CULTURAL CHRONOLOGY AND CHANGE

AS REFLECTED IN

THE CERAMICS OF THE VIRÚ VALLEY, PERU

DONALD COLLIER

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WHISTLING JAR OF THE TOMAVAL PERIOD, FROM V-302, BURIAL 8

Type, Calunga Red and Black-on-White; × 0.6. Photograph by John Collier.

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Curator, South American Ethnology and Archaeology

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Preface

This report is based on the field work of the Chicago Natural History Museum Expedition to Peru in 1946. From June to December, archaeological investigations were made in Virú, a north coastal valley lying 46 kilometers south of the city of Trujillo. This work was undertaken as part of a co-operative program known as the Virú Valley Project, which was sponsored by the Institute of Andean Research. A brief summary of this program will suffice, since Willey (1946b) has published a detailed account of the history and organization of the project, and the results were summarized at the Chiclín Conference in 1946 (Willey, 1946a) and the Viking Fund Symposium in 1947 (Bennett, 1948).

The Virú Project was conceived by the late Wendell C. Bennett, William Duncan Strong, Julian H. Steward, and Gordon R. Willey in the summer of 1945. The aim was to make an intensive, co-operative study of human adaptation and culture growth in a single coastal valley over the total span of human occupancy. The Virú Valley was selected for this purpose because its culture sequence was already roughly known (Kroeber, 1930; Bennett, 1939; Larco Hoyle, 1938–39, 1945a) and because its relatively small size made feasible the completion of an intensive regional study in a reasonable length of time. Several archaeologists, two ethnologists, and a geographer were invited to join the program, and, in the end, ten individuals representing eight institutions took part in the Virú Project. The archaeological and geographical field work was done between April and December of 1946, and the ethnological studies were made during 1946, 1947, and 1948. The participants and their areas of investigation were as follows:

1. William Duncan Strong, Columbia University, assisted by Clifford Evans, Jr., investigated the stratigraphy of the early prehistoric periods.
2. Donald Collier, Chicago Natural History Museum, investigated the stratigraphy of the late prehistoric periods, worked on a gap in the early sequence, and sampled grave materials.
3. James A. Ford, Columbia University and Guggenheim Fellow, made a surface survey and dated 315 sites by means of relative ceramic chronology.

4. Gordon R. Willey, Bureau of American Ethnology, made a study of prehistoric settlement patterns.
5. Wendell C. Bennett, Yale University, made an intensive study of the Gallinazo period.
6. Junius B. Bird, American Museum of Natural History, excavated preceramic sites in Virú and Chicama valleys.
7. F. Webster McBryde, Institute of Social Anthropology, Smithsonian Institution, studied the geography of Virú and prepared a base map of the valley from aerial mosaics.
8. Allan R. Holmberg, Institute of Social Anthropology, Smithsonian Institution, and Jorge C. Muelle, Instituto de Etnología in Lima and Universidad de San Marcos, assisted by students from the latter institution, made an ethnological study of the modern valley.

Collaboration in the Virú program was not on an institutional basis, since in practice each participant and the institution he represented were independent. Each participant was expected to publish a report on his own work, although it was planned ultimately to issue an over-all interpretive report on the results of the project. Co-operation took the form of mutual aid, consultation, and free interchange of data in the field and afterward. A common field catalogue was maintained, and systems of site designation and type names were standardized. This co-operation and the general effectiveness of the project were enhanced by a generous grant by the Viking Fund to the Institute of Andean Research, which made possible the purchase and maintenance of three army jeeps, the purchase of aerial photographs and maps, and the maintenance in Trujillo of a central laboratory for the cleaning, cataloguing, and storage of collections.

To date (1953) four reports have been published by the participants in the Virú Project: Ford's *Cultural dating of prehistoric sites in Virú Valley, Peru* (in Ford and Willey, 1949a); Bennett's *The Gallinazo group, Virú Valley, Peru* (1950); Strong and Evans' *Cultural stratigraphy in the Virú Valley, northern Peru: The Formative and Florescent Epochs* (1952); and Willey's *Prehistoric settlement patterns in the Virú Valley, Peru* (1953). Monographs by Bird, McBryde, Holmberg, and Muelle are in preparation. In addition, several short papers resulting from the Virú program have been published (Bird, 1948; Holmberg, 1950, 1952; Núñez del Prado, 1950; Rowe, 1948; Strong, 1947, 1948; Willey, 1946a, b, 1947, 1951b).

My work in Virú was supported by Chicago Natural History Museum in continuation of the Museum's fruitful interest in Andean archaeology extending over the past fifty years. I wish to express my gratitude to the Board of Trustees, Mr. Stanley Field, President, Colonel Clifford C. Gregg, Director, and Dr. Paul S. Martin, Chief Curator, Department of Anthropology, for making possible my Peruvian research.

I wish to thank the Viking Fund (now the Wenner-Gren Foundation for Anthropological Research) and its Director, Dr. Paul Fejos, for generous aid that greatly facilitated the work of the members of the Virú Valley Project.

I am grateful to my colleagues in the Virú program for their comradeship and spirit of mutual aid, for their generosity in the exchange of information, and for the stimulating experience of working with them in the field. I wish to mention especially the efforts of Helen Richardson Strong, who took charge of the project laboratory in Trujillo, and my pleasant association with Ethel and James Ford, with whom I camped at the mouth of the Virú River during the first half of my stay in Virú.

The ex-President of the Republic of Peru, the Honorable Luis Bustamante Rivera, and the ex-Minister of Public Education, Dr. Luis E. Valcárcel, expedited the work of the Virú Project by administrative decree. Dr. Valcárcel, in his position of Director of the Instituto de Estudios Etnológicos, took an intense interest in our program of investigation and made possible the active participation of his assistant, Dr. Jorge C. Muelle. I am indebted to the late Dr. Julio C. Tello and the members of the Patronato Nacional de Arqueología for the archaeological permit under which I worked.

In Trujillo, we were received cordially and given assistance by the Rector and faculty of the Universidad Nacional de Trujillo. I wish to thank especially Sr. Máximo Diaz, then Director of the University Museum, and Dr. Hans Horkheimer, ex-Director of the University Archaeological Institute. Sr. Enrique Jacobs, business man and archaeological enthusiast, and his wife gave us aid and advice and extended many kindnesses.

The members of the Virú Project owe a special debt of gratitude to Sr. Rafael Larco Herrera and his sons, Rafael Larco Hoyle, Constante Larco Hoyle, and the late Javier Larco Hoyle, proprietors of the Hacienda Chiclín in Chicama Valley, for their warm hospitality, material aid, and invaluable advice. Rafael Larco Hoyle, a distinguished archaeologist and Director of the Museo Rafael Larco Herrera at Chiclín, enlightened us with many archaeological discussions and generously put at our disposal the magnificent collections of his museum. And the Larcos were our hosts at the Chiclín Conference on Peruvian Archaeology, held at the Chiclín Museum on August 7 and 8, 1946.

I am indebted to Dr. Luis Arrese for permission to work on the lands of Hacienda Carmelo in Virú, and to Sr. Guillermo Roeder and Sr. Victor Chavez, respectively manager and chief accountant of the hacienda, for many kindnesses. I wish to thank Sr. Lucio Gamio Y., whose cheerful patience kept our much abused jeeps in running order and who helped us in other ways too numerous to mention. I am grateful to my crew of

young Viruñeros, whose light-hearted and faithful diligence made the work of excavation both productive and pleasant.

For assistance in the preparation of this report my thanks go to the following staff members of Chicago Natural History Museum: Dr. Fritz Haas, Curator, Division of Lower Invertebrates, for the identification of shells; Mr. Philip Hershkovitz, Associate Curator, Division of Mammals, and Mrs. Dorothy B. Foss, formerly Osteologist, for the identification of animal and bird bones; Dr. Hugh C. Cutler, formerly Curator of Economic Botany, for identification of plant remains; Dr. Robert K. Wyant, Curator of Economic Geology, for the identification of minerals; Mr. Douglas E. Tibbitts, Illustrator, for drawing the map, plans, and charts; Mr. Phillip H. Lewis, formerly Assistant in Anthropology, for making the sherd drawings; and Miss Lillian A. Ross, Associate Editor of Scientific Publications, for editing the manuscript.

DONALD COLLIER

December 21, 1953

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I. Introduction

DESCRIPTION OF VIRÚ VALLEY[1]

Virú Valley is a river oasis bounded at its mouth by the ocean, on its sides by the coastal desert, and at its head by the Andes. It is separated from the Moche Valley, 35 km. up the coast, and Chao Valley, 20 km. down the coast, by rolling stretches of barren, shifting sand that has been piled against the seaward slopes of the foothills by the steady southwesterly winds. Virú is one of the smaller of the North Coast valleys and does not head in the continental watershed, as do Moche, Chicama, and the other larger valleys to the north. The Chicama River, for example, has a basin five times larger and a run-off nine times greater, and it irrigates a cultivated area six times greater than does the Virú River (Kroeber, 1930, p. 76, after García, 1921).

The climate of Virú Valley is cool and dry. The sea winds, cooled by the Humboldt Current that sweeps up the coast, suck up moisture as they are warmed over the land. Except for destructive periodic deluges, which come every 7 to 25 years as the result of a displacement in the track of the Humboldt Current, there is no rain. In winter (June to October) sea fogs are common. The summer (November to May), which is the rainy season in the mountains, is sunny and warmer. The river, although low during the dry season in the mountains, flows throughout the year.

Natural vegetation in Virú consists of a dense growth of thorny *algarrobo* and *huarango* trees (species of *Prosopis* and *Acacia*, respectively), locally known as *monte*, along the margins of the valley, and salt grass near the beach. The valley supports a fauna of rabbits, rodents, lizards, snakes, and doves and numerous smaller birds. The cool coastal waters—rich in fish, crustaceans, and other marine life—support a dense population of guano and other ocean birds.

The valley extends 22.5 km. northeastward from its mouth to the confluence of the Upper Virú and Huacapongo tributaries, which give rise to the main stream (fig. 1). The two branches of the valley extend into the

[1] A more detailed account of the natural setting, climate, and geology of the Virú Valley is given by Ford and Willey (1949b); the present-day population and economy are sketched by Willey (1953, pp. 19–23) and described in detail by Nuñez del Prado (1950).

mountains, where they soon become narrow gorges. Above this confluence, the dry Upper Virú branch is not inhabited or cultivated today, but cultivation extends another 10 km. up the Huacapongo branch to the village of Huacapongo. Here the valley turns north into the mountains and becomes much narrower and steeper, containing only occasional fields and a few houses.

It is convenient to divide the valley into three sections: Lower Virú, from the beach to the Pan-American highway; Middle Virú, from the highway to the Huacapongo confluence; and Upper Virú, the Huacapongo tributary drainage. All three sections are farmed today and were cultivated more extensively by the prehistoric Indians. All parts of the valley were investigated by the Virú Project, although my excavations were confined to Lower Virú.

Structurally the valley is widest near its mouth and progressively narrows as it approaches the mountains, but it is cultivated most extensively in Middle rather than Lower Virú. In 1946 the belt of cultivation was only 3 km. wide in Lower Virú, reached a maximum width of 7 km. in Middle Virú, and narrowed to a kilometer or less in Upper Virú. In prehistoric times cultivation in Lower Virú was much more extensive.

The present population of Virú, which in 1946 totaled about 8,000 persons, is largely mestizo. About half of these people live in the village of Virú (population 2,000) and the smaller settlements at Carmelo, Santa Elena, Calunga, San Ildefonso, Tomaval, and Huacapongo. The rest are settled in scattered farmsteads and the fishing village of Guañape. Most of the 7,000 hectares of irrigated land is owned by the Carmelo and Tomaval haciendas. A considerable number of small individual holdings cluster about Virú village. The hacienda lands are cultivated partly by hired labor but mainly by share-croppers.

The principal crop is maize, a large part of which is exported from the valley in shelled form. Other commercial crops are sugar cane, grown mainly in Upper Virú, cotton, and flax. The inhabitants also raise squash, beans, gourds, wheat, a little rice, tomatoes, avocados, bananas, papayas, pineapples, *pepinos*, and other fruits. Pigs, guinea pigs, and chickens are plentiful, there are a few cattle, and goats are common. Local craft production is negligible.

Present land utilization in Virú differs from that of pre-Columbian times both in the extent of land under cultivation and in the shift from subsistence agriculture to a dominantly commercial, albeit inefficient, agriculture conditioned by absentee ownership. In prehistoric times large sections of Lower Virú—particularly on the south side of the river—which are now overgrown with *monte*, were irrigated. The cultivated strip was then 8 to 9 km. wide as compared to the present width of 3 km.

