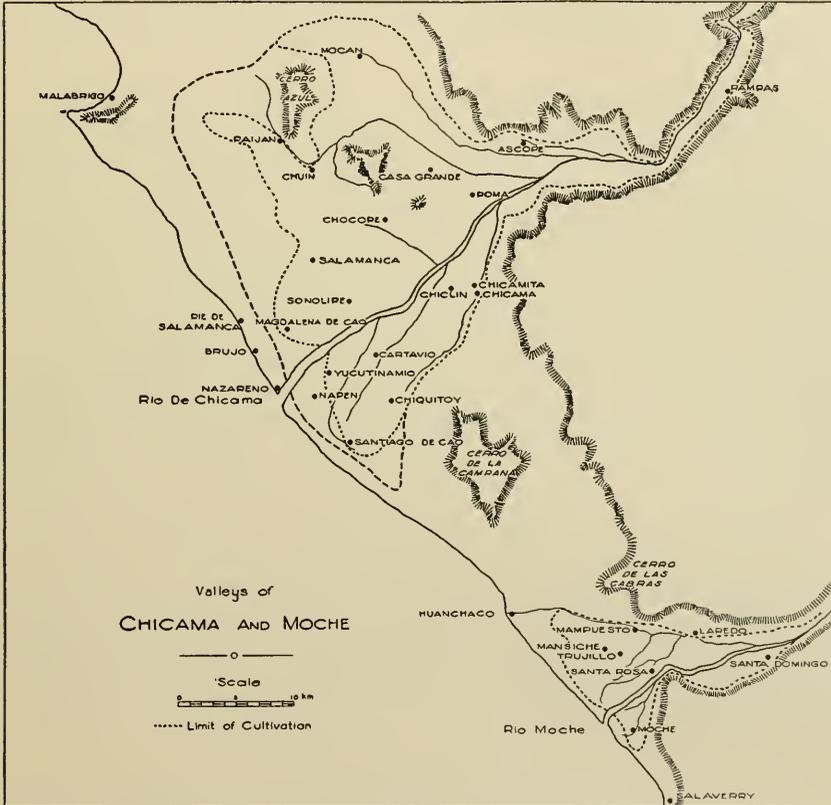


FIG. 2

and Virú in possessing no great number of large Late pyramids. In short, the Late Chimu culture where it is known to have been Late in time, was apparently falling away from the Early habit of concentrating its constructive ambition on gigantic religious heaps. The northern province cannot yet be equated, because it is Late Chimu in type but undetermined as to age. Still, even this has no single structures equal to those of Moche and Virú.

The tongues of land between Chanchan and the sea, jutting into the marshy land behind the beach, can be set down as partly artificial. They may in origin

be *quebrada* mouths; one, to the southwest of the town, still is such. But they have certainly been not only dressed or faced, but squared into shape. Plate XVII, Fig. 1, shows the artificial character of the sides. These are the tongues that Middendorf (II, p. 375) construed as dikes for the disembarkation of ships when the land lay closer to sea level than at present. The idea is probably as fantastic geologically as it is culturally; but it reflects the observation that the protrusions are associated with the city plan and are due to the shaping, if not the product, of human labor. They bear cemeteries, and contain several of the *pozos*.

Chanchan is not oriented to the cardinal directions. I was able to take a compass observation in the long street (this may be the street shown in Holstein, Fig. 12) that separates two quadrangles, on the Trujillo side of the ruins, which Tello proposes to name after Uhle and Bandelier. These courts run approximately in the same directions as the other principal ones, and therefore presumably as the city as a whole. The street in question sights directly at the Cerro Blanco, at the foot of which stand the Sun and Moon pyramids of Moche. Its direction is from about 12° north of magnetic west to 12° south of east. From about its middle point, the Huaca Obispo is 12° east of magnetic north. The declination of the compass is between 11° and 12° east. This would make the orientation of the major axes of the town about a quarter of a right angle off the cardinal directions. The long axis, extending inland, is from N.NE. to S.SW.; the breadth, or sea frontage, runs W.NW. to E.SE. Trujillo lies a little inland of the line between Chanchan and the Moche ruins—that is, nearly due east of Chanchan.

While I had no compass available at other sites, and directions are difficult to estimate accurately in the tropics during the greater part of the day, I have the impression that many Chimu ruins are oriented with similar departures from true north. The Sun pyramid is well off its general north-south axis; the Castillo is only approximately oriented; and Barranca seems to depart as much as Chanchan from the "natural" directions. The Purgatorio, Chotuna, Etén, Estacos may be more regularly placed, but my arrows in the diagrams of them must be accepted as only approximate.

VALLEY OF CHICAMA

The Chicama has a catchment basin, a run-off, and an irrigable area from three to five times as great as the Moche. In Chicama valley lie a series of the largest and most productive sugar plantations in Peru; yet it contains no town of consequence, and is commercially tributary to Trujillo. This modern condition reflects the ancient cultural relation of the two valleys, without a geographical cause being apparent. Chicama must have supported several times the population of Moche valley, and is studded with good-sized huacas; but it contains none as great as the Sun pyramid, and no trace of a town comparable to Chanchan. One bit of ancient history can be reconstructed. The Early Chimu built no towns of adobe; not one such has been identified. In Late

Chimu times, at any rate toward the end of the period, Chanchan became the political capital of a long stretch of coast. Chicama came under its domination. Being the nearest valley, it was probably the first to be subordinated, and thereafter possessed the least need of a local subcenter. Proximity and direct dependence on Chanchan thus kept Chicama undeveloped as regards Late towns, and perhaps Late temples also; while Jequetepeque and Lambayeque and Leche maintained provincial centers of some importance. The cause of the politico-military dominance of Chanchan is unknown; but there seems little doubt that it affected Chicama adversely.

Collections from Chicama, like the splendid one of D. Rafael Larco Herrera, contain more Early than Late Chimu vessels. The pyramids and mounds which I was able to examine on the spot through the courtesy and assistance of his son, D. Rafael, were, so far as identifiable, all Early Chimu. I saw only one Late Chimu cemetery, and that small and without structures. These indications, slender as they are, suggest a greater prosperity of the valley in Early than in Late Chimu times, in accord with the interpretation just developed. It may be that Chicama was overshadowed from the north as well as the south in the Late period. Its flourishing condition in Early Chimu times, indicated both by the number of its huacas and by its wealth in the finest pottery—much that the older collections labeled as "Trujillo" is surely from Chicama—seems at first surprising in view of its being on a cultural periphery: Early Chimu has not been found to the north. Yet it may be that political units were relatively small and independent in the Early period, so that the marginal position of Chicama might not have worked seriously to its disadvantage.

So far as can be judged at present, Chicama seems to have been less subject to cultural influences from the highland than Moche and Virú. Sr. Larco's collection of about a thousand pieces of ceramics, assembled in 1926 almost wholly within the valley, serves as an example. It contains more Early than Late Chimu. There is only one Chavin-influenced vessel: an unornamented, brownish stirrup mouth of pure Chavin shape (No. 1 of this volume, p. 36, Plate XII, for the style). There are several Cursive Modeled style pieces (*ibid.*, p. 31, Plates III, IV); none of what I have called red-white-black Recuoid (*ibid.*, p. 34, Plate V, Figs. 1-4); one three-legged bowl, very similar to the specimen in Field Museum (*ibid.*, p. 31, Plates V, Fig. 5; XI, Fig. 4); no piece in the Three-color Geometric style; and nothing that could be called Tiahuanacoid or Epigonal of the central Peruvian type. There is one cylindrical goblet, but it has an out-turned rim and an Inca pattern. Collections like this one are heavily selected for quality, but only indirectly for kind of ware; and the run of styles in this case is probably indicative in some measure of their relative frequency.

Hrdlicka (Plates I, IV, Fig. 2) obtained two tripod bowls in highland style near Chiquito, and a Tiahuanacoid pottery cat-head at an unspecified site in Chicama. These are the only Middle period style pieces on record from Chicama, and are the most northerly yet reported on the Peruvian coast.

The valley of Moche has Huamachuco behind it in the Sierra; that of the Jequetepeque, Cajamarca; Chicama, no considerable town. This modern condition may reflect an ancient one and partly account for the weakness of highland influences in Chicama.

Chicama huacas usually stand isolated, not in complexes, though they show a tendency to cluster in tracts. The northern half of the valley contains fewer

than the southern. Terraces are narrow and steep without aiming at the vertical. A relatively small amount of decay thus suffices to give them a sugar-loaf shape. This is accentuated by the fact that they seem to average higher in proportion to the base area than mounds farther north. Weathering and rounding are most visible close to the beach, suggesting that the atmosphere affects the surface more than the rare rains.

THE BRUJO GROUP

Brujo is a fishing village a few kilometers "north" of the mouth of the Chicama River. It stands at the northwestern corner of a curious rhomboidal plateau, 10-15 m. higher than the low and sometimes marshy plain that backs it. This plateau is of loamy sand containing considerable saltpeter. At one corner, towering above the fishermen's huts, is the Huaca Brujo; at the inland corner, the still larger Huaca Blanca; at the southeast corner, by the shore, the Huaca Negra; a fourth corner, considerably rounded, projects somewhat into the sea. The Brujo is half surrounded by cemeteries. The whole stretch from Blanca to Negra is a succession of gravefields and burial mounds. Although the three huacas are part of a topographical unit, they are 1 km. or more apart and can scarcely be considered a true aggregation or complex.

Huaca Brujo is perhaps 18 m. high; built of whitish adobes; apparently with leaning rather than vertical sides, which are now much rounded off. The cemetery at the landward side seems Early Chimu, with oblong tombs. A gash made nearly to the center of the pyramid—to secure adobes, it is said—reveals the structure. This cut is 6 m. wide. Its side surfaces are smooth, showing that joint planes were followed in making the cut. When these planes are examined, they prove to contain vertical joint lines 1-2.5 m. apart. These are evidently the edges of other joint planes proceeding at right angles. The two sets of joints enclosed solid adobe columns or thick walls, ranging from one to several meters on a side; these are the structural units out of which the pyramid was built up. A smaller cut nearer the sea side shows the same construction. No continuous adobe or refuse fill is visible. It is a different method of construction from that usual on the central Peruvian coast.

Huaca Blanca is at least 20 m. high, perhaps 25. From slopes higher up in the valley, this and the Brujo appear like nearly equal towers at the ends of a long substructure—the natural plateau. The adobes are whitish and much disintegrated to the weather; the sides steep; the top rounded. Near the inland foot are walls and a cemetery. These may belong to the huaca, but I could not wholly rid myself of the suspicion that they may be Colonial. Near the opposite foot of the pyramid begins a series of cemeteries, which follow the edge of the plateau to the beach and the Huaca Negra. These cemeteries lie in sand, in habitation refuse containing charcoal and ashes, and in low mounds. Some of the burials are in sand, others in adobe-lined oblong tombs. Some of the cemeteries are certainly Early Chimu. Others seem to be Late Chimu. Some may be early Colonial. The local distinction is into cemeteries with cloth but little

or no pottery, and those with good pottery and little cloth; which suggests Late and Early. The bodies were described as lying, seated, and standing, according to site. Nearly all the cloth seen was coarse white, without ornamentation. The adobe tombs seem chiefly associated with Early Chimu sherds; but fragments are nowhere common. Skulls in one of the Early Chimu sites were either fronto-occipitally deformed, or natural and rather long.

Huaca Negra is the smallest of the three pyramids. It is damp from the sea, and blackish as if burnt, inside and out, from humidity and abundance of pulverized shell and organic matter. It is not an adobe structure, but a refuse mound, apparently reared at least in part with intent. A large gash into the top, attributed to Chilean treasure hunters, shows the mass to consist of shell, ashes, soil, and beach cobbles, often visibly laid or stratified; the refuse includes badly weathered sherds to a depth of several meters, possibly to the bottom. The appearance of the material is much like that at Lomas on the southern coast. The pile is, however, obviously shaped, not a mere accumulation of refuse, and may therefore be considered a huaca.

Beyond the end of the table-land at Huaca Negra, across a marsh slough, and in the sand back of the pebble beach, is a Late Chimu cemetery with slightly shortened skulls, copper-stained teeth, and many fragments of copper on the surface. There are no associated structures.

SALAMANCA AND SONOLIPE

Salamanca beach, up coast from Brujo, has several low sandy burial mounds among the dunes back of the beach itself. Early Chimu ware is associated with rectangular adobe tombs; lack or scarcity of pottery, with burials in sand. The latter may represent poor people or a different period. There is some copper about the Early Chimu tombs; also, large water-jars, 90-100 cm. high, 70 cm. in diameter, the upper half cylindrical, the lower spherical, the two portions either continuous or marked by a slight increase of diameter upward. The Early Chimu skulls are both naturally long and fronto-occipitally shortened. There are no associated structures.

The Huaca del Ollero, "of the potter," is a sandy mound near the Salamanca hacienda house, thick with opened adobe graves and Early Chimu débris. The skulls are both fronto-occipitally deformed and naturally long.

The estate of Sonolipe, on the north side of the river like Brujo and Salamanca, but now administered from Cartavio, contains a huaca which I did not identify but which is reckoned by some as the tallest in the valley. It is said to have a hole sunk in its top—presumably a treasure excavation enlarged by rains.

CARTAVIO, CHIQUITOY, AND VICINITY

Cartavio, a large property, contains several large huacas. Cartavio 1, or the Huaca de Disputa, so named because of a contested boundary, is set in the middle of a large quadrangle surrounded by a broad wall of adobes. The huaca

is large, oblong, four-terraced, steep on the sides and flat on top, and apparently a solid mass of adobes. The terraces are narrow. It lies south of the railroad from Cartavio to Chiclín, and seems the largest of the Cartavio huacas.

Cartavio 2, or Huaca Urcape, is north of the road from Cartavio factory to Santiago de Cao.

Cartavio 3, or Huaca Colpán, is also north of this road, nearer the sea. It has a conspicuous, long, inclined projection on the seaward side. This ramp is said to have contained burials.

Cartavio 4 is south of the road and approximately cubical. It is said also to have a ramp with burials, but on the side away from the ocean.

Below Colpán, on the beach between Santiago and the river mouth, several small mounds or huacas are reported to contain black pottery; that is, to be Late Chimú.

A small huaca, entirely of stone and containing "some silver but no pottery," is reported at Salpán or Section 20 of Cartavio, across a bend of the railway running from Cartavio factory to Chiclín. I owe this information, as well as other statements supplementary to my hasty inspection of Cartavio ruins, to Mr. C. MacDougall.

The Pan de Azúcar ("sugar loaf") is a steep-sided squarish huaca rising perhaps 20 m. out of the cane cultivation near the boundary between Chiquitoy and Chiclín.

The Huaca Chicamita is a similar pile, also near the "southern" (actually more nearly eastern) edge of the cultivated valley, but farther upstream.

Near Santiago de Cao, and still nearer the junction of the road from Santiago with that from Chiquitoy to Huanchaco are three mounds, known as Las Tres Huacas. The largest of them is called also Huaca Campanilla.

On Chiquitoy, south (east) of the road from Huanchaco, is a good-sized huaca. Chiquitoy is said to contain several others. Hrdlička (p. 7) says there are many huacas and cemeteries in the vicinity, and seems to have excavated largely at Chiquitoy.

From Virú to Chicama the majority of huacas are Early Chimú, and observation and reports coincide in ascribing burials to their lower platforms or ascents but not to the top. Beyond Chicama, in the northern Chimú province, where the only known culture is Late in type, burials seem characteristic of the tops rather than of side terraces. For the Late huacas of the southern province, data are wanting, the principal ones, those at Chanchan, having been torn to pieces. This very sacking from the top, however, suggests burials in the summit, and perhaps in the mass, of the Late Chimú southern structures.

VALLEY OF JEQUETEPEQUE

The valley of Jequetepeque has three parts. The middle portion lies along the river, is rather narrow, and with its mixture of sand dunes, palms, and fertile spots is in places reminiscent of Ica, hundreds of miles south. A second portion

lies to the south, toward and around San Pedro de Lloc, and is watered by acequias that leave the river toward the left. Pacasmayo lies in this southern part but is without immediate agricultural hinterland and owes its existence and importance to being the port for the valley and for Cajamarca in the highland. The third portion of the valley also lies off the river, but to the north, about Chépén, Guadalupe, and Pueblo Nuevo. The last named is on the Rio Seco de San Gregorio; Chépén and Guadalupe are rather nearer to that stream bed than to the Jequetepeque; but the water supply of the whole tract seems to derive chiefly from the Jequetepeque. The Guadalupe sector is said to produce more today than the Jequetepeque one; but the most important ancient sites are in the middle sector near the natural mouth of the river.

PACASMAYO-SAN PEDRO DISTRICT

Sinán, pronounced Sináng, is an isolated huaca about 2 km. from the beach, 3-4 southeast of Pacasmayo, toward San Pedro de Lloc, in a brushy pasture pampa, not far from cultivation. There are no outworks or surrounding cemeteries. The pile is 75-80 m. square, about 10 m. high, and built of adobes. It has been dug into and washed. No terraces are discernible. The whole top appears to have been a cemetery. The type of ware is Late Chimú, with more undecorated red than black sherds in evidence, as usual. This is the most southerly site at which I encountered red ware paddle-marked in imitation of textile impressions. Uhle found paddle-marked blackware in the Late Chimú cemetery, site B, at Moche (see Part III).

JEQUETEPEQUE DISTRICT

Near the town of Jequetepeque, shortly before it is reached by road from the south, is a large cemetery without structures. Copper is especially abundant among the débris.

For several kilometers of its lowest course, the Jequetepeque is bordered on its north by a conspicuous barranca or bluff, while the south side is low. On this low side, near the mouth, stands a group of pyramids known as Dos Cabezas, from the shape of the highest unit. North of the mouth, on the mesa above the bluff, is a large city for which no name was learned other than Ciudad de la Barranca.

DOS CABEZAS

The principal structures in the Dos Cabezas group are shown in the plan, Plate XXVII, Fig. 2. The estimated heights above the plain are as follows: A, the Dos Cabezas huaca proper, 25 m.; X, a narrow, long, adjacent platform, 7 m.; wall adjoining, 10 m.; cemetery platform, 5 m.; Y, two-level platform, 8 m.; B, a steep huaca, 12 m.; Z, adjacent platform or sand hill, 7 m.; C, small huaca, 8 m. This group is about 0.5 km. from the beach, in sand. A little nearer the sea and close to the river is D, La Mesa, a large squarish platform about 12 m. high. Huaca A literally has two heads (cf. Plate XX, Fig. 4, background), with a tongue-like platform issuing from between them. This tongue is probably

material carried out from a great gash made into the top of the pyramid by treasure seekers, who thus produced the two heads. This is also the conclusion of Middendorf (Peru, II, p. 403). An hour's digging in the tongue would reveal whether it was actually a dump of tumbled adobes, or a platform of laid adobes forming part of the original structure. In the latter event the construction plan of the huaca would be unique. There is no fill visible in the main part of the

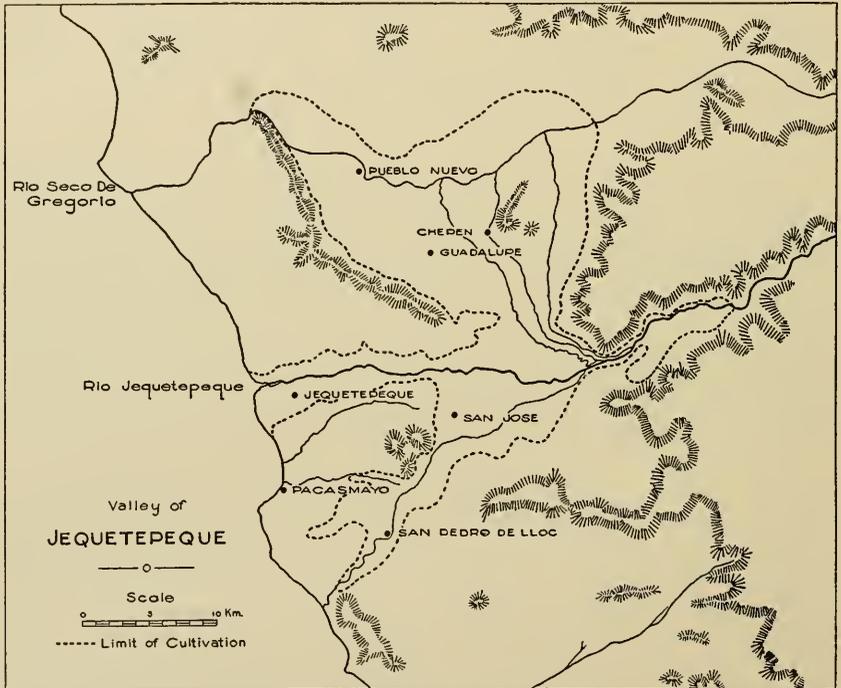


FIG. 3

pyramid, only adobes, normally laid flat. There are some sherds, probably from the mortar. The main cemetery, well dug over, shows débris and copper of the usual north province type. This is an impressive group of ruins.

CIUDAD DE LA BARRANCA

Ciudad de la Barranca is a collection of pyramids, walls, and courts stretching from the bluff above the Jequetepeque to one overlooking the sea, and shut in on the third side by a wall of adobes and a ditch carried across the mesa. The length is a full kilometer, the breadth more than half. It is a smaller city than Chanchan and Pachacamac, but one of the largest on the coast of Peru. Middendorf (Peru, II, p. 404) saw this group of ruins from Dos Cabezas, but

could not cross the river to inspect it. The plan in Plate XXVIII is an attempt to survey by pacing the better preserved eastern or southeastern half of the town. The northwestern end is much more crumbled and rounded, owing either to greater age, different construction, or, probably, greater exposure to the sea air. The plan gives a fair idea of the layout of the town, and many of its details are exact, but others are only approximate. The ancient builders seem to have deviated occasionally from right angles and straightness of long lines. The deviations are scarcely observable as one stands in any one spot among the ruins, but they accumulate considerably in the passage to farther structures. A really accurate plan can hardly be made without triangulation or air photographs. Until such are available, the present diagram may be of service.

It will be seen that the numerous huacas are mostly grouped in two alignments, separated by a long plaza or avenue well over 100 m. wide. On one side are H, I, J, and smaller piles; on the other, A, B, C, D, and F. Behind A is a high-walled court, P, about 170 m. a side, but not a true square; filled, for the greater part of its area, with numerous building walls (Plate XX, Fig. 4). This court is similar to several at Chanchan; but the lining up of groups of pyramids at Barranca has no parallel at Chanchan, whose huacas are few and separated. On the whole the Purgatorio at Túcume is nearer to Barranca in general plan, but with considerable differences, as will be seen.

The outer wall measures about 735 m. (by pacing) from its beginning at the bluff edge to where a wash from the hills on the inland side of the mesa has broken through. Beyond the break the wall resumes. Outside of it is a ditch, which may have served for drainage rather than defence. Another ditch lies in front of the inland side of the huaca row F-B-D.

Huacas A, C, G are highest at their rear—the southwest or river mouth side. A, C, H have projecting ramps on the opposite or northeast face. Both these features recur repeatedly farther north, as at Estacos and Etén. Huacas B and D are large, low, and one-storied, like Sinán and Purgatorio I. The court P contains in its southeastern half three buildings, N, N, N, with rows of "seats" or roofless niches along their inner walls.

Many low walls and small chambers and structures have not been entered in the plan.

GUADALUPE DISTRICT: ESTACOS

Huaca de los Estacos stands isolated in the cultivation on the right hand of the road from Guadalupe to Pacanga and Pueblo Nuevo, near Pacanga. Its plan will be clear from Plate XXX, Fig. 1. It has two ramps; one juts out eastward from the lower eastern platform, the other runs up along the northern face of the main huaca to the higher western platform. The three terraces of this platform or main structure are so narrow as to be only nominal. Walls trisect and surround the top, which once contained graves. The adobes are slightly rounded on their tops only. The name of the huaca is attributed to

several stakes on poles that formerly rose from its summit. These may have been post-Columbian.

ANCIENT ROAD BETWEEN JEQUETEPEQUE AND SAÑA

The divide between Jequetepeque and Saña valleys differs from those which separate valleys to the south, and is the first of northern type. It is a long smooth swell instead of a mountain spur, and it bears some vegetation instead of being pure desert.

It is of further interest because the road between the valleys follows and in part runs over a prehistoric road. One hears much of Inca roads in Peru; but in the coast area their authentic remains are scarce. In the interior, according to all accounts, they are better preserved. The Pueblo Nuevo-Saña road is the only one I have myself observed which is indubitably pre-Spanish. There is one which is probably prehistoric between Ocucaje and Huayurí, connecting the Ica and Rio Grande drainages. This passes across a wide, nearly level, desert pampa, and is marked by a border of stones taken out of the broad roadbed. It has been traversed by countless burro trains and more recently by automobiles, so that its ancient condition is difficult to judge.

The Saña road is first picked up a little out of Pueblo Nuevo where the car ruts enter it, about where the last cultivation fringes out. From here it runs northerly, perfectly straight so far as I could determine, almost to the edge of cultivation in Saña, more or less abreast the pueblo of Saña. As I estimated its several stages piecemeal, they aggregated 14 km. The map, however, makes the whole distance considerably longer, and so it seemed as I traversed it.

The southern part of the road is 6.5 m. wide and forms a callejón, that is, a walled-in way. The walls are half a meter thick, of rectangular adobes, and in places still stand 1.2 m. high. The purpose of the walling is not clear. It was evidently a culture habit of ancient as of modern Peru. Some kilometers out, the desert becomes sandy, the side walls disappear, and the road can no longer be traced with security. Over the divide it resumes, apparently in line with its first part. Here the pampa is rocky and the road is half as wide again as before, namely 10 m. The construction consisted of taking all loose rock out of the roadbed and piling it in two low side walls. Each wall consists of an inner and an outer row of the larger stones set lengthwise on edge, about a meter apart, and smaller stones laid or thrown between.

Abutting directly on the road are four tambos—rest houses or post-stations. The two southerly are of adobe, the two northerly of stone, like the adjacent parts of the road itself. Nos. 1 and 4, the largest, are less than a kilometer out of the cultivation. Nos. 2 and 3 are about two or perhaps three kilometers farther out in the pampa, and considerably smaller. Much the longest stretch of road is between tambos 2 and 3. Diagrams of all four are shown in Plate XXIX. The eastern wall of the main court of No. 1 contains three rows of square adobes alternately sunk and flush with the wall surface, forming a simple checker pattern (Plate XXIX, side).

MEASUREMENTS

I was able to pace out some of the principal dimensions of these four tambos with fair accuracy. It appears that Nos. 1 and 4 are both laid out on the plan of a square plus an adjoining section one-third as wide, on the formula $(3 \times 3) + (1 \times 3) = (4 \times 3)$. Their subdivisions, however, do not fall into simple proportions; and Nos. 2 and 3, as well as the second court of No. 4, are laid out on different plans. Even the large decorated inner court of No. 1 measures about 56 by 60 m.

The stone and adobe walled portions of the road have widths respectively of 3:2.

I was unable to find here or elsewhere any certain indications of standard units of measure generally employed, like the meter, fathom, or surveyor's chain. The general plan of No. 1 has evidently a 12 or 24 m. length as base; but the structure in detail does not conform to either fractions or multiples of this length. It seems more likely that a piece of cord was arbitrarily chosen as the unit for this particular construction than that a conventional measure was used.

Mere walls such as these are of course more reliably measured without clearing than pyramidal structures whose bases and terraces are encumbered by talus. Nevertheless the approximate dimensions given in the various plans in this report ought to reveal some tendency to either standard measures or standard proportions if these existed. Apart from occasional square or 4×3 ground plans, as several times at Barranca, I cannot discern any regularity. There seems no more indication that the Peruvians used constant standards for the sizes of their courts and buildings than for their adobe bricks.

In this connection it is of interest that while the balance was of frequent use in Peru, there is as yet nothing known that can surely be interpreted as a weight, of fixed mass or otherwise.