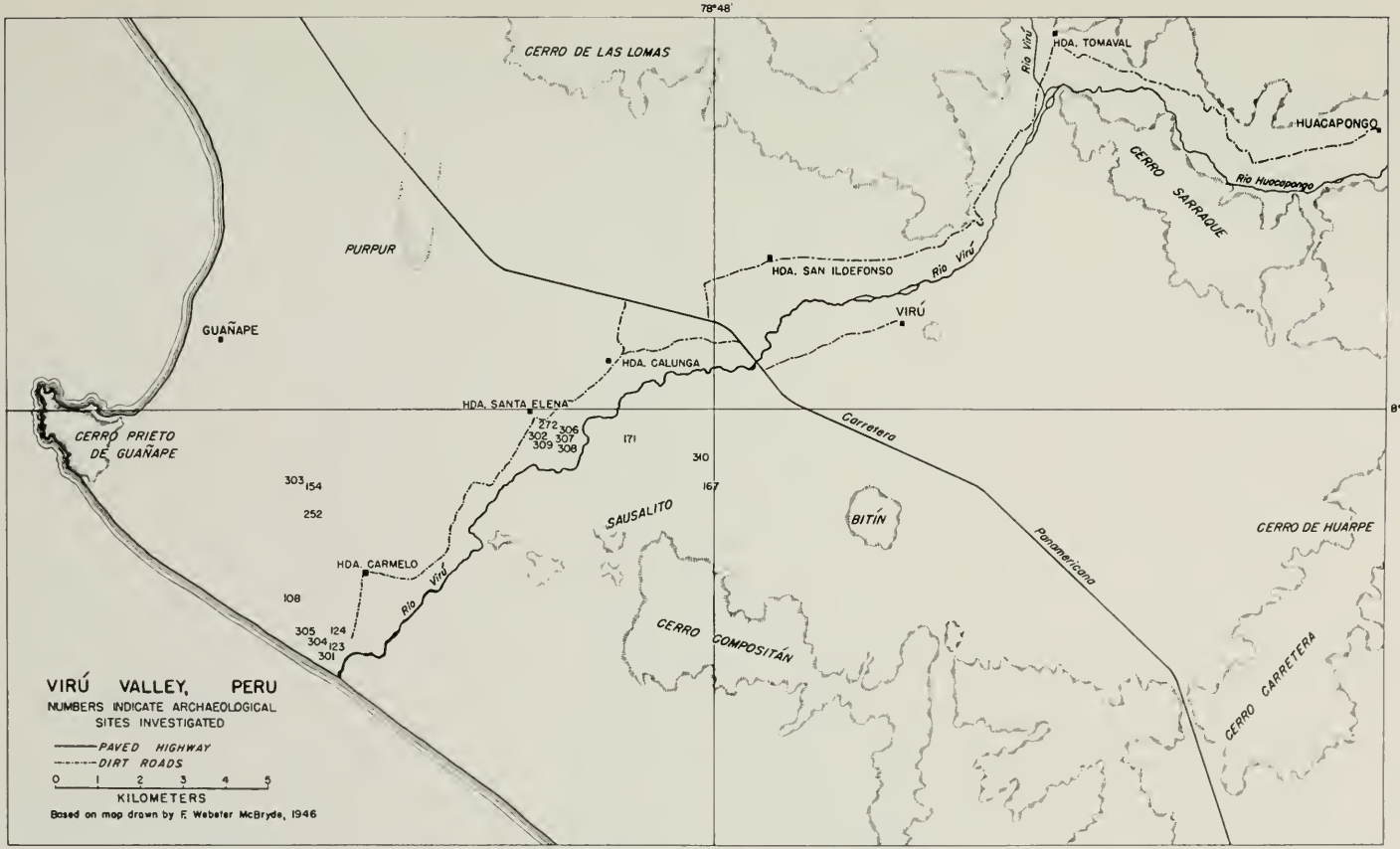

FIG. 1. Map of Virú Valley, showing sites excavated by the Chicago Natural History Museum expedition.

(Willey, 1953, p. 27 and fig. 4). This shrinkage in the extent of irrigated land has occurred in all parts of the valley but is most marked in Lower Virú. Willey (1953, p. 394) has estimated that at the peak of prehistoric irrigation (late Gallinazo to Tomaval periods) there were 9,800 irrigated hectares, which probably supported an Indian population of about 25,000 (calculated on the basis of one person per acre). This contrasts sharply with the present irrigated area of 7,000 hectares and population of 8,000.

A similar reduction in the area of irrigated lands since prehistoric times has been noted in other valleys of the Peruvian coast (Kosok, 1942). Some of this shrinkage may have begun in late prehistoric times (this seems to have been the case in Virú), but the greatest reduction took place after the Spanish conquest as a result of Colonial social and economic policy. The low ebb of irrigated land and population size on the coast apparently was reached in the middle of the eighteenth century (Willey, 1953, p. 25). Since then, there has been a gradual increase in population and an expansion of irrigated lands, but nowhere on the coast have the irrigation systems been restored to their maximum prehistoric size. The reasons for this less extensive irrigation in the present are uncertain and the problem merits detailed investigation. It is generally said today that there is not enough water to irrigate more land, and there are frequent complaints of water shortage. It is not clear whether the modern situation has resulted from a climatic change, the less efficient use of the available water, the higher water requirements of modern commercially grown crops like sugar cane, rice, and cotton, or a combination of these factors.

ARCHAEOLOGICAL BACKGROUND

The systematic investigation of cultural chronology on the North Coast of Peru was begun by Uhle in 1900. His excavations in the Moche Valley (Uhle, 1902, 1913) established the sequential position of the Proto-Chimu (Mochica), Coast Tiahuanaco, Late Chimu (Chimu), and Inca ceramic styles. Kroeber's analysis (1925a) of Uhle's Moche collections and Kroeber's subsequent field work on the North Coast (Kroeber, 1926, 1930) confirmed and clarified this sequence and fitted it firmly into a broad framework of style and period in Peru. Subsequently, Larco Hoyle's extensive excavations, carried out mainly in Chicama Valley, added a rich store of information on Mochica culture (Larco Hoyle, 1938–39, 1945c) and defined two additional styles and periods, Cupisnique (Coast Chavín) and Salinar (White-on-Red ceramic horizon). He placed these, on the evidence of grave superposition, in the sequence of Cupisnique, Salinar, Mochica (Larco Hoyle, 1941, 1944, 1945b). Thus, when Kroeber summed up North Coast archaeology in 1942 (Kroeber, 1944), the known sequence

of cultures of Moche-Chicama began with Coast Chavín and ran through Salinar, Mochica, Coast Tiahuanaco, Chimu, and Inca.

Kroeber (1930) described and tentatively dated seven sites in Virú as a result of a one-day visit in 1926, and Olson excavated nine graves in 1930 (Bennett, 1939, pp. 51–53), but the prehistory of the valley continued to be known largely by inference from the succession of cultures in Moche and Chicama until Bennett's survey and excavations in 1936 (Bennett, 1939). Bennett listed 37 sites, described 29, and excavated graves at seven of these. He established for Virú the sequence of Mochica, Coast Tiahuanaco, Chimu, and Inca-Chimu, and isolated a new style of negative-painted ceramics, which he named Gallinazo, after the type site near Hacienda Carmelo. The first vessels of this type had been found by Larco Hoyle in Moche in 1933 (Larco Hoyle, 1945a, p. 1). Bennett believed that Gallinazo fell in a period intermediate between Mochica and Coast Tiahuanaco. Later, Larco Hoyle (1945a) excavated additional Gallinazo graves and published a synthesis on Gallinazo culture, which he called "Cultura Virú," indicating that Gallinazo was at least in part contemporaneous with Mochica. He also opened graves that yielded evidence of the presence in Virú of cultures related to Salinar and Cupisnique (Larco Hoyle, 1944, 1945b).

The stratigraphic and seriational investigations of the Virú Project in 1946 largely verified but partly modified the previously proposed culture sequences for the North Coast and Virú Valley. The most important new information pertained to the beginnings of agriculture. Excavations at Guañape in Virú and Huaca Prieta in Chicama (Strong and Evans, 1952; Bird, 1948) uncovered two cultural periods stratigraphically older than Cupisnique. The earlier of these is a preceramic, incipient agricultural period and the later is a plain pottery period. Following the plain ware period the stratigraphic evidence indicated an unbroken sequence of Cupisnique, Salinar, Gallinazo, Mochica, Coast Tiahuanaco, Chimu, and Inca-Chimu. These conclusions confirmed Larco Hoyle's early placement of Salinar and Cupisnique, reversed Bennett's placement of Gallinazo in relation to Mochica, and supported the Uhle-Kroeber chronology for the later periods.

In the course of the field work of the Virú Project it became clear that, although the cultural sequence in Virú closely paralleled that in neighboring valleys, the Virú cultures were locally distinctive. For the sake of clarity of reference and to avoid such locutions as "Cupisnique of Virú" and "Mochica of Virú," we decided to give the culture periods of Virú local names. This terminology of Virú periods and their equivalents in Moche-Chicama are as follows:

Moche-Chicama	*Virú*
Inca-Chimu	Estero
Chimu	La Plata
Coast Tiahuanaco	Tomaval
Mochica	Huancaco (Late Mochica)
Mochica	Gallinazo
Negative (Virú de Chicama)	Gallinazo
Salinar	Puerto Moorin
Cupisnique	Middle and Late Guañape
Plain Pottery Period	Early Guañape
Preceramic (Huaca Prieta)	Cerro Prieto

In addition to these names, I shall use the term Late Epoch to refer to the interval from the collapse of Mochica culture until the coming of the Spaniards, which includes the Tomaval, La Plata, and Estero periods.

The matter of absolute chronology in Peru is not of immediate pertinence here, but it is a question of perpetual interest and is important both in assessing rates of culture change in Peru and in dealing with the broad problem of the development of civilization in Nuclear America. Until the advent of radiocarbon dating, the systems of absolute dates for Peru were pure guesswork, although anchored at the upper end by convincing estimates based on the Inca and Chimu dynasty lists. These estimates place the founding of the Chimu kingdom between A.D. 1300 and 1350, and the Inca conquest of the North Coast between 1462 and 1470 (Rowe, 1945, 1948). The only other "fix" in Peruvian chronology had been Kubler's (1948) estimated ninth century (A.D.) date for Mochica based on the varve chronology of guano deposits. Until recently, North American archaeologists have guessed conservatively that the whole Peruvian development from Chavín to Inca occurred within the past 2,000 years (see Kroeber, 1944, pp. 114–115; Bennett, 1946, p. 80), in line with the conservative chronology that was long in vogue among Meso-American students. In his later work, Tello (1940) favored an expanded chronology that placed the Chavín development during the first millennium B.C. Larco Hoyle has also supported an expanded chronology, although he has not published a scheme of guess-dates. Since 1948 the longer chronology has come to prevail, in part as a result of Bird's (1948) expanded estimates based on stratigraphic and geological evidence from Chicama and Virú. The last pre-radiocarbon estimate, by Bennett (Bennett and Bird, 1949), gives the following dates for the North Coast: Preceramic (Huaca Prieta), 3000–1000 B.C.; Early Ceramic and Cupisnique (Guañape), 1000–1 B.C.; Salinar, A.D. 1–300; Gallinazo and Mochica, A.D. 300–1000; post-Mochica cultures, A.D. 1000–1532.

Between 1948 and 1951, W. F. Libby (1952, pp. 92–93) obtained radiocarbon dates on twelve archaeological samples from the North Coast of Peru. Ten of these were collected by Bird during his excavations at Huaca

Prieta in Chicama, and pertain to the stratified levels of the Preceramic refuse (seven samples), the Plain Pottery period, the Cupisnique period, and the earliest appearance of negative-painted pottery. George Kubler collected the eleventh sample from a presumed early Mochica context at the base of the Pyramid of the Sun in Moche. The twelfth sample came from a late Mochica tomb excavated by Strong and Evans at Huaca de la Cruz in Virú. Libby's measurements on these samples gave the following results:

Sample No.	*Period*	*Date*
C-619	Late Mochica (Virú)	A.D. 112 ± 190
C-382	Beginning of Mochica (Moche)	873 ± 500 B.C.
C-323	First Negative Pottery in Chicama	682 ± 300 B.C.
C-75	Beginning of Cupisnique	715 ± 200 B.C.
C-322	Beginning of Plain Pottery	1360 ± 200 B.C.
C-321	Latest Preceramic	1016 ± 300 B.C.
C-598	Earliest Preceramic	2350 ± 230 B.C.

In 1952, J. L. Kulp (Kulp and others, 1952) dated samples from the excavation of Strong and Evans in stratified refuse at Huaca Negra (V-71, Cut 1) near Guañape in Virú (Strong and Evans, 1952, pp. 17–46). These pertained to the Middle Guañape phase (Cupisnique) and the Early Guañape phase (Plain Pottery) but did not include samples from the underlying Preceramic (Cerro Prieto) refuse. The dates obtained were as follows:

Sample No.	*Period*	*Date*
L-122A	Middle Guañape	1198 ± 90 B.C.
L-122C	Later part of Early Guañape	1148 ± 200 B.C.
L-122F	Earlier part of Early Guañape	1848 ± 150 B.C.

In assessing these dates it must be kept in mind that the error listed for each is the standard deviation of the counting error. It is to be read as meaning that there is one chance in three that the error is larger than that shown (one σ) and one in twenty that it is larger than twice the error shown (two σ).

The number of samples from the stratified Preceramic levels at Huaca Prieta and the internal consistency of their dates lead to considerable confidence in the time span indicated for the Preceramic period. And the Plain Pottery and Cupisnique dates from Huaca Prieta fit easily into a chronological scheme based on the Preceramic dates. But the Early and Middle Guañape dates from Virú do not fit the scheme very well. They indicate an overlap of several centuries between the Early Guañape period in Virú and the Preceramic period in Chicama, and make Middle Guañape appreciably older than Cupisnique. These conclusions seem improbable in view of the proximity of the two valleys and the close similarity between the Preceramic cultures of the two valleys, between the Early Guañape and Plain Pottery cultures, and between the Middle Guañape and Cupisnique cultures.

The Negative Pottery and Mochica dates introduce even greater difficulties, since they appear to allow too little time for the Cupisnique and Salinar periods and cause trouble in the post-Mochica chronology. On the basis of a very detailed analysis of the radiocarbon dates (not including the Guañape dates from Virú) in relation to the stratigraphic and developmental evidence at Huaca Prieta, Bird (1951, p. 48) has offered a rationalized scheme of dates, which is summarized as follows:

	B.C.
Earliest Mochica	375
First Negative Pottery	500
Cupisnique	850– 700
Plain Pottery	1225– 850
Preceramic	2500–1225

To this may be added a rationalized date of A.D. 100–300 for Late Mochica.

The later part of this scheme, which appears to be the best one that can be devised on the basis of the radiocarbon dates, conflicts with the archaeological evidence. The interval of 150 years for the two phases of Cupisnique (Cupisnique and Cupisnique Transitorio in Chicama, Middle and Late Guañape in Virú) and the span of 200 years for Salinar, which falls between Cupisnique and the first negative pottery, appear much too short. These dates telescope to a mere 500 years the Formative Epoch, which depth of refuse and inferred socio-economic evidence (Willey, 1951b) indicate as a time of slow development, whereas they give a span of 600–800 years to Mochica. The Mochica dates are further surprising in placing this period 600 or 700 years earlier than previous estimates. Acceptance of these dates would necessitate assigning 1,200 years to the Late Epoch, instead of the previously estimated 500 years. The relative shallowness of Late refuse deposits and the historical evidence make such a chronological expansion of the Late Epoch highly improbable.

It is clear, as Willey has pointed out (1953, pp. 35–36), that it is impossible to reconcile the present series of radiocarbon dates with previous schemes of guess-dates or with time estimates scaled to refuse deposition. The difficulties are caused by the two Mochica dates and the date for the first appearance of negative pottery in Chicama. The early Mochica sample from Moche is open to some doubt, since the sub-mound deposit might have contained a mixture of earlier and later materials, but there is no reason to suspect the context of the other two samples. There is at present no solution to this dilemma. The offending dates cannot be discarded, but their evidence is not strong enough to disregard the contradictory evidence. A new scheme of North Coast chronology must await the dating of additional samples from the Salinar, Gallinazo, and Mochica periods.

FIELD TECHNIQUES

The work of the Virú Project was greatly facilitated by air maps, which we purchased from the Servicio Aerofotográfico Nacional in Lima. These consisted of two sets of large co-ordinated mosaics 16 by 23 inches, at a scale of 1:10,000, 22 of which covered the Virú Valley, and a set of 9 by 9 inch prints of the original aerial negatives. One set of the mosaics was used in the field to locate and record sites and the other was assembled on the laboratory wall in Trujillo to serve as the master site map. Willey used the smaller prints to make individual site maps by projection and tracing on a screen. These site maps were checked and amplified in the field. Figures 2, 9, and 21 were made by Willey in this way; I later added details revealed by my excavations. For mapping in the field I used a Brunton compass, a hand level, and a hundred-meter tape.

The members of the Project used a system of consecutive numbers to designate archaeological sites, and a single system of field catalogue numbers in order to avoid confusion of collections in the laboratory.

My selection of sites for test excavation was greatly aided by the data from Ford's surface survey, which was more than half completed when I began field work. This procedure amply demonstrated the value of the survey in planning strategic excavations.

The crew consisted of six men, with a seventh man to keep the dirt piles back from the edges of the trenches. The most convenient size for a test trench proved to be 3 by 6 meters both in terms of the size of the crew and the volume of refuse necessary to produce an adequate sherd sample from the arbitrary levels 25 cm. thick in which the trenches were dug. The crew worked in pairs, each consisting of a pick-man and a shovel man. Each pair was assigned to a 2 by 3 meter rectangle in the trench. Horizontal and vertical control was maintained by a corner datum stake, a 2-meter rod marked in 25 cm. intervals, and pegs placed in the trench face at 1-meter vertical and horizontal intervals to facilitate measurements and the drawing of a profile.

The earth from the trenches was not screened, for a sample test proved that no more than 10 per cent of the sherds were missed by manual separation and that the extra labor of screening was not worth the effort. This decision might have been different had there been more organic material and artifacts in the refuse that was excavated.

The soil in which we dug was sufficiently hard to make vertical trench faces safe down to a depth of 4 meters. At greater depths it would have been necessary to slope the faces to avoid the danger of cave-ins. All of the trenches were back-filled in order to protect wandering stock.

The excavated materials were sent to the central laboratory in Trujillo, where they were washed and numbered with India ink. The field num-

ber of a collection unit (excavated level, surface collection, or grave) was placed on each sherd. The considerable labor of numbering each sherd was justified by the advantage of being able to separate the sherds during classification into type categories without losing their provenience, which was of importance in the later checking and correction of the classification.

Field classification of the sherds was done at camp at the mouth of the Virú. Here the sherds were spread, a bag at a time, on a large table constructed of several boards supported on trestles. After the sherds had been sorted into type groups, the counts were recorded on a mimeographed form. Then the sherds were sacked by type; the rim sherds were kept separate. Sherds that did not fit an established type were held in an unclassified category and sacked separately, to be classified later. The rim sherds, the unclassified sherds and large type collections of the body sherds were shipped to Chicago, and the classification and analysis were completed there. The rest of the body sherds were dumped near the camp.

APPROACH AND PROBLEMS

The over-all purpose of the Virú Project was a reconstruction of the culture history of the valley from the time of earliest human occupation to the present. Ideally such a history would include not only the evolution of technology, art, and religion, but also changing forms of society, and these would be understood in terms of internal development and external relations. None of us expected to achieve this ideal, but we hoped to accomplish some part of it and to demonstrate what might be done toward this end by a concentrated co-operative effort in a small valley that had been intensively occupied by human groups over a long period of time. In addition to this common objective, each of us had his own technical and conceptual interests, which he proposed to pursue.

We were in common agreement that our first objective was a relative chronology that would serve to date objects and the events and changes inferred from them. We needed to date ancient houses and temples and forts, roads and ditches and fields, refuse deposits and cemeteries. And we wished to work out patterns of settlement and land utilization at different periods in the valley's history—an objective that Willey made his primary concern. We believed that a chronology based on a sample of the total ceramic remains in the valley offered the best solution to these problems of dating. Strong, Evans and I undertook to furnish the stratigraphic basis for this ceramic chronology by digging in deep refuse deposits, and Ford took as his task the dating, by means of surface collections of sherds, of a large sample of the varied cultural remains, which we called sites. This part of the work served not only to achieve our first objective but also to

demonstrate what might be accomplished by the application of refined analysis to domestic pottery in an area where chronology had been based almost entirely on stylistic analysis of pots from graves. Although the grave chronology was of great utility, it was not very helpful in dating many kinds of cultural features, since the specialized mortuary pottery is found only in very small quantities in domestic refuse.

My stratigraphic excavations were concentrated in the refuse deposits of the Late Epoch. In conjunction with this work I investigated associated architectural features and sampled the contents of burials. My most important grave excavations were in the Tomaval period cemetery at V-302. The collection of burial pottery from this site clarified the sequence of ceramic changes during the Tomaval period, threw much light on the painted wares found in the domestic refuse of the period, and furnished clues to the pottery-molding techniques that were such an important feature of Late technology.

After Strong and Evans had completed their stratigraphic digging in the refuse of the earlier periods in Virú, it appeared that there was a temporal and developmental gap between their latest phase of Guañape (Chavinoid) culture at V-71 (near Guañape) and the succeeding Puerto Moorin culture. I decided to look in the refuse mound at V-272 for material that would close this gap. This decision was based on the evidence of Ford's surface collection from the site and the clue of the meager sample of apparently aberrant Guañape pottery from the deeply buried subsoil at V-171. The pottery from V-272 and nearby sites proved to belong to the missing phase. We agreed to call the two ceramic phases at V-71 Early and Middle Guañape, and the phase at V-272 Late Guañape.

This, in brief, was the nature of my field investigations in Virú. The purpose of this report is to describe these excavations and the archaeological remains to which they relate, to analyze the ceramic collections and set forth the chronological and cultural conclusions drawn therefrom, to formulate trends of ceramic change, and to relate these to the broader patterns of culture change in Virú and in the wider context of the North Coast of Peru. Chapter II, which is purely descriptive, covers the excavations and the materials recovered. Chapter III summarizes and interprets the architectural data. Chapter IV sets forth the theoretical basis for the pottery classification and seriation, discusses the seriation and presents the results in graphic form, gives a detailed, analytical account of the trends of change in domestic and mortuary pottery, and records my conclusions on the technology of pottery making during the Late Epoch. Chapter V summarizes the trends of ceramic change and places them in a broad historical context. The statistical data on sherd distribution, the detailed description of pottery types, and other technical material are placed in the Appendices.

II. Sites and Excavations

Seventeen sites in Virú Valley were studied (see fig. 1). They are all in the lower section of the valley, seaward of the Pan-American highway, and are clustered in two localities, one to the west and south of Hacienda Carmelo and the other on both sides of the river to the east of Hacienda Santa Elena.

Four kinds of investigation were made: At nine sites stratigraphic cuts were excavated in refuse deposits. At two sites structures were cleared and at six sites burials were excavated. At three sites only surface collections were made.

The sites fall chronologically into two groups: those dating from the Late Epoch (Tomaval to Estero periods) and those of pre-Huancaco age. Two of the sites (V-171 and V-302) belong in both groups. In the succeeding pages the sites will be dealt with in the following order:

Late Epoch: V-108, V-124, V-301, V-304, V-305, V-171 (includes pre-Huancaco refuse), V-167, V-310.

Pre-Huancaco: Gallinazo mounds with burials (V-154, V-252, V-303), V-302 (includes Tomaval burials), V-272, V-306, V-307, V-308, V-309 (includes Gallinazo burials).

SITE V-108

This rectangular compound of Chimu type, 31 by 88 meters, lies on the sandy flat 2 km. northwest of the mouth of the Virú River and 1 km. back from the beach. The compound is oriented NW–SE, with the long axis parallel to the beach. It is divided by transverse walls into four sections, which contain large and small rectangular rooms (fig. 2). The walls, of rectangular adobe bricks, have been eroded and covered with wind-blown sand so that they appear as low, elongated mounds. Thus, it was impossible, without extensive excavation, to plot accurately or even to locate all of the interior structures and to identify entrances in the compound wall. The compound wall is 75 cm. thick and probably had an original height of 2.5 meters or more. The interior walls are 30–60 cm. thick. Just beyond the southeast end of the compound are three refuse mounds about 10 meters in diameter and one meter high.

Excavation V-108A.—A trench 1.5 by 3 meters was cut into the center of the refuse mound adjacent to the east corner of the compound (fig. 2). The

first 30 cm. consisted of a mixture of sand, shell, ash, and vegetal remains. Below this was a sandy stratum 60 cm. thick containing fewer shells and vegetal remains and no ash but with chunks of adobe and a greater mixture of earth. The sand became purer below this layer, and a sterile stratum of wind-blown sand extended from 120 cm. to an unknown depth.

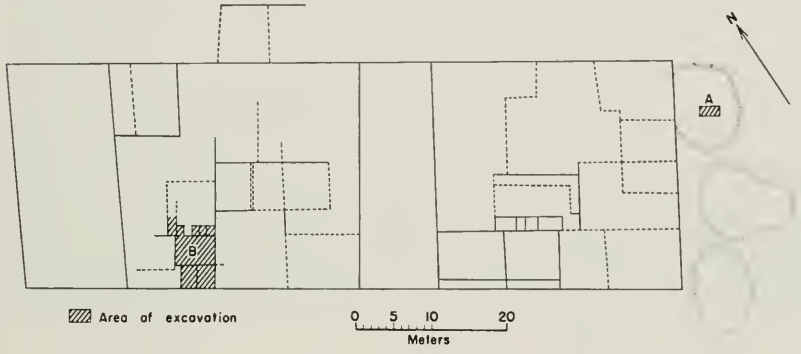

FIG. 2. Plan of V-108.

The sherds from this cut fall into the La Plata time span (Table 1 and fig. 47).

Excavation V-108B.—The three rooms that were cleared adjoin the seaward (southwest) wall near the northwest end of the compound (figs. 3 and 4). Room A, the largest, is 4.4 by 5.3 meters. Rooms B and C, lying between Room A and the compound wall, are 1.75 by 1.80 and 1.75 by 1.90 meters, respectively. The walls in this group of rooms vary in thickness from 15 to 60 cm. The plain, rectangular, mold-made adobes fall into two size groups, 32 by 25 by 20 and 32 by 15 by 15 cm. The lengths are quite uniform, but the widths and thicknesses vary several centimeters. The five different types of wall construction in this room group are shown in figure 5. The wall faces were covered with 1–2 cm. of adobe plaster, which remains intact in sections protected by fill.

The fill in Room A consisted of fallen adobes, adobe fragments, and wind-blown sand. A plastered adobe floor (Floor *a*) was encountered one meter below the present tops of the walls and 10 cm. below the level of the sand flat surrounding the site. This floor curves upward at its junction with the walls, particularly at the corners. Two former doorways, one in the northwest wall and one at the corner, have been bricked up and plastered over. At the north corner a doorway leads into an antechamber, from which there is a walled-up opening leading into a corridor with a floor 10 cm. lower than Floor *a*.