VALLEY OF SAÑA

This valley is narrow, and in the region of Saña its water suffices chiefly for maize and pasture. Cayaltí, farther up, is a large hacienda, whose prosperity is no doubt correlated with the poverty of Saña. There are no ruins visible in crossing the valley.

VALLEY OF LAMBAYEQUE-ETÉN

Etén, Chiclayo, Pimentel, Lambayeque lie in a large valley. Its stream, before it divides, is called the Chancay and carries an unusual volume of water in the dry season. As there are a Chancay valley and town near Lima, the term Lambayeque-Etén is here used instead of Chancay to designate the northern valley. The Chancay "divides" under control into the Etén and the Lambayeque "rivers," which reach the sea near the towns of the same names. Between them lies Chiclayo; also the port of Pimentel. Lambayeque is the old capital and has given its name not only to a province but to the whole department. Chiclayo has surpassed it and is now the departmental capital. Considerable stretches in

the lower part of the valley are desert or half-desert pasture. The divide toward Saña is in part a range of hills; but above this is a low, broad pass. Toward the north, Lambayeque valley merges imperceptibly into that of the Leche.

RAJADA NEAR SIPÁN

Huaca Rajada (Plate XVIII, Fig. 1) is just outside the cultivation of Sipán on the Chancay, on the pass or pampa that connects with Saña. It is really a pair of connected adobe pyramids, both much torn and nearly shapeless now. One seems to have been oblong; the other was perhaps square but is now nearly conical. They are at least 20 m. high. The top has been washed into little abysses, the sides into furrows; individual adobes are scarcely anywhere recognizable on the surface. Layers of cane and horizontal stakes are visible in the adobe at one point.

ETÉN AND REQUE

Along the lower Etén are two large isolated pyramids about 1 km. apart and 2-3 km. respectively downstream and upstream from the towns of Reque and Etén. The latter is the one pueblo in which the native Mochica or Yunca language is still to some degree remembered, though no longer a living speech. I was able to examine the Huaca Etén; Huaca Reque seems similar to it in size and shape.

The Huaca Etén (Plates XIX, Figs. 1, 2; XXX, Fig. 2) has three terraces, 6, 12, and 16 m. high. These are not concentric, but piled up at the west end, where the rear of the structure descends in an unbroken steep slope. From the east, it rises like a gigantic staircase of three steps. Up over the first two of these steps runs a ramp, to the highest platform, which is narrow. A similar plan has been noted for several of the Barranca huacas. The pyramid stands alone in cultivation. There are no signs of cemeteries about, nor of burials on the huaca. Preservation is good; all adobes seen were laid flat. Potsherds are almost lacking. Middendorf (Peru, II, p. 418), gives a good sketch plan of this pyramid, and an elevation which is disproportionately high. He calls it the best preserved ruin seen by him in Peru, and the most similar to Mexican pyramids. He gives the height as 90 ft. (27 m.) as against my estimate of 16 m. Of the Huaca Reque he says it is 100 ft. high, not pyramidal, but castle-like (*sic*) with vertical, dilapidated walls; there is an extensive cemetery on a terrace at its base.

PIMENTEL AND SAN JOSÉ

Stretching along the shore just north of Pimentel is the Huaca Blanca; and a short distance farther, at the fishing town of San José, three similar mound huacas. On one of these the town is built: it may be designated Huaca del Pueblo. In line to the north is the Huaca del Panteón, which bears the present graveyard. A little inland from these two, with a cross near its southern foot, is the Huaca de la Cruz. This is the one identified by Brüning (p. 18) as Sioternic.

It does not, however, impress as the sort of structure to have been selected by legend as the site of memorable events. All three of the San José huacas, and the one near Pimentel, are shapeless, stretched hills of sand with shell and refuse admixture. If they contain adobe construction, this is limited to tombs, or is deeply covered. Uhle would certainly call them shell mounds. They do contain enough shell, which the wind tends to expose, to look whitish. All contain burials. Pottery secured from three of the four is of the usual northern type, rather cruder in quality than the average, as would be expected from a fishing population. Each mound is several hundred meters long and tapers off.

CHOTUNA

Huaca Chotuna is perhaps 5 km. north from San José and as far from Lambayeque. It stands in sand among semi-cultivation and comprises one large pyramid and outworks (Plates XVIII, Figs. 2, 3, 4; XXX, Figs. 3, 4). It has been briefly described by Brüning (pp. 17, 27) because it enters into native tradition. The name seems to mean "Chot (or Siot) huaca," *tüne* being Mochica for huaca. Chotuna is a little short of 90 m. along its base and about 15 m. high. Its top, which was a graveyard surrounded by a wall, consisted of three terraces, rising from 1 to 2 m. above each other from east to west. A long, slightly inclined ramp approaches the middle of the west face, then follows this face to the northwest corner, then the north face to the northeast corner. Here it has reached the top, but it continues south as a passageway along half the east edge of the top and then turns west to the middle terrace. The huaca and outer structures are well preserved, except for the top itself, where excavations have given the rains a chance to cut holes that extend deep into the bowels. The one skull seen was long and undeformed. The adobes are good but definitely round-topped (cf. Plate XVIII, Fig. 4). There are small structures north of the ramp, which lack of time prevented me from mapping.

LAMBAYEQUE

South of Lambayeque, just before the town is entered, is a straggling group of walls and small pyramids, badly ruined. I have heard it called Lambayeque Viejo.

At Mocce, pronounced Mokse and said to be a native name, about a kilometer out of Lambayeque north, is a group of three oblong mounds, essentially one-storied, or at least unterraced on the sides. All seem to have contained burials and are badly washed. A bears a small superstructure like Purgatorio I. B has its adobes laid in a whitish mud, so that it looks at first glance like a Colonial structure with lime mortar. The interior of B is only in part of adobes; there is also fill with whitish soil.

VALLEY OF LA LECHE

TÚCUME

A kilometer north of Túcume, on the highway, is the Huaca Pintada, a small, low, earth mound, with opened graves on and about it.

Just east of the edge of Túcume is the Huaca Grande, an enormous, jagged mass, probably 20 m. high, apparently with a ramp first leading from north to south parallel to the pyramid and offset from its eastern face, then west to the center of this face. The pyramid is badly cut to pieces, evidently from treasure hunting followed by rains.

EL PURGATORIO

This great group lies about a kilometer east of the Huaca Grande, across the bed of an arm of the Rio de la Leche. Brüning (p. 29) says, "Túcume pre-hispanico, cuyas ruinas existen, cercando el cerro, conocido ahora con el nombre de 'la Raya,' o de Túcume, o del 'Purgatorio.' Estas ruinas son las mas conspicuas y grandiosas de esta provincia de Lambayeque. Fuera de las ruinas de Chanchan, cerca de Trujillo, no conozco un campo donde se hallen tantas huacas grandes juntas, en la región." The site is about as big as Barranca, and, while smaller than Chanchan, more impressive in the grouping of its pyramids. It is not primarily a city, like these two, but an assemblage of large huacas surrounded by lower terraces and outworks, mostly containing burials, and with some enclosed courts. It is arranged around the northern foot of a rocky hill, but does not mount the sides of this very far.

Most of the pyramids at Purgatorio rise steeply, with narrow terrace ledges or none. Several pyramids (D, F, G of the plan) show horizontal stakes projecting at the terrace levels; in F, five layers of them are visible. Stones seem to have been laid in the terraces with the stakes as a sort of flooring; Huaca F shows red wash stains where the small reddish stones are exposed. The small pyramid superimposed on the southeast part of Huaca I shows a number of courses of broken stone on its broken southern front. The same superstructure also contains some red burned adobes—crude bricks. These may be from a fire, since charcoal is observable in the same area; or this part of I may be of Colonial origin or re-use. The evidence is insufficient to warrant the conjecture that these bricks were deliberately fired in the pre-Hispanic period. Throughout, many of the adobes seem top-rounded.

Ramps appear as follows: on pyramid F, clearly worked, from the north; on G, probable, from the north; apparently on the northwest or highest pyramid superimposed on I, from the east; perhaps on E, from the east; and possibly on others. C, D, F, G, as well as I bear smaller superimposed pyramids. The tops of I and probably others served as cemeteries.

This is a remarkable set of ruins, of which the appended panorama (Plate XX, Fig. 1), views (Plate XX, Figs. 2, 3), and sketch plan (Plate XXXI) give an impression that is necessarily inadequate; but they may help to stimulate a thorough exploration. The structures seem typical of the north Chimú province. A collection of vessels which I obtained at Túcume (Plates XXI, XXII), attributed to the Purgatorio, is characteristic of the pottery of the province.

III. ARTIFACTS

POTTERY

As regards pottery, two new sources of information are available as a result of the 1926 expedition. The first of these is three collections of moderate size, secured complete where they had been assembled, at as many spots in the Department of Lambayeque, that is, in the ancient north Chimu province. The second is the cemetery of Taitacantin in Virú, whose surface débris is essentially non-Chimu, with Epigonal or Middle period affiliations. These new data, combined with those treated in my previous memoir (which in turn embodies the results of analysis of the Uhle collection from Moche), make possible a review of the ceramic problems of the Chimu area more extended than has been possible heretofore. In Table I (p. 96), I have put together certain comparative features of significance.

SELECTION OF PIECES IN COLLECTIONS

The three new north Chimu collections comprise 122 vessels. As always, the factor of selection by the collector must be taken into account. Fortunately, at the fishing village of San José I was able to secure twenty-eight pieces from the households of the persons who had dug them up. These poor people were collecting not as amateurs but in order to sell, or perhaps to pass idle days. Anything that according to their experience might have a possible sale value, was therefore likely to be kept. Cook pots, to be sure, had probably been discarded but almost everything else retained. In short, the lot was a random sample almost to the degree that a scientifically made excavation would yield—and better than some that have passed as such. Another collection, bought in Chiclayo, is probably from several sites in the vicinity, but is definitely mediocre in quality, so that the selection may be assumed to be only one degree more stringent. The third and smallest lot was bought at Túcume as taken from the neighboring Purgatorio, and is the best in quality. Analysis establishes more exactly these judgments of the degree of pre-selection. For instance, stirrup mouths, which are almost always saved or acquired, constitute 7 per cent of the total at San José, 22 at Chiclayo, 36 at Túcume; similarly, bridged forms, 4, 14, 9. On the other hand, unhandled jars run 29, 24, 14. It is evident that the Túcume collector refused to purchase from the *huaqueros* most of the unhandled jars, exceptions being made in favor of effigy pieces, or occasional plain ones when several vessels were bought as a lot in order to acquire one or two attractive ones. Of course, the ancient San José fishermen may have been poorer than the population buried in the Purgatorio, and cognizance must be taken of the variability of small series; but the inference is warranted that the existing

TABLE I
NORTH PERUVIAN POTTERY TRAIT FREQUENCIES
(In Percentages of Total Occurrence)¹

| | NORTH CHIMU | | | | | | | SOUTH CHIMU | | | | | NORTH HIGHLAND | | N. CENTRAL COAST | |
|--|-------------------------|------------------------|--------------------------|------------------------|------------------------|---|--------------------------------|---------------------------------------|--|--|----------------------------------|---|---|--------------------------------------|---|---|
| | Piura (Pea- body) | Tú- cume (Field) | Chic- layo (Field) | San José (Field) | Saña (Pea- body) | Ferre- ñafe- Chic- layo (Daven- port) ² | Cbepe- n (Amer- ican) | Late | | Middle | | Early | North Andean (Tello, San Mar- cos) | Recuay (Ber- lin) ⁴ | Supé, Middle (Uhle, Calif- ornia) | Ancón, Middle I, II (Uhle, Calif- ornia) |
| | | | | | | | | Chan- chan (Field) ³ | Moche B (Uhle, Calif- ornia) | Moche A (Uhle, Calif- ornia) | Taita- canti- n (Field) | Moche E, F (Uhle, Calif- ornia) | | | | |
| Pieces..... | 104 | 22 | 72 | 28 | 57 | 84 | 240 | 130 | 72 | 64 | 65 ⁵ | 594 | 92 | 55 | 298 | 204 |
| Degree of selection..... | 3 | 3 | 2 | 1 | 3 | 3 | 3 | 3 | 0 | 1 | 1 | 0 | 2 ⁶ | 3 | 0 | 0 |
| SHAPE PERCENTAGES | | | | | | | | | | | | | | | | |
| Aryballos..... | 1 | 5 | 3 | 0 | 5 | 2 | 1 | | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cylindrical goblet..... | | 0 | 0 | 0 | 5 | | 1 | 0 | 0 | 11 | 8 | 0 | 0 | 0 | 11 | X |
| Stirrup mouth..... | 29 | 36 | 22 | 7 | 14 | 28 | 26 | 52 | 8 | 0 | 0 | 42 | 3 | 11 | 0 | 0 |
| Monkey, etc..... | 12 | 32 | 17 | 3 | 9 | 14 | 15 | 43 | 8 | | | 0 | | | | |
| Square section..... | 11 | | | 0 | 5 | 12 | 9 | 22 | | | | 0 | | | | |
| Bridged forms, total..... | 8 | 9 | 14 | 4 | | 8 | | 30 | 10 | 0 | 3 | 0.3 | 57 | 7 | 6 | |
| Double spout..... | 1 | 0 | 3 | 0 | 2 | 4 | 3 | 5 | 3 | | 3 | 0 | 0 | | 3 | 1 |
| Double jar..... | 7 | 9 | 11 | 4 | 12 | 5 | 8 | 11 | 6 | | 0 | 0.3 | 3 | 2 | 0 | X |
| Head and spout..... | | 0 | 0 | 0 | | 0 | | 1 | 1 | | 0 | 0 | | | 3 | X |
| Figure and spout..... | | 0 | 0 | 0 | | 0 | | 1 | 0 | | 0 | 0 | | | 3 | X |
| Unhanded jars..... | X | 10 | 18 | 29 | | 28 | X | 7 | 24 | 8 | | 38 | | | X | 25 |
| With lugs..... | | 5 | 13 | 11 | | 2 | X | | 4 | 4 | 16 | | | | X | |
| Handled jars..... | X | 41 | 42 | 43 | | 32 | | | 23 | 4 | | | | | X | X |
| One handle..... | X | 36 | 42 | 39 | | 32 | | | 18 | 4 | | | | | X | X |
| Two handles..... | | 5 | 0 | 4 | | 0 | | | 4 | 0 | | | | | X | X |
| Flat handle..... | X | 27 | 40 | 39 | | (25) | | 10 | 17 | 4 | 6 | 0 | | | X | X |
| Cylindrical handle..... | X | 9 | 2 | 4 | | | | | 6 | 0 | | | | | X | X |
| RFJ type..... | | 5 | 7 | 0 | | 1 | | 1 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| Straight-handled dipper... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 2 | 8 | 5 | 0 | 0 |
| Plain bowls, shallow ⁹ | 0 | 0 | 1 | 0 | | 1 | | | 4 ¹⁰ | 33 | 11 | 0.5 ¹¹ | | | 17 | 14 |
| Tripod bowls..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 17 | 0 | | | 0 | 0 |
| Cooking pots..... | X | 0 | 0 | 0 | | 0 | | | 7 | 6 | | | | | X | X |
| Foot or low pedestal..... | X | 14 | 11 | 4 | | | | | 6 | 19 | | | | | X | |
| Vessel flat in cross section. | | 0 | 22 | 39 | | 13 | X | | 14 | 11 | | | | | X | X |
| Mouth flaring..... | X | 45 | 33 | 57 | | 23 | X | | 36 | 19 | 15 | X | | | X | X |
| Mouth straight (excl. stir- rup m.) | | | 18 | 14 | | 18 | | | 10 | 3 | | X | | | X | X |
| Mouth tapering..... | X | 5 | 3 | 4 | | 8 | X | | 0 | 2 | | X | | | X | X |
| Mouth bearing face..... | | | 14 | 14 | | 4 | | | 6 | 14 | 3 | X | | | X | X |
| ORNAMENT PERCENTAGES | | | | | | | | | | | | | | | | |
| Painted design..... | 19 | 0 | 8 | | 24 | 10 | | 8 | 4 | 39 | 44 | 95 | 89 | 89 | 45 | 33 |
| 4-color..... | | | 0 | | 1 | | | | | 6 ¹² | 0 | 0 | 0 | | 7 ¹² | 6 ¹² |
| 3-color..... | | | 2 | | | | | | | 25 | 16 | 4 | 78 | | 20 | |
| 2-color..... | | | 6 | | | | | | | 8 | 28 | 91 | 11 | | 18 | |
| Monochrome, except black | 44 | 14 | 18 | | 13 | | 2 | 14 | 11 | 31 | 3 | 9 | | | 49 | 58 |
| Blackware..... | 37 | 86 | 74 | | 63 | | 78 | 90 | 82 | 45 | 25 | 3 | 2 | 11 | 6 | 3 |
| Pressed relief..... | | 50 | 24 | | 35 | 24 | | | 52 | 36 | 7 | | | | 47 | X |
| Stippling..... | 11 | 20 | 11 | | 21 | 5 | 14 | | 9 | 11 | 0 | | | | 12 | X |
| Arched panel..... | | 5 | 6 | | | 2 | | | 7 | 8 | | | | | | X |
| Fabric marked..... | 4 | 0 | 0 | | | | | | 4 | 0 | | | | | | |

¹ "x" denotes occurrence. ² Putnam, Proc. Davenport Acad. Sci., XIII, pp. 17-46, Plates XV-XXV, 1914. ³ The Jacobs collection, plus R-W-B Recuoid, described in Part I of this volume. ⁴ Seler, Peruanische Alterthümer, Plates 42-47. ⁵ By design, 65 vessels are represented, but the shape of only 36 can be recognized positively. ⁶ There are several hundred specimens. The data refer to 92 more or less modeled vessels. Plain jars, bowls, etc., have been ignored. The degree of selection is due to myself, not to Dr. Tello's collecting. ⁷ Probably occur, but not always determinable from the illustrations. ⁸ Occur, but were not included among the 92 considered. ⁹ Convex of "cumbrous" type. ¹⁰ Another 4 per cent are of other shapes. ¹¹ Not strictly of "cumbrous" type. ¹² Including 5 and 6-color.

Chiclayo and Túcume collections represent a selection from approximately three and five times as many vessels originally deposited in the tombs.

In my previous report I inferred from a comparison with the unselected Late Chimu Uhle collection from Moche B that the Jacobs collection acquired for Field Museum as a result of my first expedition comprised the cream of a body of material which was from five to ten times as extensive when found. Assuming that the Late south Chimu and the north Chimu ware were the same, we can now specify the selection even more precisely: it was not far from one piece in seven. Thus, stirrup mouths: San José 7 per cent, Uhle 7, Jacobs 52; bridged forms, 4, 5, 30. In short, the verdict of aesthetic quality tallies very closely with that of comparative analysis.

On this account I have indicated in Table I the estimated degree of selection of each lot examined. An 0 indicates no selection; 1, a slight degree, as by non-professional *huaqueros*; 2, moderate selection, as by a novice collector; 3, high degree, as by a gentleman amateur or fancier. The percentages of forms and traits in the important little-selected collections (0 and 1) are therefore printed in black type. It will be seen that the Peabody, American, Davenport, and Berlin museums contain as a rule only definitely "high-graded" material.

NORTH CHIMU STYLE

The first inference derivable from the table is confirmation of the assumption hitherto made by Uhle, Tello, myself, and others that north Chimu ware and Late south Chimu ware are substantially identical. The two wares agree in proportional occurrence of substantially all traits. The presumption therefore would be that the north Chimu ware was also Late in period.¹ The fact that it includes Inca aryballooses confirms this. Then, however, arises the problem what the north Chimu coastland had before this Late style; and to this question there is as yet no indication of answer. I did not see a sherd, nor do I know of a north Chimu vessel in or out of Peru, that is Early Chimu, Middle period-Epigonan, Ecuadorean, Mexican, Chavin, Recuay, or distinctively local in style.² On the face of our present knowledge, pottery begins in north Chimu only a few centuries before Pizarro, and 500, perhaps 1,000, years after adjacent south Chimu was making its finest Early ceramics. This seems incredible; and the

¹ It is possible to conceive the north Chimu style originating in the north under the influence of Early Chimu and more or less contemporary with it; then, after the decay of this, flowing southward while maintaining itself in its homeland; thus it would be Old and Late in the north, only Late in the south. If nothing else than it is ever found in the north province, this hypothesis would be acceptable. While the north remains unexplored for remains of a different character, the theory seems premature. It would also have to be elaborated to account for the presence in the northern style of bridged forms, and the like, of south-central Peruvian origin, and of features such as the flat handle. For a possible pre-Late discovery in north Chimu (at Chongollape, up the Lambayeque) see below, p. 101. Lehmann and Doering (p. 18, Fig. 10) show a (stone?) "relief" from "Lambayeque" whose squarish lines may be due to a stylistic influence earlier than Late Chimu.

² Occasional traits or elements that are Early or Middle in origin, like the quero-shaped goblet and double spout, occur only in their made-over Late Chimu or Inca forms. To date the northernmost provenience of any Middle-period piece is Chicama, still in the south Chimu province (Hrdlicka, Plate 1). The several seeming Early Chimu vessels from Chapén in the American Museum (Kroeber, Moche, Plate 68 a, b) promise to prove either to be Late Chimu in exceptionally good manner or to have a loose attribution.—Dr. E. Reynolds, director of the Peabody Museum, informs me that two jars in that museum (Nos. 87789 and 87893) with black and white checker and red-white-black style patterns respectively, are from Saña valley.—See also p. 106, note 1.

alternative is the prospect that something wholly unknown and quite likely novel awaits the first explorer able to excavate systematically in the department of Lambayeque.

PIURA

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 that has no analogue in the Chimu area proper; handles are solid or twisted as well as flat.¹ Whether Olmos belongs with Piura-La Chira (Amotape) or with Jequetepeque-Lambayeque-Leche, is unknown; the map suggests the former. Tumbes, beyond Piura, is wholly unreported and may contain a further variant. Even a reconnaissance of this most northerly Peruvian lowland would be enlightening.

RELATION OF EARLY AND LATE (NORTH) CHIMU

The relation of Early and north-Late Chimu can also be followed out somewhat more closely than before.

The most original, distinctive, and frequent feature of Early Chimu was the tubular spout and handle: the stirrup mouth and related forms (Kroeber, Moche, p. 201) constitute nearly half the ceramic tomb apparatus (No. 1 of this volume, p. 22). The device remains distinctive of the north-Late phase, but has declined there to perhaps less than a tenth of the total; it comes elaborated, usually with a monkey figure, sometimes with other excrescences; and it may be set crosswise the pot.

About equally frequent in Late Chimu are flat-bridged forms: the double spout, double jar, head and spout, figure and spout (*ibid.*, p. 25, Fig. 2). Of these, only the double jar is Early, is quite rare then (perhaps 1 to 100 stirrups), and has the bridge oval in cross section, the spout tubular instead of tapering. The double spout has an ancient history in the far south (Nazca) and, along with the head and spout, occurs in Middle period Tiahuanacoid wares all the way from Nazca to Supe. The partial replacement of Early Chimu tube and stirrup by Late spout and bridge is therefore to be attributed mainly to foreign influence.

In the same way the combination of small figure and spout is certainly North Andean and may be old in that region. It also is Late but not Early Chimu.

Another partial replacement in Late Chimu was of the unhandled jar by the handled one, the handle being flat. The handled jar did not become as frequent as the plain one, but it constituted perhaps a third or fourth of the total, as against none in Early times; and Late jars are much more varied in shape. The Early ones may come as men or frogs or plain, round or flattish; the fundamental contour does not vary much. The Late are all these, plus animal heads, or animal bodies with upturned mouths, scallops or loops on the edges, lugs as a cross between handle and none; besides which there are aryballos jars, face jars, rotund face jars, many of these of highland or central Peruvian affiliations, or direct copies.

¹ Kroeber, Moche, Plate 69. Fig. *m* looks as if it might be Colonial; *e* is reminiscent of this volume, Plate XIII, Fig. 1 (Chimbote, red-white-black style) in shape and perhaps design.

A few early forms have gone out in north-Late Chimu: the recurved dipper, the high concavely flaring bowl—the first surely, the second possibly, with early northern highland analogues, Tello's North Andean Archaic. Gone, too, is the occasional influence of Chavin (North Andean) design, which is traceable in about 1 per cent of Early Chimu ware; and the sporadic incising more or less associated with it.

The most conspicuous change is in color: blackware has risen from 3 to 75 or 80 out of 100 occurrences. Design in pressed or moulded relief has also become much more frequent, climbing from 7 to 40 per cent. Painted design to re-enforce the modeling, or for its own sake, on the other hand has fallen from about 95 to perhaps 5 per cent. In all these points, the change is one of reversal of frequency, not of a wholly new or wholly abandoned manner. Blackware and pressed relief, however, are frequent in both north and central Peruvian ware attributed to Middle periods intervening between Early and Late Chimu (Taitacantin described below, Uhle Moche A, Supe, Ancon); and their extremely high prevalence in Late Chimu is likely to be due to central Peruvian stimuli reaching Chimuland in Middle time—probably via the highland, for reasons discussed below.

Early Chimu, in short, for all the free plasticity of its modeling and vigor of design, limited itself to but few fundamental shapes, just as it refrained from color variety, value contrast being the chief purpose of its pigment. Relief, incising, blackware occur sparingly. Except for a few traits which connect it with the northern interior, it is stylistically self-dependent, and original so far as we know. It is imaginatively rich within chaste limits.

Late-north Chimu, on the other hand, is a composite of traits whose earlier occurrence can be traced somewhere else in almost all cases. It has accepted the stirrup mouth but rejected the dipper of Early Chimu; taken over the Tiahuanacoid double spout but nearly given up the cylindrical goblet; assimilated the Inca aryballos but not the Inca stemmed goblet. It is not only literally but discriminatingly eclectic. It has lost the old feeling for vigor of form, but treats its originally heterogeneous materials with uniform, shallow elegance.

MIDDLE PERIOD STYLES

The break between Early and Late Chimu is filled by an irruption of non-Chimu stylistic strains, first known from Uhle's patient recoveries from Moche site A. These, as I have shown, link at many points with Middle (or Tiahuanacoid) Supe ware, which in turn is close to the Uhle-Strong Middle or Tiahuanacoid Ancon pottery (Kroeber, Supe, p. 243). Uhle's division of his Moche A materials into Tiahuanaco, post-Tiahuanaco, and non-Tiahuanaco, which I followed in my Moche paper, is no doubt stylistically valid, but the three strains appear to have been associated in the ground and in time. The same is true of a fourth strain which I separated out, that of tripod bowls with Cursively painted geometric designs.¹ When all this material is reassembled, there are at least 64 different vessels, mostly represented by fragments only, from Moche A. These include no stirrup mouths nor bridged shapes, but 11 per cent of cylindrical goblets,² 14 of tripod bowls, 33 of other shallow bowls (mostly with foot), 45 of

¹ Kroeber, Moche, p. 212, Plate 63f-p; No. 1 of this volume, p. 31, Plates V and XII.

² Quero-shaped, cylindrical or slightly tapering cone frustums.

blackware, 52 of pressed relief on red or blackware, 34 of painted design—as per Table I. It is clear that we have here a style wholly lacking some of the salient Chimú characteristics, both Early and Late, and on the other hand containing elements occurring (in pre-Inca times) as far away as Ecuador and Bolivia, and reappearing for the most part, and in much the same frequencies, more than 300 km. to the south at Supe. We can then safely interpret this assemblage of strains as of Middle Period. Nothing typically Old Chimú has gone into this Middle style.¹ Some of the Middle style traits which Late Chimú took over (for instance, the flat handle) or carried farther (blackware) have already been mentioned.