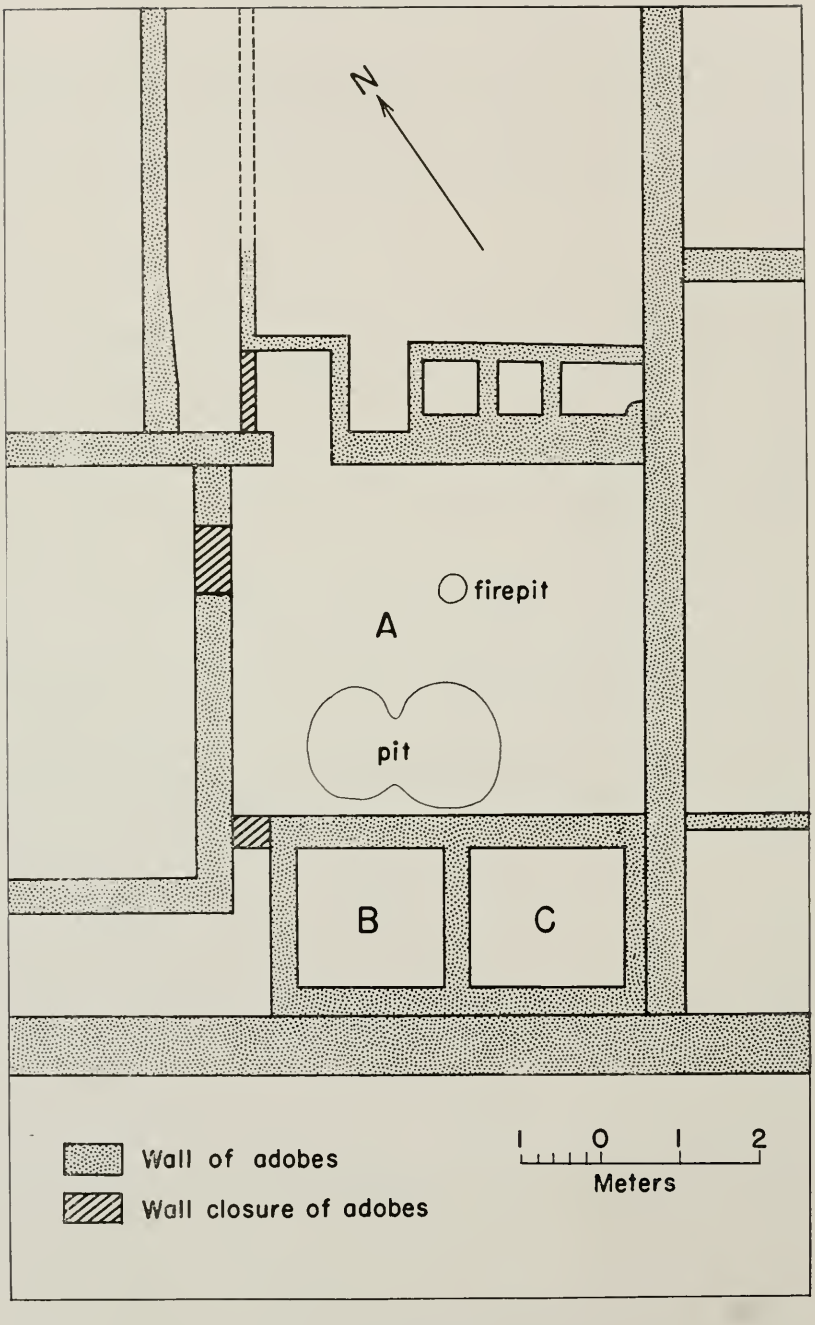

FIG. 3. Plan of rooms at V-108B.

FIG. 4. Excavated rooms at V-108B, looking southwest toward beach.

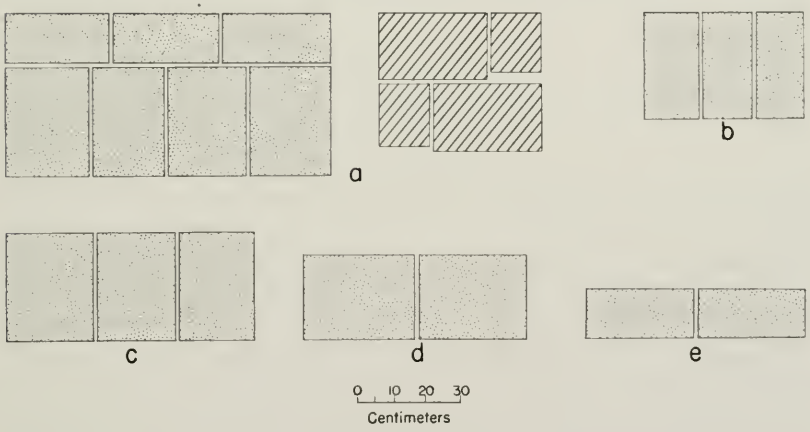

FIG. 5. Types of wall construction at V-108B. *a*, plan and section of wall; *b–e*, plans of walls.

Another floor (Floor *b*) in Room A lay 34 cm. below Floor *a*. This earlier floor was covered with a layer of wind-blown sand 10 cm. thick in the center and 20 cm. thick near the walls, on top of which was soft adobe earth extending up to Floor *a*. Below Floor *b* was a mixed sand and earth layer 20 cm. thick, which rested on undisturbed sand. There was fire blackening and some ash over a considerable portion of Floor *b*, and near

FIG. 6. Room A at V-108B, with Rooms B and C in background. Floor *a* is largely cut away to expose Floor *b*. Note layer of sand extending under walls associated with Floor *a*.

the center was a firepit(?) 30 cm. in diameter, with rounded, plastered lip. Near the southwest wall was a large, sand-filled, double pit, 2.30 by 1.5 meters and 15 cm. deep. The bases of the Room A walls rest on the sand layer that overlies Floor *b*, and both the sand layer and Floor *b* pass beneath and beyond these walls. It is apparent that Floor *a* and its associated walls were constructed after the abandonment of Floor *b* and after the accumulation above it of the wind-blown sand layer (fig. 6). The size of the Floor *b* room and the location of its walls were not determined.

Rooms B and C, which have no doors, were cleared down to plastered floors at the same level as Floor *a* in Room A. The upper half-meter of the fill in these rooms was pure sand, but the lower half-meter consisted of a mixture of broken adobes, bits of plaster, fragments of cane (1–1.5 cm. in diameter), pieces of cane-impressed plaster 2–3 cm. thick, and plaster impressions of twisted rope. Evidently the roof had consisted of canes tied in place and plastered on top, a construction similar to that of the niche ceilings at V-124A.

Three bins, each 65 cm. wide and 60–100 cm. long, adjoin the northeast wall of Room A. These were filled with adobe fragments and sand; the plastered floors were 25 cm. higher than Floor *a*. There was no evidence that the bins had been roofed. A mass of debris on the floors consisted of

unspun white and natural brown cotton, a few fragments of plain cotton cloth, pieces of twisted cotton thread, pinfeathers from unidentifiable birds, seeds and bits of vegetal material, and a considerable amount of dung pellets. These are probably the dung of a wild rodent, *Oryzomys* or *Phyllotis* sp. (Angel Maldonado, personal communication, 1953).

The sherds from the fill in this group of rooms, including those from above Floor *a* and Floor *b*, date from the La Plata period (Table 1). This evidence and that of the refuse in Trench A indicate that V-108 was built in La Plata times and occupied only in this period, during which there were two stages of building in one part of the site.

SITE V-124

This site (fig. 7), a rambling, walled compound, 67 by 112 meters, lies 0.9 km. north of the mouth of the Virú River and 0.7 km. from the beach. It is just outside the seaward (southern) edge of the zone of modern cultivation at this point. About half of the site is thickly overgrown with thorny trees and shrubs. The long axis runs NNE–SSW. The site is composed of a southern quadrangle, 43 by 50 meters, containing rooms, courts, and platforms of tapia or adobe (fig. 8); an adjoining north quadrangle, 15 by 39 meters, containing two empty enclosures; and a northwest quadrangle, 29 by 38 meters, containing two empty enclosures and a gateway at the northern end. The walls of all these structures have battered faces; the material is tapia capped with courses of rectangular, mold-made, adobe bricks. The platforms in the southern quadrangle also have battered faces and are of solid tapia or solid adobes.

In the open area east of the northwest quadrangle is a roughly circular sink 20 by 25 meters and about 2 meters deep (fig. 9). An ancient ditch enters it on the north side. A second ancient ditch leaves the sink at the southeast corner, runs parallel to the eastern wall of the site, is connected 30 meters south of the site with a western lateral, and disappears farther out on the southern flat. This sink appears to be artificial, and undoubtedly was used as a reservoir to supply water to the site and to irrigate fields to the south and west, which were slightly lower. The reservoir was fed by the northern ditch, which was probably a lateral connecting with a master ditch that drew water from the Virú River several kilometers upstream. There are several large ditches in use today that might have served this purpose, but within the area of modern cultivation it is impossible to determine which ditches are of prehistoric origin.

Excavation V-124A.—The southwest part of the southern quadrangle consists of an eastern court with wall niches, a central platform of solid tapia, and a western court (fig. 10). This section was cleared of fill in order to investigate the architectural features and to determine the time of con-

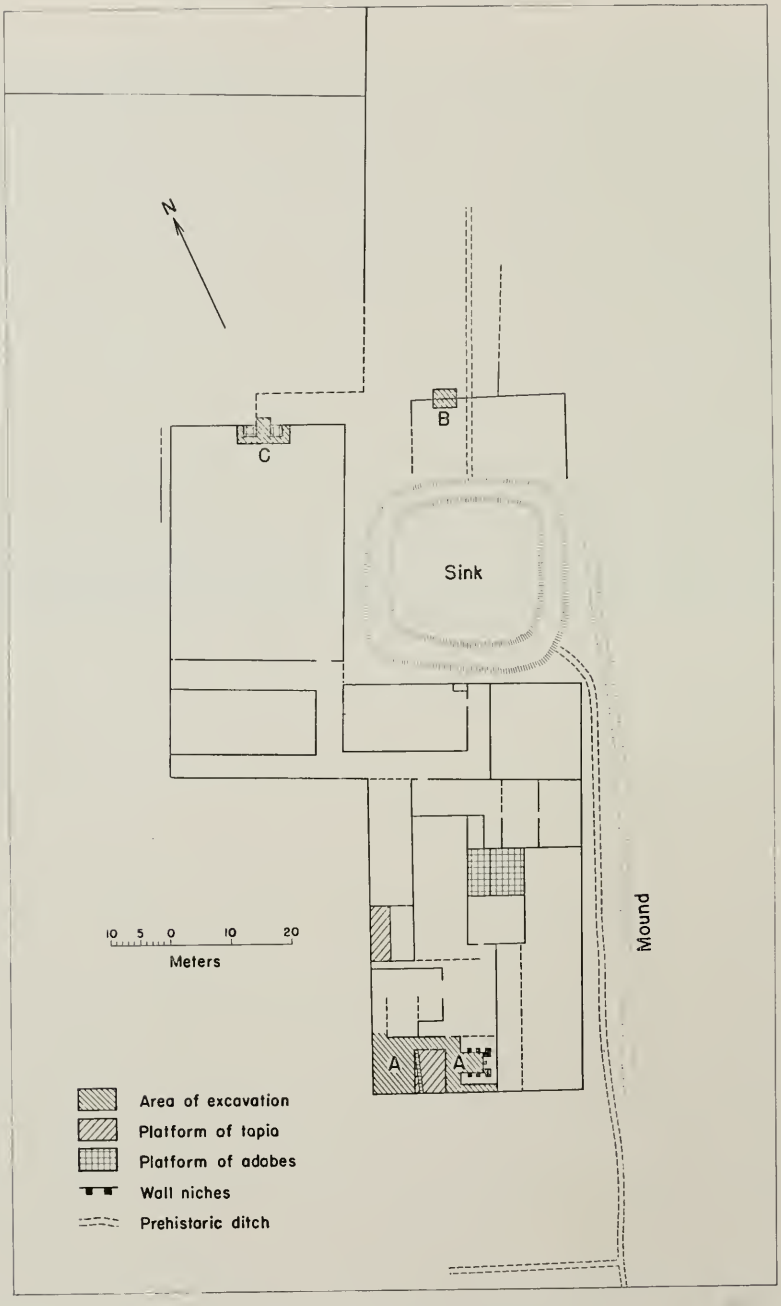

Fig. 7. Plan of V-124.

FIG. 8. Adobe platform in south quadrangle, V-124, looking east.

FIG. 9. Reservoir at V-124, looking south.

struction and occupation. After the *algarrobo* trees had been cleared from the north and northeastern portions, an average depth of 1.5 meters of fill, totaling about 130 cubic meters, was removed from the plastered floors. The fill was a mixture of sand, fallen adobes, and clay eroded from the walls. The sherds recovered came from the fill lying on or near the floors. In the eastern portion a treasure hunter's pit had cut into the floor of the court with niches and had partially destroyed the northern and northeastern niches.

In this part of the site the massive exterior walls of the compound are 2.0 meters thick at the base and rise 2.5 to 2.9 meters above the floors (figs. 12 and 16). An original height of 3.5 meters is suggested by the quantity of fallen adobes and eroded material. These walls are battered on both faces, the average inward slope being about 22 cm. per vertical meter. The material in the lower 1.5 to 1.65 meters of these walls is tapia, poured in sections 1.65 to 3.0 meters long and 30 to 60 cm. thick; above the tapia are courses of adobe bricks. The interior walls are 0.6 to 0.9 meters thick at the base and rise about 2.5 meters above the floors. They have much less batter than the exterior walls, the slope being about 9.0 cm. per vertical meter. The lower 1.4 meters are of tapia and the remainder of adobes.

The rectangular, mold-made adobes fall into two size ranges: 30–35 cm. long, 20 cm. wide, and 15–20 cm. thick; 40–45 cm. long, 20–24 cm. wide, and 18 cm. thick. Most common are bricks about 35 by 20 cm. and 15 cm. thick.

The eastern court of niches is 3.5 meters square, enclosed on three sides, and open on the western side facing the central tapia platform. The north and south sides each contain two rectangular niches, and the east wall contains a central rectangular niche and two lateral L-shaped niches (figs. 11 and 12). The niches are let into thick walls with battered faces having a slope of 8.0 cm. per vertical meter. As in the other walls, the lower portion, to a height of 1.35 meters, is of tapia, upon which are laid courses of adobes. The south wall, which is the best preserved, has a height of 2 meters and a flying façade of 0.5 meters, giving a total height of 2.5 meters (fig. 13). The tops of the other two walls were so badly destroyed by the treasure hunter's excavation that it is impossible to determine if they had similar flying façades.