TAITACANTIN

The Moche A material is confirmed and its significance extended by the remains of Taitacantin or Taitacaltin in Virú. This cemetery is described in the list of sites. I came upon it on the afternoon of the last day I was able to spend in the field before leaving Peru. It was only possible therefore to gather such fragments as littered the surface as débris from the work of local *huaqueros*. It was at once evident that here in the heart of Chimuland was an extensive cemetery, only partly pillaged, without any typical Chimú ware, either Early or Late; that the pottery was prevailing of Middle period style; and that with it was associated the red-white-black Geometric style. I gathered as much as I could carry away that seemed novel or significant: it was impossible to attempt to take a random sample of the débris without leaving behind too many distinctive pieces. In all, the fragments saved represent about sixty-five different pottery vessels judged by color or painted design (since some of the fragments are small, the total of determined shapes is only thirty-six); and while, under the enforced selection, proportions may not be rated heavily, they tell their story. The shapes and traits found are the following:

No stirrup mouths.

One spout, probably of a double spout, certainly of a bridged form.

Six tripod bowls, both painted and blackware (Plate XXIII, Figs. 5, 6).

Four other shallow bowls, three of them with pedestal-like foot.

One bowl, sides concave in profile (Plate XXV, Fig. 7).

Three cylindrical cups, low forms, such as occur at Supe (Kroeber, Supe, Plate 63*b-d*) and elsewhere (Strong, Ancon, Plate 44*n-q*; Kroeber, Chancay, Plate 83*g, 84f*; probably also Kroeber, Moche, Plate 66*f*) along with the tall cylindrical quero-shaped goblets (Plate XXIV, Fig. 3).

Eight globular pots with low flaring lip (Plate XXIV, Fig. 4).

Two flat-handled jars (Plate XXIV, Fig. 2). Six vessels have lug handles, and four, lugs (Plate XXIV, Fig. 1).

Two small human faces and one cat-head from vessel mouths (Plate XXVI; cf. Kroeber, Moche, Plate 66*d, e*).

Ten flaring jar mouths, among thirteen jars (Plates XXIII, Fig. 1; XXIV, Figs. 1, 2, 5).

¹ Blackware, pressed relief, the bridge do occur in Early Chimú but are relatively rare, and their much higher frequencies in Middle period ware are thus likely to be due to non-Chimú influences.

A total of seventeen blackware fragments of vessels of various shapes. Some of these were molded into relief (Plate XXVI, Fig. 2); others, smooth like much Late Chimu ware (Plate XXIV, Fig. 2).

Fragments of twenty redware vessels. These were also both plain (Plate XXV, Fig. 6) and molded (Plates XXIV, Fig. 4; XXV, Figs. 1, 2, 3).

Twenty-two of the black and redware pieces bore molded (pressed) relief; seven of these were stippled in "gooseflesh" (Plates XXIV, Fig. 4; XXV, Fig. 2).

Twenty-eight pieces of painted ware. Of these, ten were in three colors, mostly in red-white-black Geometric style (Plates XXIII, Figs. 2, 4; XXIV, Figs. 3, 6). The remaining eighteen were two-color. Of these, eleven were white and red, two having the white painted on the red. Three were black and white (Plates XXIII, Figs. 1, 5; XXIV, Fig. 5), two of these showing checker patterns on jar necks such as Tello found characteristic of the ware of Huarney (south of Chimbote and Casma, north of Supe; pieces on exhibition in the Museum of the University of San Carlos in Lima). Two pieces were red on red; and two, blackish on red (Plate XXIII, Fig. 6).

No pieces were painted in the pure Cursive style of small design elements.

One shallow bowl bears an actual basket impression. A similar piece has been reported from Middle Supe (Kroeber, Supe, Plate 76*m*).

Two of the shallow bowls bear incised property marks or owner's "signatures," one under its foot, the other (footless) on the inside (Plate XXV, Fig. 5). Similar marks occur on pieces found by Uhle at Moche A (Kroeber, Moche, p. 209, Plate 64*k*).

There is not a single piece as definitely Tiahuanaco-like as the cylindrical goblets found by Uhle at Moche A or at Supe (Kroeber, Moche, Plate 63*b*; Supe, Plates 73, 77). This is in accord with the fact that none of the Taitacantin painted ware shows more than three colors, whereas the Moche and Supe pieces run to five and six.

The absence of Cursive design is made up for by the presence of red-white-black design on tripod bowls. Uhle's red-white-black from Moche C (Kroeber, Moche, Plate 62*a-d*) is more Cursive than the usual red-white-black from farther south in Peru. There are now on record from the Chimu area tripod bowls in the following styles of design: Cursive, Moche A; red-white-black, Taitacantin; Epigonal or Epigonaloid, sometimes with grinning mouth in a face, Virú or Chicama (Peabody Museum, Farabee collection; Kroeber, Moche, Plate 69*a, b*); Chicama, probably Chiquitoy (Hrdlicka, Plate I); vicinity of Trujillo (No. 1 of this volume, Plates V, Fig. 5; XI, Fig. 4); blackware, Taitacantin.

On the whole, the frequencies of stylistic traits are closely similar in the two lots from Moche A and Taitacantin; as is evident from Table I.

The net result is that the Tripod style, the Tiahuanacoid-Epigonal style, pressed blackware and redware, the double spout, and now the red-white-black Geometric style, are all found associated at Taitacantin. In other words, they are not styles separate in time; but strains of diverse origin came to coexist in the ware of one period. That this period was Middle with reference to Early and Late Chimu is clear from Uhle's finding one of its elements—red-white-black ware—stratigraphically under Late Chimu at Moche C; from the fact that Middle pottery contains in fairly high frequency traits such as blackware, pressed relief, bridging, which occur, though rarely, in Early Chimu, whereas this contains nothing that can be set down as characteristic of the Middle style; and, corroboratively, from the fact that Middle style traits such as those mentioned, and others such as the flat handle and relief stippling, appear, usually with increased frequency, in Late Chimu.

HIGHLAND RELATIONS OF MIDDLE PERIOD STYLES

Another inference is that the Middle style is in the main as foreign to the Chimu country in origin as the Early Chimu is particular to part of it and Late Chimu characteristic of all of it. Middle can not be anything but a highland style. Epigonal has highland affiliations wherever it occurs in Peru; and the Ecuadorean and Bolivian strains are from the highlands of those countries. This Middle period manner seems to have come down into the south Chimu valleys as something of an irruption. Had it filtered in, it would have mingled with what it found, just as itself was composite. But it discarded completely all the most characteristic elements of Early Chimu: the stirrup mouth, the free modeling, the handle dipper, the dominant balance of red and white. The Chimu style as such was blotted out—blotted out by one both less pure in origin and less fine aesthetically.

HISTORICAL INFERENCES

It is hard to imagine this blotting out to have happened without the older culture having been ruined by civil war or conquest or both. Yet it is significant that no monument of consequence is known to be associated with the Middle style. Taitacantin is a structureless cemetery. At Moche the highlanders buried in the platforms of the Huaca del Sol which they found ready-made and which seems never to have been re-used. The Late Chimu remains from Moche are from sites B, C, D in the plain about the Early Chimu Sun pyramid, and there is no indication that the occupants of these settlements used the Sun and Moon pyramids and platforms, at least not for burials.

But a highly defined culture is usually difficult to obliterate completely, even by violent destructiveness; and so in time much of the Old Chimu style raised its head again: the stirrup mouth and the plastic interest reappeared as Late Chimu; but blended with the bridged and handled shapes, the blackware and the frequent pressed relief, left over from the Middle style. Just how the threads were continued is far from clear. The sequence, and perhaps the process, are likely to have been similar to those which caused Greek art to revive with underlying similarity to Mycenaean after the geometric Dipylon interregnum.

One other inference is suggested. Early Chimu contains a definite element connected with Chavin sculpture of the M type; the Middle style does not. It seems possible that this Maya-like or pseudo-Maya culture of Chavin was broken by the same influences that put an end to Early Chimu.

If then these two old cultures of coast and interior, Early Chimu and Chavin, incomparably the finest in their aesthetic productions in northern Peru, went down before a culture whose cruder art contains elements traceable as far as Ecuador and Bolivia and which is comparatively uniform to as far south as Ica and Nazca (Kroeber and Strong, Ica, Plate 30; Gayton and Kroeber, Nazca, Plates 13, 14, 16, 19), there seems reason to believe that some strong ethnic force, perhaps even a unified political organization, underlay so powerful a movement.

One can think of an Aymará or, if one like, a proto-Quechua expansion; of an empire centered at Tiahuanaco, where the most nearly classic if uncouth remains in this Middle highland culture have been found; of reconciliation with the legendary history of Montesinos. Such identifications are beyond our present task; but the archaeology of north Peruvian pottery points to something of the sort.

As against all these events in south Chimuland, the north Chimu province as yet shows neither the early native flourishing nor its thrusting aside by ruder mountaineers. Possibly the evidence for the counterpart of the story lies in the soil; perhaps it never happened, there being nothing much for the highlanders to conquer; or, coming from the south, they stopped their career with the Early Chimu confines.

CURSIVE MODELED AND RECUOID STRAINS

We have now accounted temporally for all the ceramic strains previously recognized in the Chimu area except two, the Cursive Modeled and the red-white-black Recuoid (No. 1 of this volume, pp. 32, 34, Plates III-V, XI). Both are represented by a mere handful of extant pieces; consist of bridged and whistling vessels only (though without double spouts); and are wholly without burial data or even exact proveniences. The two strains differ in that the former is a fine ware somewhat better modeled, and its buff surfaces are painted with Cursive geometric decoration in thin black and some red; the latter is smeared with dirty white, vermilion, and sooty black, even over its figures. With the paint removed, the two strains could sometimes hardly be told apart, in their shapes and motivation of modeling, except for the somewhat better texture and care of the former and its somewhat greater ambition of form. I have previously assigned the Cursive style to Middle period on account of generic resemblance of its painting to that of the Cursive tripods; the red-white-black to Late period. To these judgments I still incline. In Table I, I have therefore included the Recuoid specimens secured for Field Museum in the Jacobs collection with the Late Chimu totals. If they should prove not to belong, the entries in the Jacobs column of the table are easily corrected by subtraction of the pieces described on pp. 34-36 of this volume. The Cursive Modeled pieces do not appear in Table I, their number, seven, being too small for separate presentation.

HIGHLAND, RECUAY, AND CHIMBOTE

There is one other consideration to be made of the Cursive Modeled ware: its relation to northern highland and classic Recuay (Tello's North Andean) pottery from the Callejón de Huaylas and vicinity. The classic Recuay (A) ware is marked by several features: linear painting, in general inclining to rounded right angles, often negative (the design in the lighter buff ground color); subjects of the painting often representative of branching-plumed or horned cat-like animals, strongly conventionalized and supplemented by decorative design in the same manner; jar forms prevalent, with few stirrups; short

horizontal spouts or projecting orifices; jar mouths frequently bearing a lip enlarged to a great horizontal disk; modeling, on the jar tops, always in small figures, mostly human, and generally several in number. Some of these traits are wholly lacking in Cursive Modeled and in all north coast styles or strains. But others have analogues in Cursive Modeled. Such are: the inclination to negative design, or indifference between positive and negative, at least in certain areas (*ibid.*, Plate XI, Figs. 1-3*b*, especially Fig. 3); and the smallness and grouping of the modeled figures.

With extension beyond the classic Recuay A, there are other resemblances. Tello's North Andean collection in Lima comprises many vessels, mostly of crude execution, bearing a figure, tubular spout, and bridge. The latter is usually so abnormally short as to serve no real structural function; the figure and spout could as well have been united directly. The bridge is therefore obviously an ingrained stylistic device. Further, there are bowls with a design of the general type shown by the Cursive Modeled rosette illustrated in my former report (Plates IV, Fig. 3; XI, Fig. 4). Until Tello publishes a fuller selection of pieces from his North Andean collection and presents his evidence, whether typological or associational, for its division into an archaic and full-fledged stratum, it will however be difficult to relate this important pottery to the various coast wares. I have previously pointed out (*ibid.*, p. 23) features such as blackware, figure-modeling, handled dippers, quasi-double-jars, which Early Chimú has in common with this North Andean ware and which it might justly be considered as having taken over from it, if we possessed more basis for temporal placing of North Andean or its several strata. The indubitable resemblances of occasional Early Chimú design motives to the motives of Chavín M sculptures are another matter. These motives have not been found in North Andean pottery, except in stylistically much altered form. Tello in Wira-Kocha shows that some of this highland pottery bears designs whose *subject* can be analyzed as the same as that of highland sculptures; but the *treatment* is different, whereas even the treatment is closely similar in the sporadic Early Chimú Chavín style vessels and the Chavín sculptures. Above all, it must be remembered that we know almost no pottery from Chavín itself.

However, this much is clear: small modeled figures, singly or in groups, mostly of human beings, often crudely modeled but still representative in intent, occur in the following pottery styles or strains of northern Peru: Early Chimú, except the Uhle collection; Late Chimú; Cursive Modeled; red-white-black Recuoid; Recuay; and North Andean generally. These occurrences must be historically connected. A significant fact, however, is that the Uhle Early Chimú collection from Moche, among 600 vessels including 200 with figure representations, does not contain even one example of small modeling or grouping. This may be an accident of numbers (Kroeber, Moche, p. 223); but in view of the fair frequency of pieces of this type in Baessler and in the collections of the American Museum and other large institutions, the probability of such an accident seems rather low. When I formerly tried to set off a hypothetical

"Middle Chimu" style from Early Chimu (*ibid.*, pp. 221-224), it was, as I did not at the time so clearly realize, largely on the basis of presence of small or group modeling. The principal criteria of this hypothetical "Middle Chimu" style are genre scenes of two or more figures, engaged in audience, ritual, fishing, etc.; or houses, thrones, boats, mountains, occupied by such figures (*ibid.*, p. 222). Now these are precisely the sort of subjects portrayed again and again in the several styles mentioned. For instance:

Early or "Middle Chimu" (probably Chimbote variant of Early Chimu—see below): Vessels shown by Baessler and others, cited in Kroeber, Moche, p. 222.

Late Chimu: No. 1 of this volume, Plates VI, Figs. 6, 7; VII, Fig. 1; VIII, Figs. 2, 3; IX, Figs. 2, 7; X, Fig. 1; Seler, *Alterthümer*, Plate XXIII, Figs. 9, 13, etc.

Cursive Modeled: This volume, Plates III, IV.

Red-white-black Recuoid: *Ibid.*, Plate V, Figs. 1-4.

Recuay A: Seler, Plates 42-47.

North Andean: Tello, *Introducción*, Plate V; and other specimens at the University of San Marcos.

Apparently we may conclude from this either that there was a "Middle Chimu" style more nearly similar than Early Chimu to Late Chimu and highland styles; or that there was no "Middle Chimu," what I so analyzed out being only a strain of Early Chimu unrepresented in the Uhle Moche collection which to date remains our touchstone. In the latter event, the absence of genre or scene modeling from this type collection might be due to accident, or to its representing only one of several Early Chimu sub-periods or sub-areas. The last seems most likely; and the sub-area within Early Chimu indicated as the home of small-figure modeling appears to be the vicinity of Chimbote, that is, the mouth of the Santa. Most of Baessler's genre pieces which I credited to the hypothetical "Middle Chimu" are in fact attributed to Chimbote.¹ In general, the Chimbote collection of the American Museum fits. Montell has recently taken a separate Chimbote variety of (Early) Chimu as self-evident.²

Since Chimbote is at the mouth of the Santa and Recuay is at its head, the common trait of small-figure modeling is easy to interpret as the result of neighborly influencing. Moche, being farther away, would on this view not have been reached by the same influence. A new difficulty however arises: Chavin being but a short distance inland from Recuay, its typical incised or modeled style ought also to be found at Chimbote, whereas, so far as known, Chavin style influences appear on the coast only at Moche and Chicama, not at Chimbote. True, Chavin is probably older than Recuay; but if so, Moche-Chicama would also be older than Chimbote, and the latter sub-style would become "post-Early" or "Middle," differing from Moche-Chicama (classic Early Chimu) temporally as well as locally. Evidently, the difficulty cannot yet be solved.

¹ There are exceptions, but the locality attributions of these early collections are notoriously independent in detail.

² Dress and Ornament in Ancient Peru, 1929: "Culture of the Chicama Pottery," pp. 30-95; "Culture of the Chimbote Ceramics," pp. 95-99. He does not mention small-figure modeling, but makes the Chimbote variety coarser, thicker, with attenuated slip and sketchier painting.

No large unit collection from a single Chimbote site has been scientifically excavated and described or analyzed; nor from Recuay nor Chavin. When such material becomes accessible, the problem will probably clear up of itself.¹

In order to bring into sharper definition the Recuay A style, I add Table II, which lists (in absolute numbers) the frequency of certain stylistic traits among the 55 Recuay vessels in Berlin figured by Seler, and among 92 modeled vessels collected by Tello in and near the Callejón de Huaylas, at the head of which Recuay stands. These are mainly unpublished (a small selection appears in Tello, *Introducción; Wira-Kocha, Inca, I; and Antiguo Perú, Figs. 47-57*), but are on exhibit at the University of San Marcos in Lima. Several hundred vessels without modeling are not considered here, since they would obscure the relation to the Recuay collection in Berlin, which consists largely of modeled pieces. Tello's division of his collection into archaic and later North Andean is disregarded for present purposes, because neither his attributions nor the evidences for them have been defined.

TABLE II
TRAITS OF RECUAY-CALLEJÓN POTTERY
(Absolute Frequencies)

| | Lima, 92 Modeled ² | Seler, 55 Vessels ³ |
|--|----------------------------------|-----------------------------------|
| COLOR | | |
| 4 color | 0 | ? |
| 3 color (R, W, B) ⁴ | 72 | ? |
| 2 color (R, W), sometimes with Chimu traits | 10 | ? |
| 1 color (buff, gray, red) | 8 | 6 |
| 1 color (blackware) | 2 | 6 |
| SHAPE | | |
| Man jar | 5 | 10 |
| Person or head with bridge and spout | 28 | ? |
| Bird and bridge and spout | 8 | ? |
| Animal and bridge and spout | 13 | ? |
| Total with bridge (often very short, sometimes broken) | 52 ± | ? |
| Larger person with several smaller | 11 | 9 |
| Person or head flanked by two cats or condors | 9 | 8 |
| Double jars | 3 | 1 |
| Stirrup mouth: ordinary (bifid) | 0 | 5 |
| trifid | 2 | 1 |
| over ring body | 1 | 2 |
| over head or animal | 0 | 4 |
| total | 2 | 6 |
| Ring body | 5 | 2 (3?) |
| Roof or house represented | 3 | 4 |
| Horizontal spoutlet | 34 | 23 |

¹ Since this section was written, Tello has published his *Antiguo Perú, Primera Época, 1929*, in which he refers briefly to Chongollape (at the head of irrigation of the Lambayeque-Chancay) as one of the sites of the First, Archaic, Megalithic, or Chavin-Paracas culture of Peru (Plate II, pp. 25, III, 155). However, the only illustrations from Chongollape (Figs. 107-110) are of gold objects, and two black pottery vessels "typical of the Chavin culture" are not illustrated nor further described. The Chongollape discovery was accidental and by laymen. While evidently of great importance, it therefore does not clear up the difficulties here discussed.

² See Table I, note 7.

³ *Peruanische Alterthümer*, plates 42-47.

⁴ Red, white, and black are only approximate terms.

TABLE II—Continued

| | Lima, 92 Modeled | Seler, 55 Vessels |
|--|---------------------|----------------------|
| Vessel mouth flaring slightly or greatly..... | all | 28± |
| with disk..... | 6 | 6 |
| tapering (Seler, 47:1)..... | 0 | 1 |
| Handled dipper..... | ? ¹ | 3 |
| DESIGN | | |
| Monster with plume..... | ? ¹ | 11 |
| Double-ended serpent..... | 2 | 3 |
| Triangular serpent (?) head..... | 4 | 4 |
| "Grinning" human head..... | ? ¹ | 1 |
| Trapezoidal human head..... | ? | 2 |
| Interlocking (complementary) fish, serpents, or heads..... | 0 | 0 |
| Fret..... | 1 | 0 |
| Fret step..... | 6 | 8 |
| Fret maeander..... | 1 | 2 |
| Maeander..... | 2 | 0 |
| Checker..... | 1 | 1 |
| Cross hatching..... | 3 | 4 |
| Rows of rhomboids..... | ? | 2 |
| Rows of white dots or circles..... | 8 | 1± |
| S-scrolls, with or without dots..... | 2 | 1 |
| Design negative (light on dark)..... | 27 | 22 |
| positive..... | 12 | 6 |
| incised..... | ? | 1 |

¹ Occur.

TEXTILES

No fabrics of consequence were secured for Field Museum in northern Peru. They occur, but less frequently than in central and southern Peru, preservation conditions being less favorable.

No textile positively assignable to Early Chimú era is known. They may be expected to have been preserved now and then, but rather rarely. Uhle found none in his series of more than thirty Early tombs at Moche. Even a small collection of fabric fragments of indubitable Early Chimú age would accordingly have historical importance.

For the Middle period there is available a small lot assembled by Uhle from among the débris on platform A of the Moche Sun pyramid. This is being described in a monograph on Peruvian textiles by L. M. O'Neale, some of the general results of which have appeared in a preliminary paper by her and the present author (Un. Calif. Publ. in A. A. E., Vol. XXVIII, 1930). Techniques and designs correspond fairly well with Middle period or Epigonal specimens from the central-southern coast. Close-woven tapestries are represented and several of the designs are definitely Tiahuanacoid.

Late Chimú textiles of exact provenience are represented by two series: a smaller one from a minor excavation made by Uhle in Chanchan, and a somewhat larger one secured by him on the summit of Cerro Blanco, site H at Moche. In this, pottery was represented only by fragments, of both Early and Late

Chimu type. Wooden carvings in good condition were, however, recovered from site H, indicating no great age for most of its remains; and Dr. Uhle in a personal communication, while admitting the evidence to be inconclusive, inclines to consider the remains Late Chimu. The fabrics are of the same general character as those from Chanchan. Certain special traits of these Late Chimu fabrics will be brought out in Dr. O'Neale's further intensive studies. In general, the two Late Chimu lots of textiles are characterized by the following features:

1. Less frequent use of wool weft, and of true tapestry weave, than in Middle period webs from Moche or in Tiahuanacoid-Epigonal ones from Ica and Nazca.

2. A higher frequency of all-cotton fabrics, especially of the more elaborate kinds, and of patterns, particularly geometric ones, adapted to fine cotton-weaving techniques.

3. A considerable resemblance to Late Chincha fabrics, which also tend to specialize in fine cotton productions.

4. Little specific Inca influence in patterns, especially as compared with fabrics from Late sites at Nazca, such as Poroma. The suggestion is that Cuzco influence was strong where the local coast cultures had become feeble or decadent, but left much less impress where these were flourishing.

The Late Chimu textile art, in short, was a vigorous one. It was undergoing its own development on a basis of skilful utilization of the potentialities of the local fiber, cotton; had fairly freed itself from earlier dominance by techniques and designs associated with the highland staple material, wool; and, on account of its healthy condition, showed little tendency to come under the influence of Cuzco. The same seems to have been the course of events at Chincha, a far southern coast center that was also thriving just before and after the Inca conquest.

There is need of an intensive examination of larger series of Late Chimu textiles of known provenience in order to validate or correct the above preliminary conclusions; particularly as regards the northern sub-area, which is unrepresented in the material studied. Even actually undatable collections would be of value in this connection, since it is probable that at least nine-tenths of all preserved north Peruvian material is Late Chimu.

CONCLUSIONS

What is known of the history of culture on the north Peruvian coast summarizes as follows.

Early Times.—As elsewhere in Peru, no trace has yet been discovered of beginnings. The first archaeological evidences are from a developed culture of well-specialized type, the Early Chimu. This is already typically Peruvian in general character, and any attempt to connect it with Ecuador, Central America, or Mexico can be valid only in so far as it also takes account of relations between other parts of Peru and those countries. The Early Chimu culture was sharply

localized in the valleys from the Santa to the Chicama, and no indications have yet come to light of its having existed, even in derivative or diminished form, on the coast to the north or south or in its mountain hinterland.

This culture built in well-squared, large, flat, sun-dried bricks laid in mud mortar. It reared terraced, small-topped pyramids higher than any erected elsewhere in Peru. These were sometimes approached by ramps. It built also some great platforms and thick-walled buildings divided into chambers, but nothing that can be construed as a palace cluster or called a town. Dwellings evidently were mainly of impermanent materials. The dead were put away in rectangular tombs, apparently in a variety of positions, including the extended one. Skulls were fronto-occipitally flattened, but not always so; the undeformed ones seem to have been longish. Gold, copper, alloys of these, perhaps silver, were melted and cast; tin and bronze were unknown. No textiles surely of this period seem to be known, but that they were woven is clear from vase-paintings of women at looms of characteristic Peruvian type. Vase paintings are vigorous, rapid, effective, and normally portray action. Similar paintings, much larger and in several colors, were executed as wall decorations. The pottery is a fine, skilled ware, notable for the strict limitation of its fundamental forms, combined with an almost pure-art freedom of realistic representation in painting and especially in modeling. In quality of free plastic and delineative achievement this art is the highest attained by any South American culture or people. Coloring of the ware was limited to red and white with some supplementary black; but smoked blackware of high quality was occasionally made, and relief modeling occurs alongside three-dimensional modeling and painting.

A small proportion of Early Chimu vessels depart from the normal in showing designs, usually incised, in the style of the stone sculptures of Chavin, which lies in the northern interior highland somewhat south of the Early Chimu area. This influence suggests the Chavin culture as earlier, though the interval cannot have been great and may have been absent, since the spirit of the Chavin manner is well-preserved when it occurs in Chimu pottery. A few pottery shapes, especially a recurved dipper, and the habit of modeling figures on the tops of vessels, connect Early Chimu pottery with that of the vicinity of the upper Santa, both of the style of Recuay and a cruder one. As the age of these styles is not positively ascertained, it cannot yet be said whether Chimu influenced or was influenced by them. There are no specific resemblances to the early culture of Nazca, which was without real pyramids, used irregular, rounded, handmade adobes, apparently lacked copper and metal casting, and had developed a distinctive semi-realistic polychrome style of both pottery and textile decoration which avoided plastic representation. The similarities between these two cultures are generic Peruvian; the connections indirect. Thus both had developed the tube as an accessory of pottery shapes, especially in connection with a sort of handle. At Nazca, however, two straight tubes were used, connected by a solid bridge (double spout); among the Early Chimu, the bent tube itself formed the handle as well as the single vent (stirrup mouth). The devices are similar

enough to make it seem highly probable that they are related in origin due to a common, as yet unknown, stimulus. But it would be arbitrary to derive one from the other, since each comes pure within its culture and there are no transitions. This case is typical of Early Nazca-Early Chimu relations.

Politically, there is nothing to show that there was a unified Early Chimu realm. Important pyramids occur throughout the area. Moche may have had some wider fame as a ritual site, but it surpasses others so little that it can hardly be construed as dominating the religion of the entire culture. Representations of warriors, weapons, and battles are numerous, indicating that fighting was frequent and usually with similarly equipped foes. The suggestion is of local wars between communities within the same culture.

There is nothing to fix the absolute era of Early Chimu culture. It cannot even be placed with precision relatively to other early Peruvian cultures. It and Nazca are both pre-Tiahuanaco; but of course this does not argue necessary contemporaneity. Its nearer approach to late Peruvian standards in pyramid building, adobe squaring, and metal working, suggests Early Chimu as somewhat later than Nazca; but this is far from proof. The specific resemblances noted to Chavin and Recuay do not help because the chronological place of these cultures, even in a relative scheme, is still undetermined.

I have previously designated as Middle Chimu a variant sub-style of Early Chimu pottery, characterized by a predilection for small modeled figures usually grouped in genre situations. This sub-style is not represented in the collections from the Moche type-station. On the other hand, the grouping of small figures recurs in the interior in pottery from the region of Recuay and the upper Santa. It is, therefore, not unlikely that this Chimu sub-style will prove representative of a Chimu sub-area, such as the southerly district of Chimbote and the lower Santa, rather than of a sub-period; though the latter possibility is not precluded.