The niches are all 85 cm. above the court floor, are 80 cm. high, and have vertical sides. The rectangular niches are 60 cm. wide and 80 cm. deep. The L-shaped niches each have a total depth of 1.2 meters but differ from each other in width. The north niche has an opening of 60 cm. and a total width of 1.4 meters, whereas the corresponding dimensions of the south niche are 45 cm. and 1.4 meters. The niches are roofed in the following manner (fig. 13): At the front is a wooden lintel 7 cm. high and 20

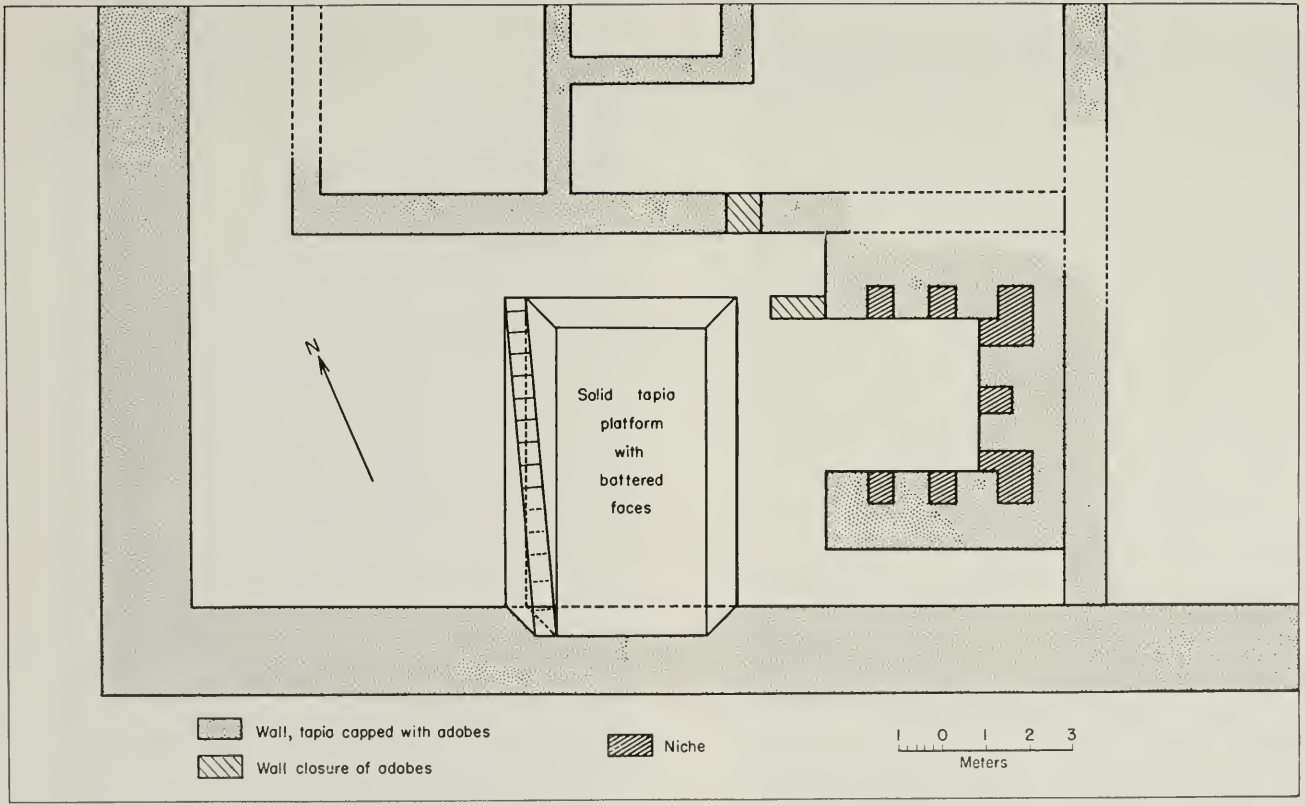

FIG. 10. Plan of V-124A.

FIG. 11. Court of niches, V-124A, during excavation.

FIG. 12. South end of court of niches, V-124A; east end of central tapia platform at right.

cm. wide, which projects 20 cm. on either side of the opening. Behind this lintel the niche is roofed with a single layer of canes, 1.5 to 2.0 cm. in diameter, running parallel to the lintel. The canes are covered with a layer of adobe mortar 5.0 cm. thick, which brings the top surface of the ceiling level with the top of the wooden lintel. The L-shaped niches have a

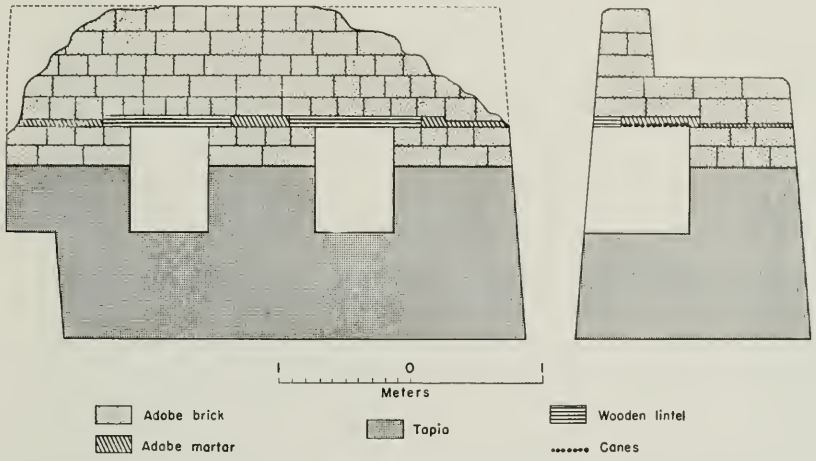

FIG. 13. Elevation and profile of south wall of court of niches, V-124A.

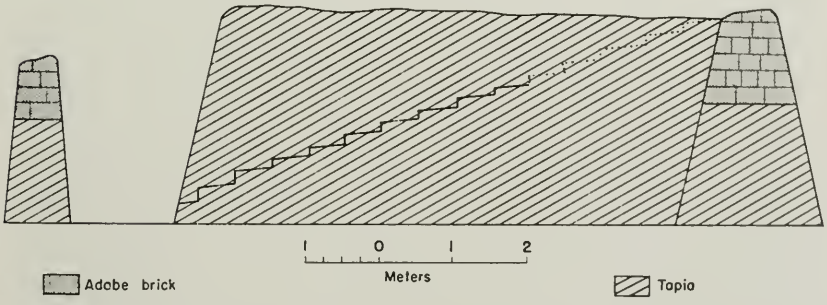

FIG. 14. Elevation of west face of central platform of tapia, V-124A; profile of compound wall at right and inner wall at left.

similar ceiling of reeds running parallel to the east wall and covered with adobe mortar, but with three layers of cane instead of one, no doubt because of the greater distance spanned. Probably the L-shaped niches also had wooden lintels at the front, but evidence of their presence was destroyed by the treasure hunter. The court walls are covered with plain adobe plaster and the interior of the niches with white plaster.

FIG. 15. North end (left) and south end (right) of central tapia platform, V-124A, looking east (left) and southeast (right).

The central platform, of solid tapia, has a base 4.8 by 6 meters. The battered faces have a slope of 24 cm. per vertical meter. Because of this batter the top of the platform is narrower (3.4 meters) than the base but substantially as long, since the southern end of the top, which butts against the battered compound wall, is as much south of its base as the northern end is of its base. A stairway, beginning at the northwest corner, runs up the west face of the platform (figs. 10 and 14). The stairs are constructed on top of a tapia stair wall 50 cm. wide, which hugs the west face of the platform. The steps average 50 cm. deep with an upward slope of 5.0 cm. in 50, and the risers average 15 cm. Thus the total rise from the front of one step to the front of the next is 20 cm. The steps and risers are plastered. Because the stairway lies flush against the battered platform face, its line of rise is at an angle to the platform base and the top step is 70 cm. east of the bottom step (fig. 10). There is no evidence of a structure on top of the platform.

A wall partially closing the passage between the northeast corner of the central platform and the west end of the north niche wall (fig. 10) was evidently built after the primary construction of Section A. It is made of

Fig. 16. West court, V-124A, looking northwest toward compound wall.

rectangular adobes laid on top of 50 cm. of fill that rests on the original plastered floor of the passage. Nearby, the doorway from Section A into the adjoining court has been bricked up with adobes.

A total of 413 sherds, a few beads of shell, stone, and copper, a few animal bones, and 25 spondylus shells were recovered from the fill in Section A, largely from the fill near the floors. The sherds, which include fragments of Inca vessels, place the fill and presumably the latest occupation of Section A in the Estero period (Table 2). The date of construction will be discussed later.

Excavation V-124B.—Unsuccessful tests for concentrated refuse were made in the other courts and around the outside edges of V-124. There was a small deposit of refuse about 50 cm. deep in the fill around a low tapia wall at the north end of the site (fig. 7). A 3 by 4 meter trench here yielded 139 sherds, which date from the latter half of the Tomaval (Table 2).

Excavation V-124C.—The *algarrobo* trees and fill were cleared from the large gateway at the northern end of the northwest quadrangle (figs. 17 and 18). The gateway, which is 2.1 meters wide, is flanked by massive, rectangular piers 2.1 by 2.5 meters and 3 meters high. The flanking walls are 1 meter thick and 2.35 meters high. Tapia extends to a height of 2 meters and courses of rectangular adobes cap the tapia. Unlike the walls and platforms in other parts of the site, the piers and adjoining walls have vertical rather than battered faces. No sherds were recovered from the fill in and around the gateway.

Summary and Dating.—V-124 is a rambling compound containing rooms, courts, platforms, and an elaborate gateway. The walls, which have battered faces, are built of tapia capped with several courses of rectangular, mold-made adobe bricks. A special feature is the three-sided court with wall niches. These niches have vertical sides, squared wooden lintels, and cane ceilings covered with courses of adobes. Excavation V-124A cleared the fill from the court of niches and the adjacent corridor and court. This fill, which was about 1.5 meters deep, was composed largely of wind-blown sand and material eroded from the surrounding walls. Sherds of Estero date in the fill close to the floor give a terminal date to the final occupation of the site, but it is unlikely that the structure was built in Estero. A search for extensive refuse deposits within or close to the compound was fruitless. A thin layer of refuse around the base of a low tapia wall at the north end of the site contained sherds of late Tomaval date. The lack of extensive refuse deposits may have resulted from the systematic disposal of refuse away from the site, a practice characteristic of the Chimu period. The Estero period refuse scattered over the floors at V-124A suggests a change in dumping habits. The site may well have been used as an ad-

FIG. 17. Massive gateway, V-124C, looking northeast.

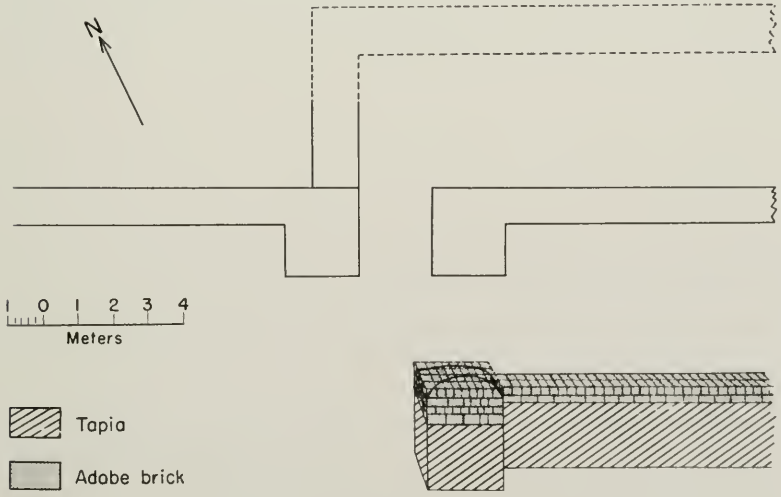

FIG. 18. Plan and isometric view of gateway, V-124C.

ministrative center by the Inca invaders. A comparative discussion of the architectural features of this site will be given in Chapter III. Probably the construction of the site was begun in late Tomaval: the major building may have occurred during La Plata. There was a final occupation during Estero.

SITE V-301

This is a refuse mound 15 by 25 meters and 2 meters high. It lies 50 meters south of V-123 and 250 meters SSW of V-124. We cut a 2 by 6 meter trench in the top of the mound. The fill, which was not rich in sherds and contained nothing else, was removed in 25 cm. levels. At a depth of two meters we uncovered the top of a sterile layer of yellow clay 25 cm. thick, overlying gray, wind-blown sand. A test pit on the flat outside the mound uncovered this same yellow clay layer over gray sand.

The sherds from this mound date from the latter part of the Tomaval period (Table 3 and fig. 47). The two meters of fill evidently were built up very rapidly, even more rapidly than the Tomaval refuse accumulated at V-167. The proximity of the mound to V-123 and the absence of any other close structure suggest the possibility that V-301 was the dump for the inhabitants of V-123. The latter is a rectangular compound with interior rooms and courts. The walls are made of tapia and rectangular, mold-made adobe brick. The surface collection made at V-123 by Ford dates from Estero, but the closest counterpart of this site in the valley, V-297, dates from Tomaval. It is likely that V-123 was built in the late Tomaval period and reoccupied in Estero (Willey, 1953, p. 262).

SITE V-304

This is a small cemetery at the base of a sand dune 500 meters west of V-124. Fragments of black pottery and human bones lying on the surface showed that graves had been looted here. Four burials were located. The bodies were flexed and in an upright position. At the time the interments were made the surface had consisted of a thin layer of sand on top of a yellow clay stratum 50 to 75 cm. thick, which overlay gray sand. In recent times the edge of the sand dune has drifted over the cemetery and covered the clay layer to a depth of 50 cm. The burial pits, which were oval in shape and averaged 90 cm. across the widest dimension, were cut through the clay layer into the sand beneath. The pots from these poorly furnished burials appear to be of La Plata age. In the following grave inventory depth measurements are from the top of the clay layer.

Burial 1. Depth 100 cm.

(a) Tomaval Plain jar (ht. 15.5 cm., diam. 17.4) with cambered rim (fig. 19, A). The shoulder is ornamented with nodes pressed out from the interior. Probably

FIG. 19. La Plata burial vessels from V-304. A, Tomaval Plain jar, Burial 1; B, Queneto Polished Plain vessel, Burial 2; C and E, Rubia Plain jar and figure from Queneto Polished Plain vessel, Burial 3; D, Queneto Polished Plain bottle, Burial 4.

made in a two-piece mold with horizontal joint; rim applied separately.

(b) Two articulated spondylus shells.

Burial 2. Depth 105 cm.

(a) Small Queneto Polished Plain jar with stirrup spout (body diam. 11.2 cm., total ht. 17) and flat base (fig. 19, B). A long-billed bird lies head downward at junction of spout and stirrup. The stirrup is D-shaped in section.

(b) Two copper needles with eyes. One is 2 mm. in diameter and 111 mm. long, the other 1.5 mm. in diameter and 86 mm. long.

(c) Crescent-shaped ornament of sheet copper with rounded tips; 16 mm. wide at middle, 55 mm. from tip to tip.

(d) Four pieces of folded sheet copper.

(e) A string of tubular copper beads cemented together by copper salts, which have preserved bits of the twisted fiber string. Each bead is 2.5 mm. in diameter and 1.5 mm. long. The beads appear to have been made by rolling a thin sheet of copper into a tube, which was cut into sections. The joint or overlap was thinned by hammering or rubbing. In the case of one bead the joint is slightly open.

Mixed with the copper beads are a few disc beads of shell. Some of these are 2 mm. in diameter and others 4 mm.

(f) Barrel-shaped bead or spindle whorl of soft, dark stone, 12 mm. in diameter and 10 mm. high, with a 5 mm. hole. The outside is painted white and decorated with concentric circles alternating with groups of vertical, parallel lines.

(g) Spindle whorl of copper (diam. 14 cm., ht. 10) with sharp shoulder. The form is similar to that of Strong's type 14 pottery whorls (Strong and Evans, 1952, fig. 33).

(h) Cake of unfired, fine white clay (kaolin) about the size and shape of a large, used bar of laundry soap (11 cm. long, 7 wide, 2.5 thick). The corners are rounded and the edges and faces rubbed smooth, as if the cake had been rubbed against objects in order to apply a white coating.

Burial 3. Depth 120 cm.

(a) Rubia Plain jar (diam. 16.5 cm., ht. 15) with cambered rim, low shoulder, and notched lugs on opposite sides of upper shoulder (fig. 19, E). Made in a two-piece mold with horizontal joint; separately applied rim.

(b) Molded figure from a Queneto Polished Plain figure-and-spout whistling jar (fig. 19, C). The figure has a headdress of molded corn ears. The whistling mechanism is of Digby's type B (1951, p. 255).

Burial 4. Depth 120 cm.

(a) Queneto Polished Plain bottle (diam. 18.5 cm., ht. 18) with cambered neck, vertical loop handle at neck, notched welt on upper shoulder, and low collar at base of neck (fig. 19, D). Method of construction uncertain.

SITE V-305

This is a small midden area on a low ridge 100 meters west of V-304. We excavated a 2 by 3 meter trench in 25 cm. levels. The refuse, 1.5 meters thick, lay on top of pure gray sand. A Virú Plain jar with cambered rim (fig. 20, A) sat upright in the refuse with its mouth in Level 2. It was 45 cm. high, 50 cm. in diameter, and had a round, soot-blackened bottom. In Level 6 there were two pots. One was a globular, Tomaval Plain jar with cambered rim (fig. 20, C). It was 33 cm. high, 36.5 cm. in diameter, and had a horizontal, notched welt on the upper shoulder. The other was a broken Tomaval Plain jar with cambered rim (fig. 20, B). It was 23 cm. high, 23 cm. in diameter, and was ornamented with a row of pressed-out bosses around the shoulder and a horizontal, notched welt on the upper shoulder. The bottom was heavily encrusted with soot. The mouth was covered with an inverted gourd bowl. None of these pots in V-305 was associated with a burial.

The classification and seriation of the sherds from V-305 indicate that the site was first occupied at the very end of the Tomaval period and that the refuse continued to accumulate throughout the La Plata period (Table 4 and fig. 47).

SITE V-171

This very large, enclosed compound is 2.3 km. east by south from Hacienda Santa Elena and 500 meters southeast of the Virú River. The

Fig. 20. La Plata pottery from V-305. A, Virú Plain jar, Level 2; B and C, Tomaval Plain jars, Level 6.

site lies within the area of *monte*, and save for a few open glades and goat paths is thickly overgrown with *algarrobo* trees and thorny brush. It consists of a northeast quadrangle, 140 by 200 meters, and a southwest quadrangle, 130 by 230 meters (fig. 21). The general orientation is NE–SW. The massive outer compound walls and the interior walls are solid tapia. Within the various courts there are few traces of permanent structures, although some of these may have been missed in the dense undergrowth. If there were houses within these walls, they must have been of flimsy pole-and-mud construction. In the southwest quadrangle are three refuse mounds and two sinks. The latter may have been used for water storage. Surface sherds indicated that the site had been occupied during the Estero period.

Excavation V-171A.—We cut a 2 by 4 meter trench into the center of a roughly circular mound 20 meters in diameter and 1.4 meters high, located in the southern corner of the southwest quadrangle. The long axis of the trench butted against a tapia wall, the top of which lay just below the surface of the mound summit (fig. 22).

The trench was carried down in 25 cm. levels (fig. 22). The first 140 cm. of the fill included three strata of dark brown earth, each harder and less sandy than the one above (Strata *a*, *b*, *d*). At 75 cm. was a thin layer of adobe fragments. The tapia wall on the southwest side of the trench ended at a depth of 140 cm., which is the level of the present ground surface at the base of the mound. This wall is 75 cm. wide at the top, and the northeast face has a batter of 20 cm. in 1.4 meters. If the opposite face,

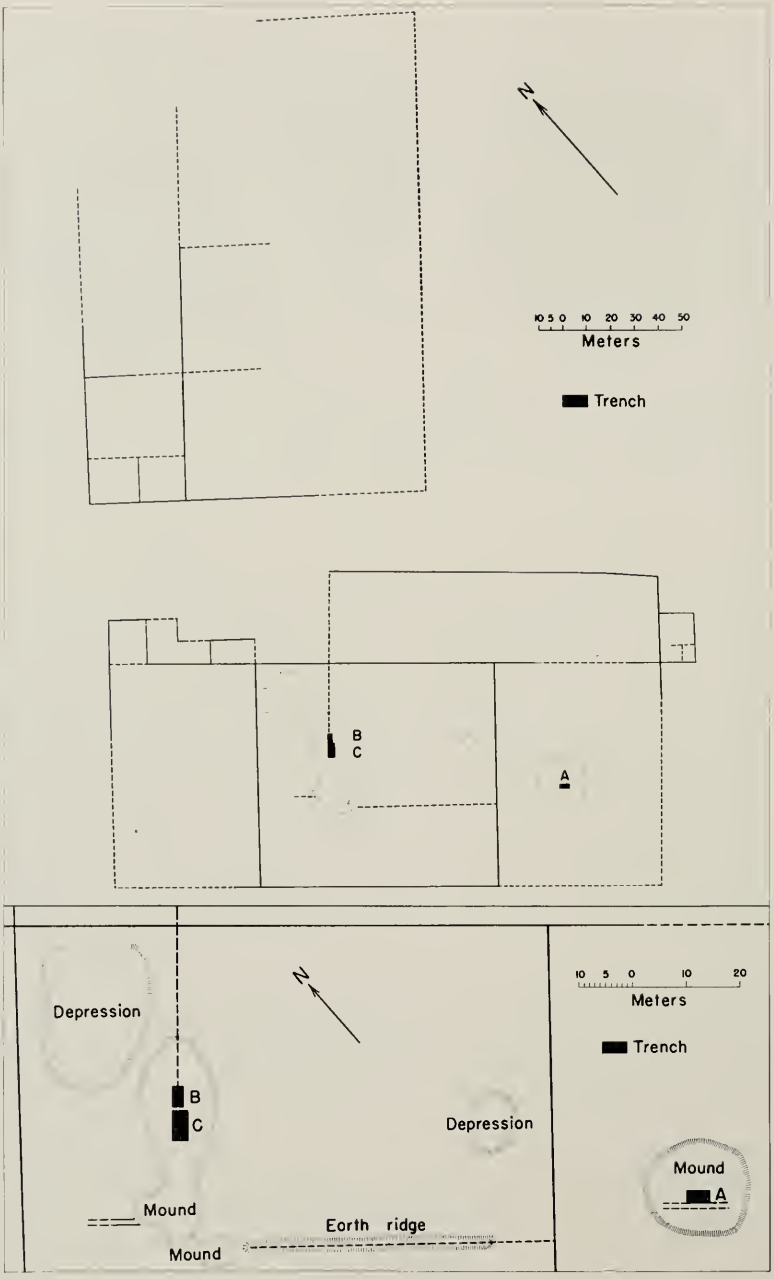

Fig. 21. Map of V-171 and (bottom) detailed plan of southwest quadrangle.

which was not cleared, has a similar batter, the base of the wall is 1.15 meters thick. No evidence of a floor was found at the base of this wall.

Below 140 cm. the fill consisted of hard, mottled yellow-brown clay (Strata *e–g*), which became progressively sandier until patches of coarse, gray-brown sand (Stratum *h*) were encountered at 2.3 meters. The fill contained no sherds or other evidence of human occupation below 2.5 meters.

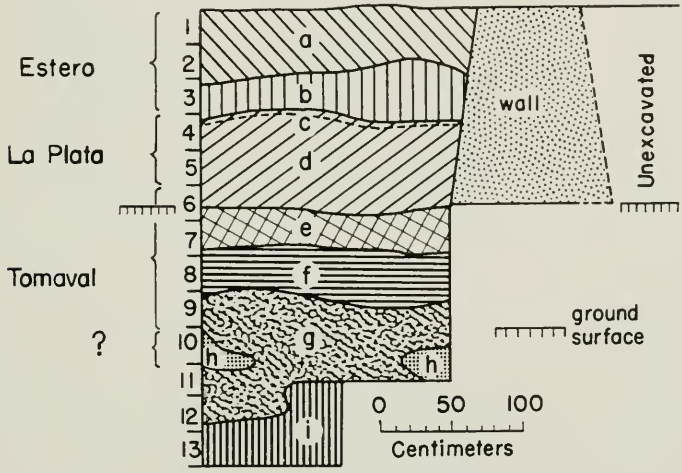

Fig. 22. Profile of Trench V-171A. *a*, dark brown, sandy earth; *b*, similar to *a* but harder, with less sand; *c*, thin layer of adobe fragments; *d*, same as *b* but harder; *e*, hard, mottled, yellow-brown clay; *f*, same as *e* but with more sand; *g*, hard, sandy, brown clay; *h*, coarse, gray-brown sand; *i*, very hard, mottled brown and yellow clay.

A stratum of very hard, mottled brown and yellow clay (Stratum *i*) began at 2.65 meters and extended down to the bottom of the trench at 3.25 meters.

The sherds from the fill indicate an occupation of this part of the site from before the middle of the Tomaval period through the La Plata and Estero periods (Table 5 and fig. 47). Level 10, the lowest sherd-bearing layer, contained only 16 sherds, one Tomaval Plain and 15 Castillo Plain. The sample is too small to date this lot of sherds; it could have been deposited during the Tomaval period or earlier.

The relation of the arbitrary excavation levels to the natural strata and the period affiliations of the former are shown in figure 22. Strata *a* and *b* were deposited during the Estero period, and the upper three-fourths of *d* during La Plata. The bottom of Stratum *d*, Strata *e* and *f*, and the major part of *g* were laid down during the Tomaval period. The portion of the mound above present ground surface was built up largely during the La Plata and Estero periods.

The depth of the Tomaval-Estero refuse, 2.5 meters, is evidence of rapid accumulation and hence intensive occupation of this part of the site. The base of the tapia wall rests on refuse dating from the end of the Tomaval period, and the wall must have been built at that time. Since the base of this wall is at the same level as bases of the other walls of the compound, which are also made of solid tapia, it is likely that the major part of the construction at the site took place during the Tomaval period. This conclusion conforms with the dating of similar large, empty, walled sites in Virú, such as V-172 and V-246, which also were built during the Tomaval period (Ford, 1949, pp. 84, 86; Willey, 1953, pp. 250, 256). The evidence suggests that soon after the wall at V-171A was built, at the end of Tomaval, concentrated dumping was started on both sides of the wall, and thus the refuse mound was built. Whether this accumulation of refuse was due to a change of dumping habits at the end of Tomaval or to the location of clusters of perishable dwellings is not clear. No evidence of such dwellings was found in the trench.

Excavations V-171B and V-171C.—In the central court of the southwest quadrangle is an elongated mound 15 by 40 meters and 1.10 meters high. We cut a 2 by 4 meter trench into the highest part of the mound (figs. 21 and 23) and carried it to a depth of 4.15 meters in 25 cm. levels (Level 1 was thicker). There was a pit near the southwest corner, which cut through Levels 1–3, but it extended only a short distance into the trench and did not disturb the stratigraphy materially. Sherds and other refuse were abundant down to the bottom of Level 5; thereafter they became progressively sparser. There were no sherds in Level 15 and only three in Level 16. Later classification of the sherds showed that the upper portion of the mound (1.65 meters) was laid down during the Tomaval-Estero interval. Level 6, the lowest Tomaval level, was deposited at about the same time as the lowest Tomaval level in Trench A. The lower refuse (2.5 meters) was deposited during the Guañape, Puerto Moorin, and Gallinazo periods (Table 6). Owing to the very slow deposition during the earlier occupation, there was considerable vertical overlapping of ceramic styles in the lower refuse. Therefore, another and larger trench was cut in the mound in order to confirm and clarify the ceramic sequence.