Middle Times.—The Middle or Tiahuanaco period in the Chimu area represents a break with the old Chimu tradition. Its remains have so far been found only as far north on the coast as the remains of the Early Chimu culture, namely, to Chicama. These remains appear to be represented at relatively few sites, and to be unaccompanied by any notable structures. At Moche, for instance, they have been found only in tombs sunk in platforms halfway up the Sun pyramid; at Taitacantin, in a cemetery in an open field. It is chiefly the pottery which is known, and that from fragments. This ware shows not one of the characteristic features of Early Chimu pottery. It is an agglomeration of vessels strongly or faintly reminiscent of Tiahuanaco: of cylindrical goblets painted in four or five colors, for instance; of tripod bowls suggestive of Ecuador rather than Peru; of Cursively or Geometrically painted red, white and black designs; of abundant blackware, smooth or with impressed designs; of small, conventionally modeled single figures on jars; of flat handles and double spouted vessels. The totality of this essentially heterogeneous ware is fairly close to that of the Middle period at Supe and Ancon on the central coast. There can be little doubt that the bulk of the stylistic elements is of highland rather than

coastal origin, but highland from Ecuador to Bolivia rather than of one Peruvian district; the classic Tiahuanaco manner is represented only in a small minority of pieces. So far as elements of supposedly coastal origin appear, like the double spout, it is in a form different from that of their earliest coastal occurrence—flaring and tapering instead of parallel and cylindrical, in this case.

Only a few specimens of cloth are known, but these agree in designs and techniques with textiles of Middle period elsewhere.

There can be little doubt that the Middle period styles represent an irruption of culture and perhaps peoples from the highland into the Chimu coastland. That this invading culture was in some way the product of active populational movements, perhaps of great conquests, is indicated by the variety and broad geographical extent of the elements that were taken up into its pottery, and by the reappearance of many of the elements on the central Peruvian coast and of some as far south as Nazca. The classic style of Tiahuanaco is one local phase of the style or styles resulting from the stirrings, movements, and upheavals of this era. It is by no means necessary to assume Tiahuanaco as the capital of a great empire. But it is difficult to interpret the known archaeological facts without assuming a relatively uniform and composite culture where only provincial diversity and purity had existed before; and this suggests at least a widespread series of conquests, perhaps a single rule, analogous to that of the Incas, though long before them.

The relative scarcity of Middle era culture remains in the northern coastland is rather sure evidence that this culture was not very long dominant there. But it did prevail sufficiently long, or enter destructively enough, to wreck the old native culture in its nobler aspects, such as its aesthetic flowering. The high quality of Early Chimu modeling and painting, and with it probably many another cultural fineness, vanished.

Late Times.—But the fundamentals, the solid attainments of culture, were not impaired, and re-emerged, with considerable increments, as the Late Chimu civilization, which was once more an essentially coastal one. It was, however, no longer narrowly provincial, but extended far to the north of the old Chimu domain, virtually unchanged at least to the valley of the Leche, in not more than minor modification to Piura, perhaps to Tumbes. Strangely enough, this most northerly coast area has as yet yielded nothing else than Late Chimu remains. It might, therefore, be inferred that this culture was ancient here and had spread to the south Chimu sub-area only after the wrecking of the early local prosperity of this and the withdrawal or subsidence of the wrecking influences. At some points this conclusion may ultimately prove true. It cannot hold for the whole content of Late Chimu culture, because this contains too many elements taken over from the preceding, foreign, Middle era culture: the double spout in pottery, for instance.

At the moment of transition from the prehistoric to the historic period, when the Incas conquered the Chimu area, perhaps a century or less before their own fall, the whole northern coast, from Tumbes to Paramonga, is said

to have been under the domination of a ruler living at Chanchan in the same valley that held the Early Chimu pyramids of Moche.

Pyramids in this Late era no longer attained the height of the largest Early Chimu ones. Their broad tops, probably their interiors also, served as cemeteries. Often the whole structure seems little else than an elevated platform for burials. The sides were steep; terraces, if present, narrow; ramp approaches, frequent, and sidling as well as direct. Clusters of pyramids were more usual than in the Early period. Large towns reared in adobe sprang up, divided by enormous walls into wards or courts, some spaciouly empty, others filled with a maze of buildings which may have been the "palaces" which they are sometimes called. Chanchan is the greatest of these cities, but Barranca shows that it was only the culmination of a type. The mud bricks in the northern sub-area were often top-rounded. Evidences as to interments and head form are as yet insufficient, no large-scale scientific excavation having been made in any Late Chimu site. However, it is known that heads were often only flattened occipitally, and probably left natural in other cases. The Late central and southern coast habit of placing a bit of copper in the mouth of the dead was frequently followed.

Metal was abundant in Late Chimu, definitely more so than on the central and southern coast. Bronze had come in, but its precise frequency proportionate to copper and arsenic-copper remains to be ascertained by analyses of objects from datable sites. The indications are that bronze articles were in the minority.

Textiles show little Cuzco influence, but notable similarity to those of Chíncha, which was also the seat of a flourishing coast kingdom until its absorption into the Inca realm. In both regions the older predilection for highland wool as a material had abated somewhat and more all-cotton fabrics were being made with textures and patterns adapted to the qualities of this fiber. This tendency appears to have continued even under the Inca dominion, indicating a flourishing condition of the local arts.

Of later increments of Peruvian culture generally, the balance scale was in use, the quipu apparently little or not employed in the Late Chimu area.

Pottery had settled into a syncretized style of little originality but facile elegance and great variety of motives, with shape emphasized as against pattern. Monochrome vessels, usually blackware, constituted more than three-fourths of the total product. This eclectic style combined Early and Middle ideas: the stirrup mouth alongside the double spout, for instance. Certain Early forms, such as dippers and flaring bowls, had been given up. Most of the Middle period motives were retained, except as they depended for their effectiveness on color patterns. The most elaborate and perhaps characteristic vessels combined a spout with a modeled figure on top of either a single or double body. Even here the concepts were old; the double jar was already Early Chimu, though rare then, the figure and spout on a single body were characteristic of the Callejón. A few special shapes, presumably of northern highland origin, the "face vase" and "rotund figure jar," appear occasionally in Late Chimu. The Late pottery painting is mostly indecisive, hasty, and ineffective. When it shows character,

it is usually in Inca design imitations. The ceramics as a whole suggest an eclectic rather than a fixed interest, considerable taste but little high standard, a fashioning skill that had become semi-automatic; the vigor, intensity, and spontaneous if barbarically creative imagination of Early Chimu pottery were gone. The parallel to the change in Greek ceramics during the last six pre-Christian centuries is close.

It may be conjectured that what happened in pottery among the Chimu is more or less typical of what happened to their civilization as a whole. Their Late seems a typically altered renaissance of their Early culture after a foreign intrusion.

The conquest by the Incas appears to have had little effect on Late Chimu culture, perhaps on account either of brief duration of the rule or geographical remoteness from Cuzco. No groups of remains in pure or nearly pure Cuzco style, such as occur from Pachacamac to Nazca, have been reported from the Chimu coast. Where Inca pottery shapes occurred, such as aryballooses and cylindrical goblets, it was in low percentages, and normally unaccompanied by other Cuzco types such as the stemmed beaker with loop handle and lid, or the handled or double-nubbed plate. Inca style painting on Inca shapes was sometimes feebly sketchy, sometimes wholly abandoned in favor of the local red or blackware. Combinations of essentially irreconcilable Cuzco and Chimu shapes were attempted. In all these points there was contrast with the much more powerful effect of Inca entry into the coastland south of Lima.

How far a pre-Inca and an Inca phase of the Late Chimu culture are legitimately distinguishable is not clear, because no records have been kept of large-scale excavations. Most pottery lots of any size that appear to come from one locality contain a few indubitably Inca or Incoïd pieces. This would suggest that most of the Late Chimu period fell within the time at least of Inca influence, if not dominion, and was therefore of no great duration. But surer evidence is necessary. The analogous situation recurs at Pachacamac, Chíncha, and Ica, even though there it is possible to segregate cemeteries or series of graves with little or no Inca admixture from those in which it is strong.

On the other hand, the Late period witnessed a spread of Chimu objects and ideas far southward along the coast and into the interior. At Casma and Supe there appear to be cemeteries containing an abundance if not prevalence of blackware in good Late Chimu manner. At Chancay, the traces become scant; but beyond, at Ancon, Chillón, Lima, Pachacamac, Chíncha, and Ica, sporadically even at Nazca, they reappear, though chiefly in the form of native and altered imitations of the stirrup mouth, and other Chimu motives, whereas the Casma-Supe material looks more like import or the product of locally settled Chimus. Whether the blackware that became fairly frequent on the central and southern coast in Late times was due to Chimu example, is less clear. Late Chíncha and Cañete, for instance, show such a high frequency of blackware compared with the lower frequency of Late Chimu shapes and motives as to render it possible that the blackware was the result of a local development, or

due to avidly accepted Chimu suggestions rather than a strong, direct Chimu influence. In the interior hinterland, Cajamarca cemeteries are reported to yield some Chimu forms. Much farther away in the interior, collections attributed wholly to the highland, even to Cuzco, sometimes include a vessel or two in pure Late Chimu manner. Some of these may be erroneous inclusions; but it is likely that other of the attributions are correct, since there is no reason why the Incas should not now and then have prized and imported or even imitated the elegant Chimu exotics. In short, Chimu culture seems to have been externally prosperous to the very days of the Spanish conquest, and even, in a shallowing form, to have been spreading. This conversion of intensity into extension is the tendency that seems to have run through it in most of its aspects, and perhaps at an increasing rate as time went on.

In general, the early, localized flourishing of Chimu culture, its collapse without fundamental disintegration, and subsequent successful renaissance, parallel the course of Toltec-Aztec and especially of Maya culture history. Although the specific Chimu civilization was far from moribund when the Spaniard came, it may well have been already carrying the seeds of decay implanted in it by Inca conquest. So far as it formed part of the pan-Peruvian culture, it was thriving.

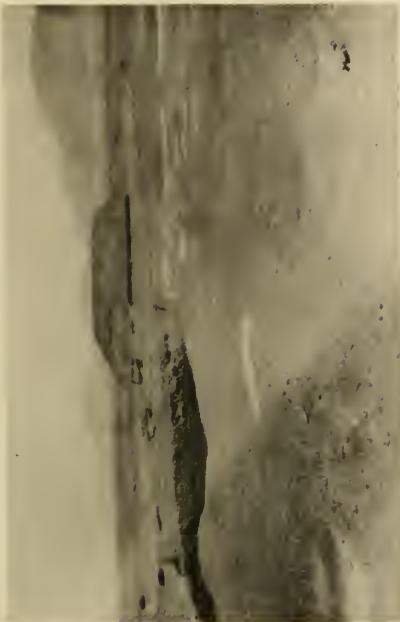
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VIRU, WOCHÉ, JEQUETEPEQUE



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CHANCHAN, STRUCTURAL FEATURES



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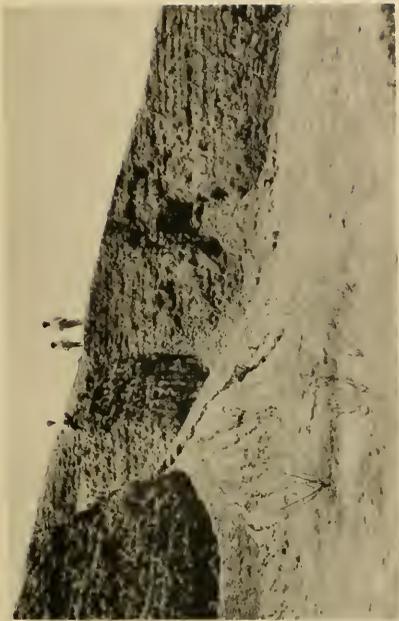


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HUACAS RAJADA AND CHOTUNA



VIEWS OF ETEN

FIG. 1, HUACA ETEN FROM EAST. FIG. 2, SAME, RAMP, SEEN FROM SOUTH FROM FIRST TERRACE. FIGS. 3 AND 4, MOCHICA INDIANS OF ETEN.