Trench V-171C, 3 by 6 meters, was placed immediately to the southwest of V-171B (figs. 21 and 23). A wall of earth 40 cm. thick was left between the two trenches in order to prevent slumping of the soft earth that had previously been back-filled into Trench B. As shown in figure 23, the surface of Trench C was slightly lower than that of Trench B, owing to the gentle downward slope of the mound to the southwest. Trench C was carried to a maximum depth of 4.5 meters in 25 cm. levels (Level 1 was thicker at the northeast end and thinner at the southwest end). Sherds and

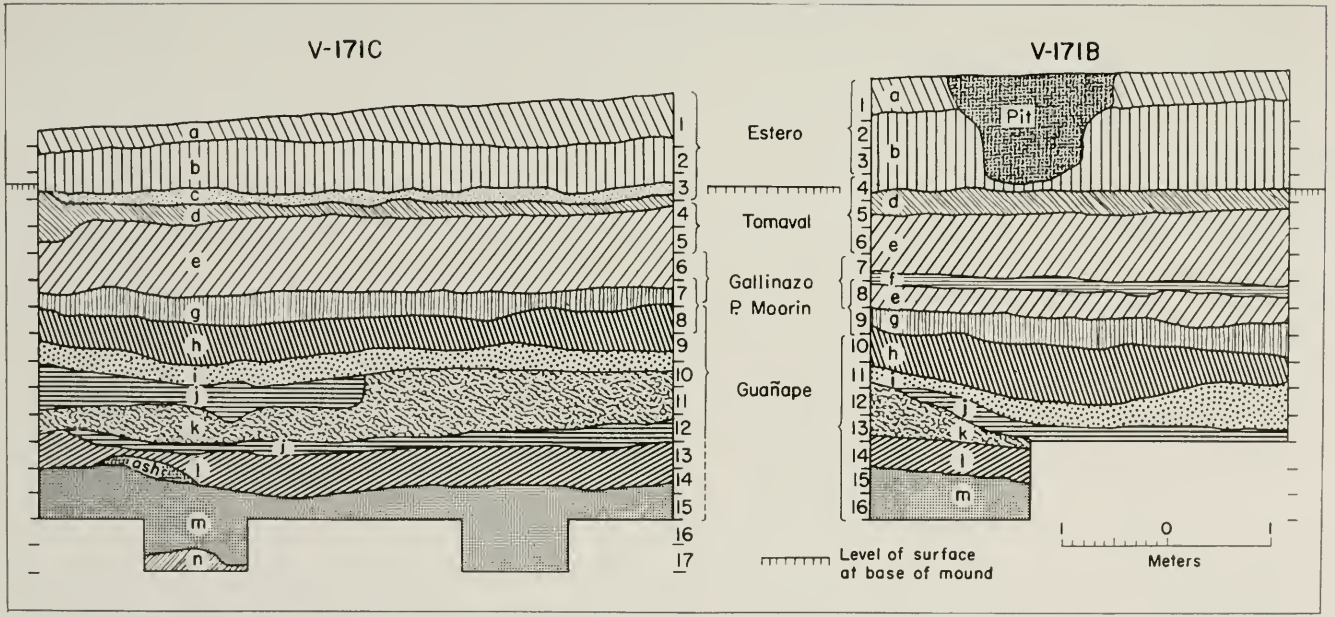

FIG. 23. Profiles of Trenches V-171C and V-171B. *a*, soft, dusty, brown earth; *b*, similar to *a* but harder; *c*, sandy, yellow clay; *d*, dark brown earth, with some sand; *e*, hard, brownish-yellow clay; *f* and *h*, dark brown earth; *g*, sandy, yellow-brown clay; *i*, soft, yellow earth and sand; *j*, hard, mottled yellow-brown clay; *k*, hard, brown earth, with yellow clay; *l*, hard, brownish-black clay; *m*, damp, sandy, yellow to black clay; *n*, very wet, yellow-gray clay.

refuse were abundant in the first four levels, less so in Levels 5–7, abundant in Level 8, and sparse in Levels 9–12. Level 12 contained only 15 sherds. There were no sherds below Level 12, but Levels 13–15 contained fragments of shell and burned clay and a lens of ash. Damp, very sandy clay appeared in the lower part of Level 14 and extended through Level 15. Levels 16 and 17 were taken from two pits one meter square cut into the floor of the trench. Very wet clay was reached in Level 17; apparently the water table was not more than one meter below.

Analysis of the sherds from Trench C (Table 7 and figs. 46 and 47) revealed the same sequence as from Trench B. The upper five levels (1.5 meters) of rich refuse were laid down during the Tomaval-Estero interval, and the lower seven levels (1.75 meters) during the Guañape, Puerto Moorin, and Gallinazo periods. The Guañape sherds do not extend quite as deep as in Trench B, but Levels 13 to 15 show ample evidence of human occupation, and the absence of sherds from them was probably due to accidents of deposition. There is the same overlapping of Gallinazo and Puerto Moorin ceramic types, owing, no doubt, to the slow rate of deposition.

Summary.—Figure 23 shows Trenches A and B in relation to each other and to the ground level at the base of the mound, and indicates the relation of the arbitrary excavation levels to the natural strata. The period affiliations of the various levels are shown by brackets opposite the period names. The excavation levels overlap the natural strata in part, but it appears that Strata *a* to *c* were deposited during Estero, *d* and the upper part of *e* during Tomaval, *e* to *g* during Puerto Moorin–Gallinazo, and *h* to *m* during Late Guañape. As in Trench A, the top of the Tomaval refuse is approximately at present ground level, but apparently the La Plata period refuse found in the lower part of the mound at A is lacking. The B-C mound was built up largely, if not entirely, during the Estero period. A further contrast with Trench A is the evidence from below Mound B-C of a long-continued but sparse occupation during the Guañape, Puerto Moorin, and Gallinazo periods. The deposits pertaining to Puerto Moorin and Gallinazo are particularly thin and consequently mixed with each other and with the later part of the Guañape material.

The fact that the earliest human occupation of the site is found three meters below the present ground surface is evidence of the process of aggradation that began in the Virú Valley before the Guañape period and continued until relatively recent times. I found similar indications of aggradation during the Tomaval period at V-167, which is farther from the river on the same side of the valley. Even more striking evidence of this process has been observed by Junius Bird (1948, p. 21) in the 6.4 meter soil

profile (V-311) exposed by the cutting of the Virú River in the vicinity of the Pan-American highway bridge. Here Late Guañape sherds are found 4.8 meters below the surface. Above this are remains of the succeeding cultural periods, with sherds from the La Plata period in the uppermost soil zone. Evidently the present erosional cycle, evidenced by the cutting of drainage channels in various parts of the valley, did not begin until La Plata times.

To summarize, the subsoil at V-171B–C contains evidence of an extended but sparse occupation during the Guañape, Puerto Moorin, and Gallinazo periods but apparently none during the Huancaco period. A more intensive occupation of the site began in the Tomaval period, during the latter part of which the wall at V-171A and very probably the other compound walls were built. The refuse mound at V-171A began to accumulate at the end of the Tomaval period and continued to grow during the La Plata and Estero periods, whereas the mound at V-171B–C began slightly later, with apparently no dumping during La Plata, and was built up largely during the Estero period. No evidence of dwelling structures was found.

SITE V-167

This site is 4.5 km. ESE from Hacienda Santa Elena and 3 km. SSW of El Puente, the point at which the Pan-American highway crosses the Virú River. It is situated at the southern edge of modern cultivation in this part of the valley, and is partially overgrown with *monte*. The site comprises an extensive area of refuse and fill measuring 190 meters from north to south and 140 meters from east to west, and rising in its center 60 cm. above the surrounding ground level (fig. 24). Within this refuse area are two small pyramid mounds and a small refuse mound. The pyramid mounds consist of a central, badly eroded pyramidal structure built of plain, mold-made, rectangular adobes, surrounded by a low earthen mound built up of refuse and materials eroded from the pyramid. The southern mound is about 25 meters in diameter; its pyramid has a base about 12 meters square and rises about 5 meters above the general level of the site. The northern mound is also about 25 meters in diameter, but its pyramid is only about 8 meters square and rises only 3 meters. The refuse mound, situated between and to the west of the pyramid mounds, is 17 by 22 meters and rises 1.5 meters above the level of the site (2.1 meters above the ground level outside the site).

Excavation V-167A.—We excavated a 3 by 4 meter trench in the center of the refuse mound (fig. 25). Refuse and sherds were very abundant in Level 1, abundant in Levels 2–10, very abundant in Levels 11 and 12, and fell off sharply in Levels 13 and 14; there were only 16 sherds in Level 14. At the bottom of Level 14, at a depth of 3.5 meters, all evidences of human

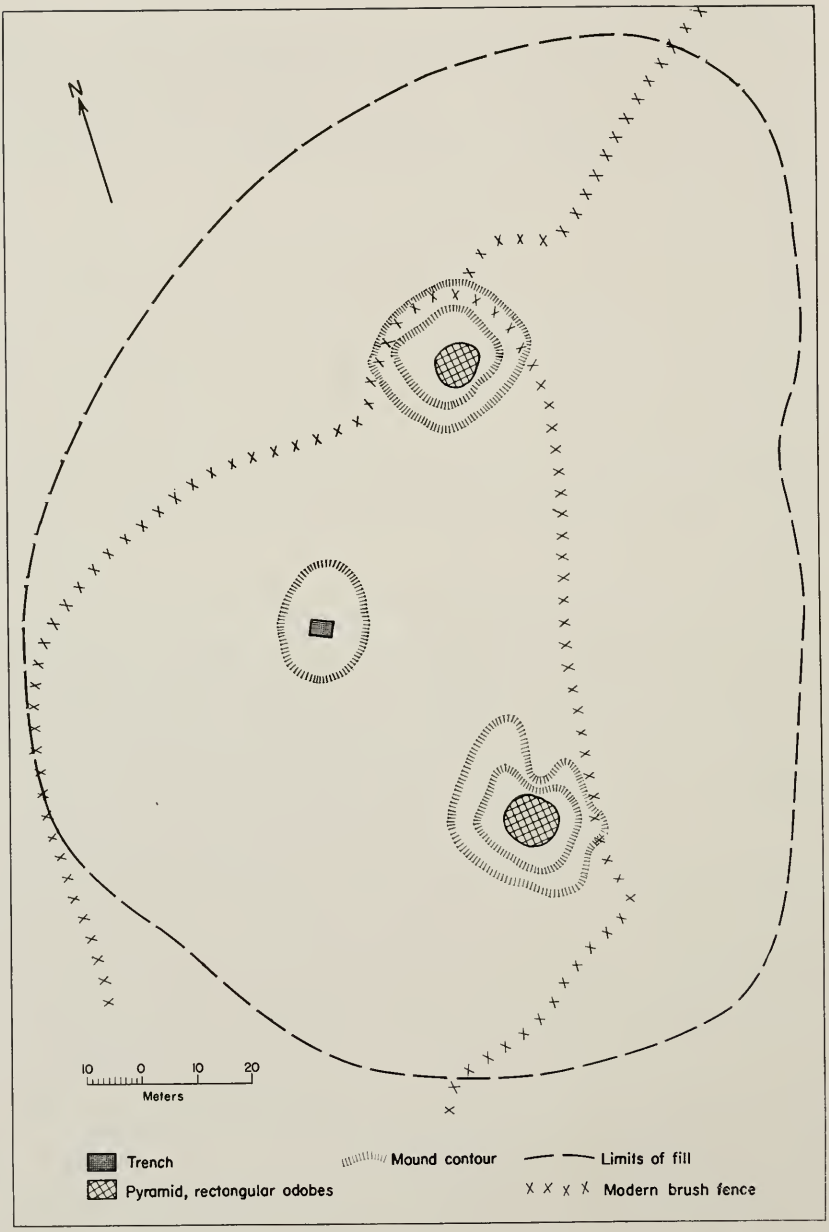

FIG. 24. Plan of V-167.

occupation ceased. Below this point was a stratum of hard, sterile, dark brown clay occasionally mottled with yellow, the bottom of which extended below the test pit, 75 cm. deep, that we cut in the floor of the trench. A wall of plain, mold-made, rectangular adobes cut diagonally across the southwest corner of the trench. Its top was at a depth of 50 cm. and its base at 150 cm. There was no evidence of a floor at the base of this

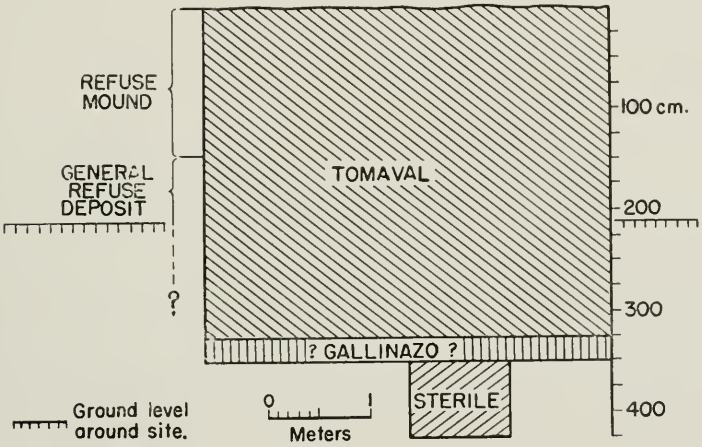

Fig. 25. Schematic profile of Trench V-167A.

wall. At a depth of 2.65 meters in Level 11, which was very rich in sherds and refuse, there was a layer of shell and charcoal 2–3 cm. thick.