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PURGATORIO, TUCUME, RIO DE LA LECHE, AND CIUDAD DE LA BARRANCA



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NORTH CHIMU POTTERY FROM TUCUME



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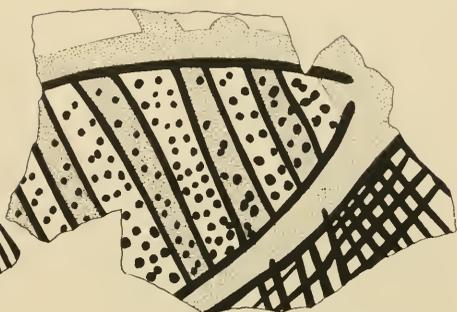


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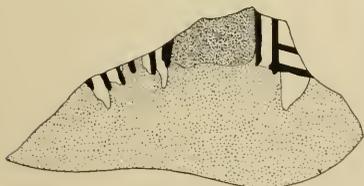
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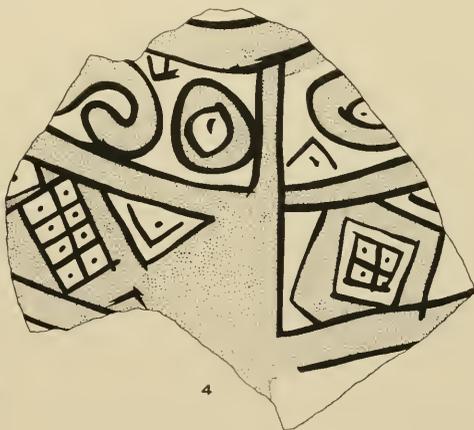
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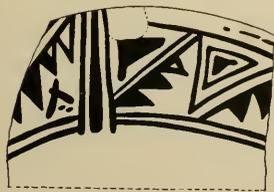
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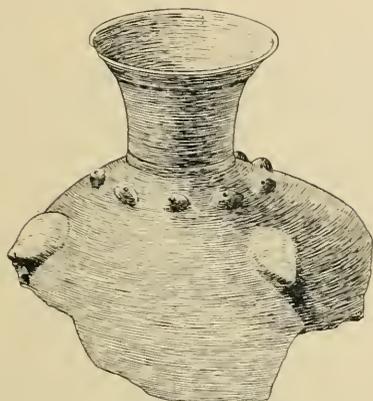


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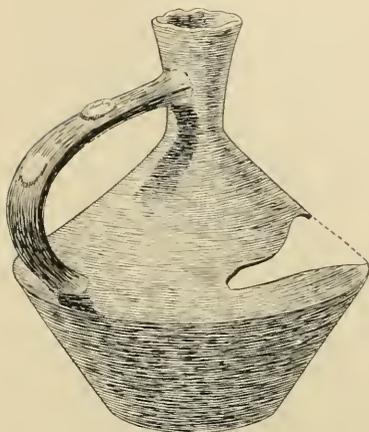


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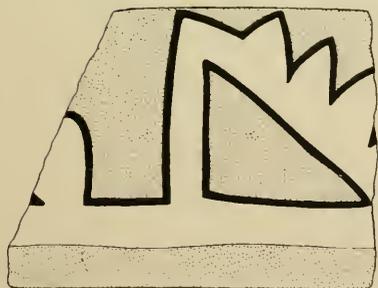
MIDDLE PERIOD POTTERY FROM TAITACANTIN



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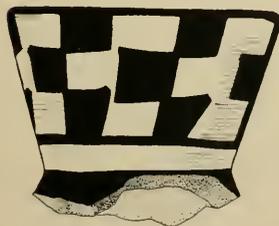
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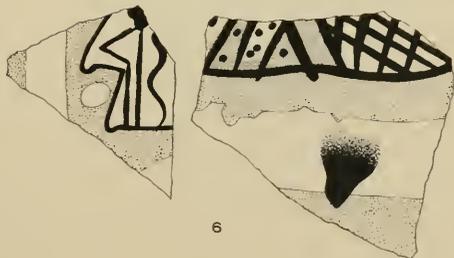
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MIDDLE PERIOD POTTERY FROM TAITACANTIN



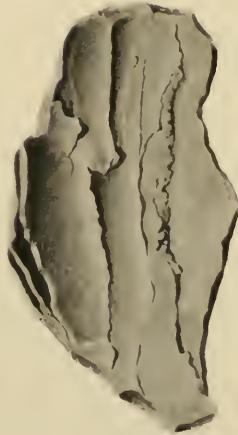
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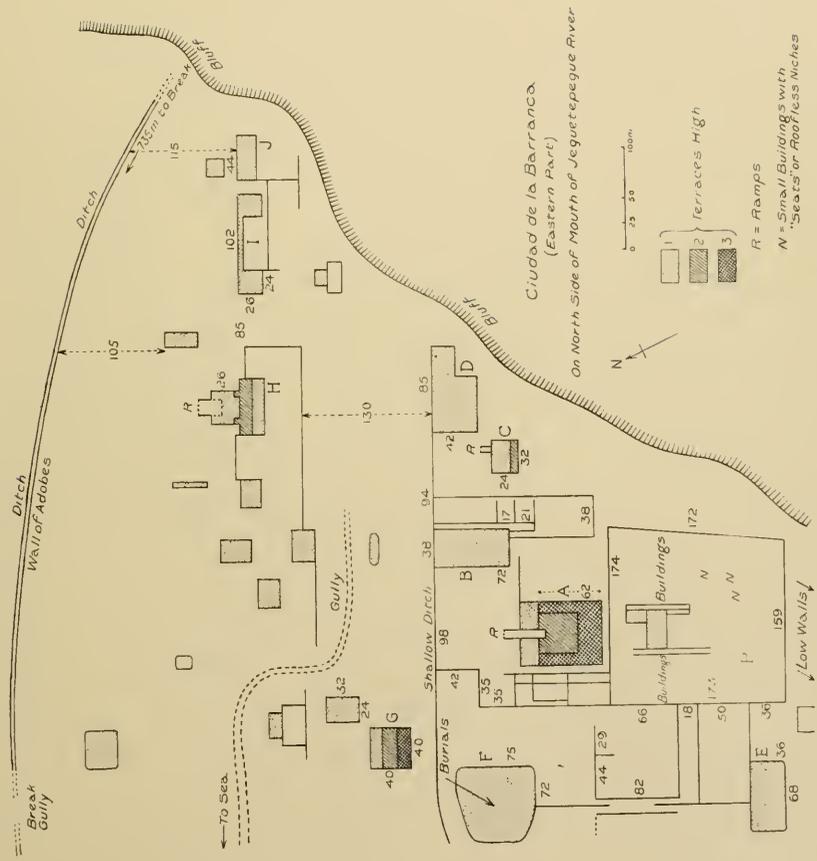


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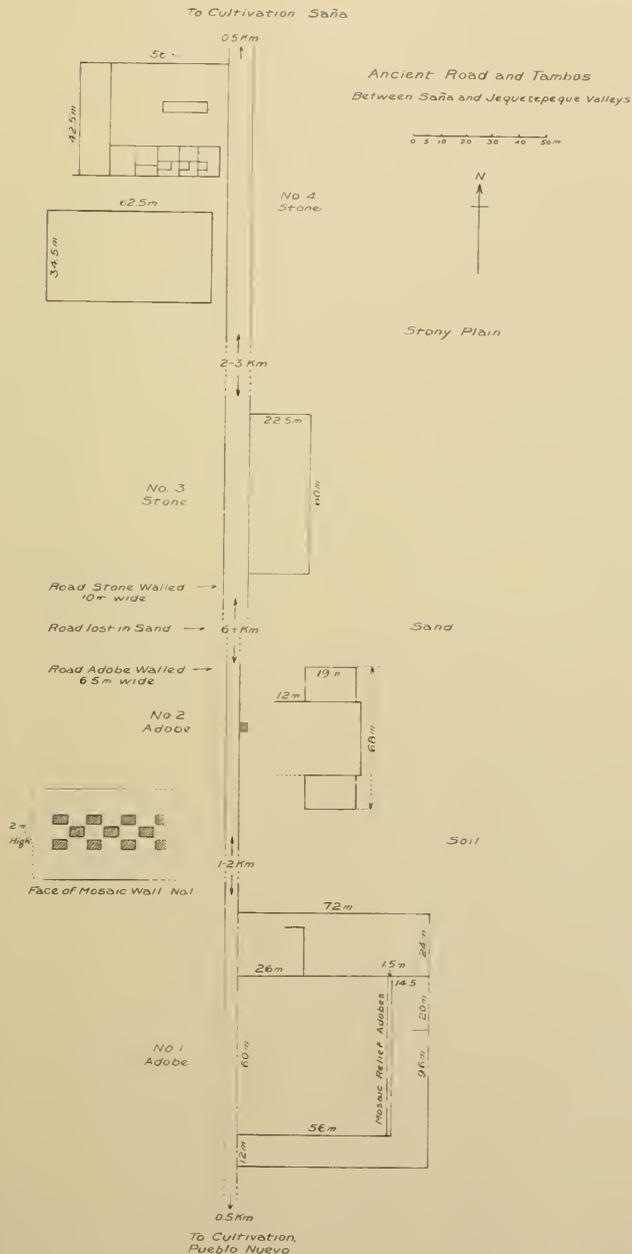


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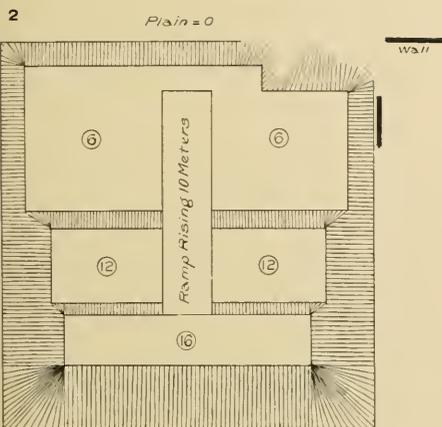


PLAN OF EASTERN PART OF CIUDAD DE LA BARRANCA



PLAN OF ANCIENT ROAD BETWEEN JEQUETEPEQUE AND SANA

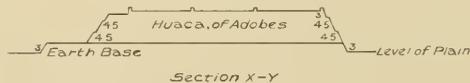
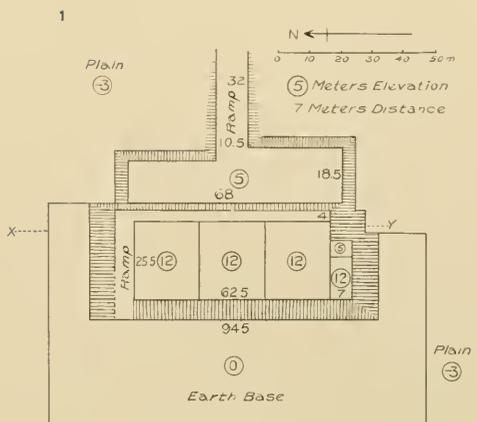
Huaca Etén



⑥ = m Elevation

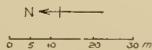
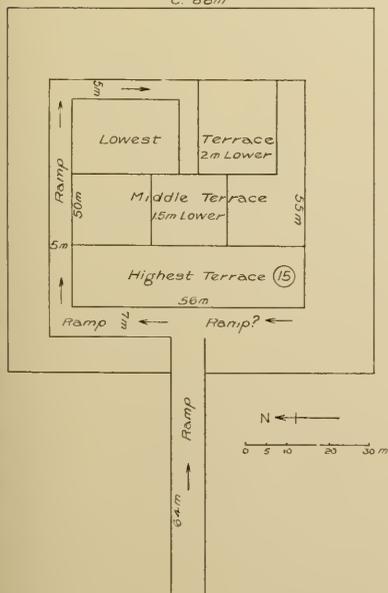


Huaca de los Estacos
Near Pacanga
Guadalupe



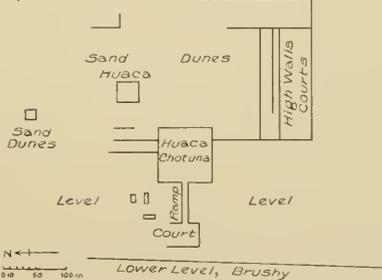
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Huaca Chotuna
C. 88m



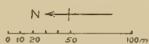
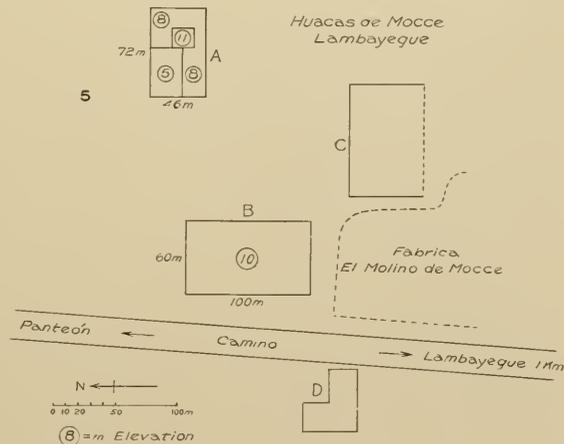
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Huaca Chotuna Ruins

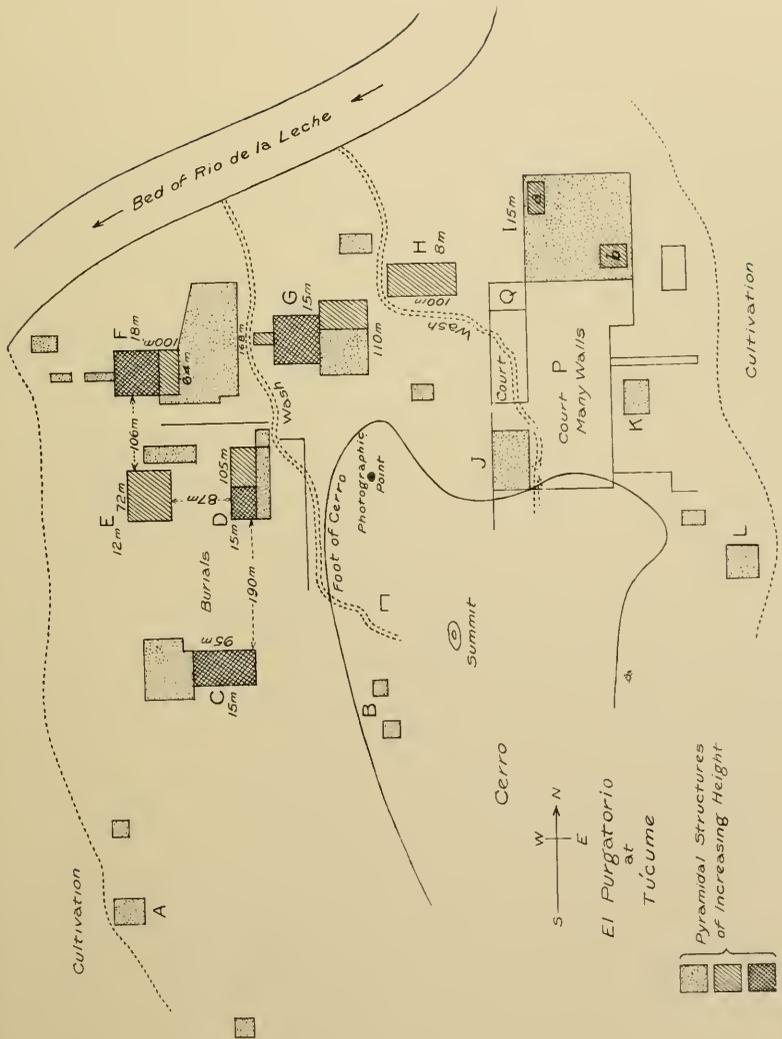


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Huacas de Mocce
Lambayegu



⑧ = m Elevation



PLAN OF EL PURGATORIO NEAR TUCUME