The sherds from the first thirteen levels at V-167A all fall within the first half of the Tomaval period (fig. 47 and Table 8). Level 14 contained only thirteen Castillo Plain sherds and three Huacapongo Polished Plain sherds. The sample is so small that it is impossible to know whether Level 14 dates from the early Gallinazo period or has resulted from a mixture of a later Gallinazo deposit with sherds dating from the earlier Puerto Moorin period. That 3.25 meters of refuse should accumulate during the period of strong Tiahuanaco influence (approximately the first half of the Tomaval period) is remarkable, and is evidence of unusually heavy dumping and, by inference, intensive occupation of the site. The only other instance of such rapid accumulation is the refuse at V-301. Since the Tomaval refuse extends not only through the refuse mound, but also through the refuse deposit covering the whole site and underlying the refuse mound, and to a depth of 1.15 meters below the ground level outside the site, it is evident that the general refuse area was built up and probably the two pyramids were constructed during the Tomaval period. A surface collection made by

Ford on the northern edge of the site dated from late Gallinazo times (Ford, 1949, p. 84). This fact and the meager evidence from the bottom of Trench A indicate that at least portions of the site were occupied during the Gallinazo period, if not earlier. Since I did not investigate the pyramids in detail, the possibility that they were built during the Gallinazo period cannot be eliminated, although the virtual absence of sherds of this period under the central refuse mound makes this unlikely. The evidence suggests also that the valley was still in an active stage of aggradation during early Tomaval times, since the surrounding ground level is 1.15 meters higher than the bottom of the Tomaval refuse.

SITE V-310

This elongated mound lies 400 meters north of Huaca Carranza (V-166) and 500 meters north of V-167. It is 150 meters long, 80 meters wide, and 4.25 meters high; its long axis runs NE–SW. The mound surface is badly pitted with holes dug by *huaqueros* and is covered with sherds, scattered human bones, and adobes thrown out of the pits. A small surface collection from the mound contained Tomaval period decorated sherds, including one Tiahuanacoid sherd, and Huancaco Decorated sherds (Table 9). The majority of these were undoubtedly from graves. Many of the Castillo Plain sherds had a pink paste, which is a characteristic of this ware in the Huancaco period. The rectangular adobes were mold-made but not cane-marked. They averaged 13 by 25 by 34 cm.

Excavation V-310A.—On several parts of the mound unsuccessful efforts were made to locate an undisturbed area suitable for a stratification test. Finally a 4 by 6 meter trench was cut into the top of the mound near the center. This area also had been disturbed, for we immediately encountered two pits, one of which was a disturbed grave (listed as Pit in Table 9) and the other probably so. The former contained 13 sherds, which undoubtedly were from vessels that had been placed in the burial (see Table 9). Included were two Tiahuanacoid sherds, a nearly complete Carranza Black-on-Orange bowl with tripod supports (see description, p. 184), and half of a Santa Elena White and Black-on-Red bowl with tripod legs (description, p. 180). If these sherds may be assumed to be representative, this looted burial dates from the early Tomaval period.

We cleaned out the looted burial pit, but did not carry this trench below 25 cm. The sherds from this top 25 cm. layer date from the beginning of the Tomaval period (Table 9). How much the sherd count is weighted by sherds from the looted burial or burials it is impossible to say.

The time span and sequence of occupation of this mound remain uncertain. It is certain that there were Huancaco and early Tomaval period burials cut into the top of the mound, and probably refuse was deposited

on the top of the mound during early Tomaval. It is not clear whether the body of the mound was built during the Huancaco period or at an earlier time, and whether the surface adobes came from house walls or the linings of the Huancaco tombs.

SITE V-154

This is one of the smaller of the platform mounds in the Gallinazo group, which lies 2 km. northwest of the Carmelo hacienda house (fig. 1). Its relation to the other mounds in the group is shown by Bennett (1950, fig. 2). The mound is roughly scapula-shaped, 55 meters wide and 60 meters long, with its long axis slightly east of north. Bennett estimated its maximum height as 3.5 meters; I recorded a hand level reading of 5.25 meters. Bennett (1950, pp. 53–54 and fig. 12, C) dug two pits in this mound. Pit A, which was in the southern tip, uncovered house walls of cane-marked adobes at a depth of 70 cm. There was a floor at 110 cm. The fill over this floor contained sherds dating from the latter part of Middle Gallinazo (Late Gallinazo II). Pit B was cut into the western slope just above the waist of the mound. The long axis of this pit ran 30° west of magnetic north. In this pit Bennett uncovered three burials containing a total of 15 pottery vessels and an unassociated face-collar jar (op. cit., pl. 7, A, C, D, F–H). Bennett suggested that these vessels fall in Gallinazo I.

We carried Bennett's Pit B back (northeastward) into the mound a distance of 2 meters along a nine-meter face. When completed, the northeast face of this cut was 2 meters deep. The profile consisted of 75 cm. of soft, dusty earth containing refuse overlying hard, yellow-brown, charcoal-streaked clay, which was not discernibly stratified. We encountered two extended burials containing a total of four pots.

Burial 1. Depth 125 cm.

(a) Castillo Plain face-collar jar (diam. 9.5 cm., ht. 25). The face is modeled and punched and has appliqué ears (fig. 26, A).

(b) Valle Plain constricted-mouth jar with direct rim (diam. 25 cm., ht. 28). It has a constricted waist, giving the effect of a double jar (fig. 26, C).

(c) Small Castillo Plain bowl (diam. 9 cm., ht. 4) with ring base and everted, scalloped lip (fig. 26, B).

Burial 2. Depth 50 cm.

(a) Castillo Plain cup-shaped bowl with ring base (diam. 10.5 cm., ht. 8.5).

These vessels may fit into Bennett's Gallinazo I group, although the scalloped bowl and the double-bulge jar might be considered to fall in Gallinazo II.

SITE V-252

This is a small mound (16.5 by 22.8 meters and 3.2 meters high) at the southern end of the Gallinazo group (Bennett, 1950, fig. 2). Its long axis runs north and south. Bennett (1950, pp. 60–61 and fig. 15, A) dug Trench

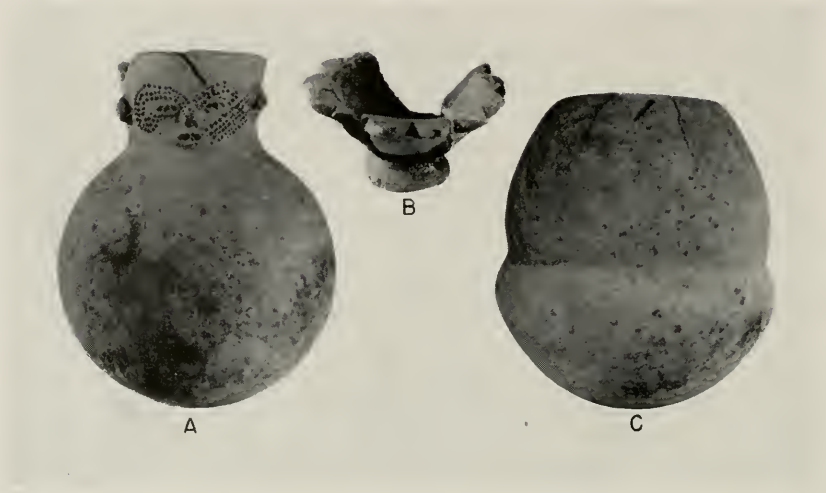

Fig. 26. Gallinazo pottery from V-154, Burial 1.

A in the northeast corner of the mound, and later Willey dug Trenches B, C, and E in the north, east, and southwest sides. I excavated Trench D (2 by 6 meters) on the west side, well in toward the center of the mound. Bennett and Willey uncovered a total of 23 burials containing 63 vessels, which fall into Gallinazo III. Most of their burials were extended; the few flexed burials were unaccompanied by pots. In Trench A Bennett encountered two walls running east and west and a third running north and south. They were constructed of ball adobes. The tops of these walls were at a depth of 125 cm. and they went down to a sand floor at 190 cm. There

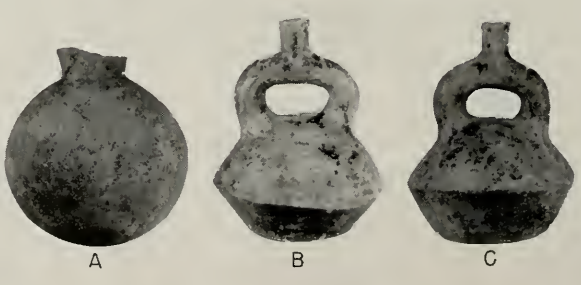

Fig. 27. Gallinazo pottery from V-252, Burial 1.

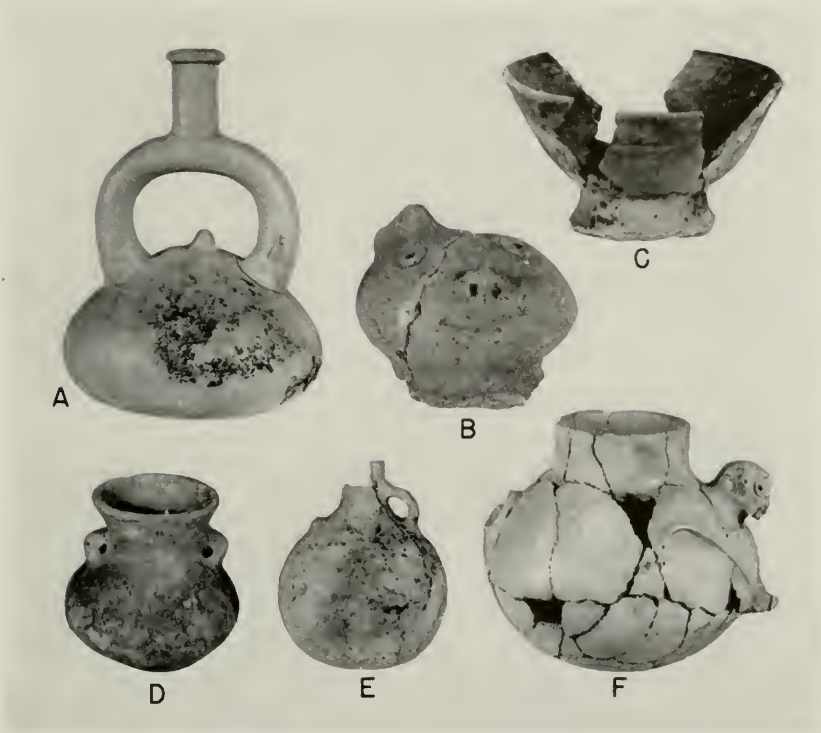

Fig. 28. Gallinazo pottery from V-252. A–E, Burial 2; F, Burial 5.

was another floor below at a depth of 265 cm. The sherds in the fill above these floors were not clearly datable but suggested Gallinazo I or II.

In Trench D, at a depth of 135 cm., a plastered wall of ball adobes ran north and south. Its base was at a depth of 260 cm., where it rested on a hard, uneven dirt floor, which corresponded in level to Bennett's lower floor in the north end of the mound. There were no sherds in the sandy fill above this floor, but there was a large Castillo Plain jar (diam. 36 cm., ht. 40) sitting upright in the fill 30 cm. east of the wall at a depth of 190 cm. Six burials were uncovered in Trench D, in simple pits ranging in depth from 60 to 115 cm. Four extended burials contained a total of 15 vessels, and two flexed burials had no accompanying pots.

Burial 1. Depth 60 cm. Body extended.

(a) Castillo Plain jar (ht. 29 cm., diam. 26) with slightly flaring collar (fig. 27, A).

(b) Gallinazo Negative jar (ht. 17 cm.) with stirrup spout and low, sharp shoulder (fig. 27, B).

(c) A similar Gallinazo Negative stirrup-spout jar (ht. 18 cm.) with higher sharp shoulder (fig. 27, C).

Burial 2. Depth 110 cm. Extended.

(a) Stirrup-spout vessel with polished white slip (ht. 20 cm.). The top of the body has a ridge at right angles to the stirrup and the spout has a flanged lip (fig. 28, A).
(b) Castillo Plain toy jar with flaring collar and pierced node handles at the neck (fig. 28, D).
(c) Small Gloria Polished Plain bowl (diam. 14.5 cm., ht. 8) with ring base (fig. 28, C).
(d) Small Castillo Plain jar (fig. 28, E) with narrow neck and loop handles at neck (diam. 8 cm., ht. 11).
(e) Bulging face collar (diam. 10 cm.) from a Castillo Plain jar (fig. 28, B).

Burial 3. Depth 110 cm. Extended.

(a) Stirrup-spout vessel with polished white slip (ht. 18 cm.). The spout has a flanged lip. The shoulder is ornamented on one side with a champlevé step design over which are placed two raised discs and a looped welt with transverse notches (fig. 29, A).
(b) Rectangular jar (length 18 cm.) with spout and bridge and negative painting of Gallinazo Negative type (fig. 29, B). The solid bridge connects two tower-like structures, the larger of which has its top (roof?) broken off.
(c) Figure-and-spout double jar with ring bases (ht. 23 cm.). A solid bridge (round in section) connects the neck of the figure with the base of the tall, tapered spout. The figure is playing a set of panpipes (5 pipes) and holds a square shield with incised design on its left arm. The shield and the headdress are typically Recuay in style (Schmidt, 1929, pp. 232, 235, 241; Bennett, 1944, pl. 2, H). The bodies of the jars have negative painting in Gallinazo Negative style (fig. 29, F).
(d) Miniature double jar with face and bridge (total width 10 cm., ht. 10). Covered with dull white slip (fig. 29, E).
(e) Polished red double vessel with solid bridge and spout (fig. 29, C). The missing portion of the spout was probably tapered like the spouts on the other two bridge-and-spout vessels from this grave (fig. 29, B and F). The front section bears a face (ht. to top of ear 15.7 cm.) with modeled and incised features, and is connected with the rear section by a hollow tube near the bottom. The whiskers and prominent incisors give the face a feline character.
(f) Gloria Polished Plain cylindrical goblet with flat bottom (diam. 8 cm., ht. 11).
(g) Bird-like ornament of shell 9.5 cm. long (fig. 29, D).

Burial 4. Depth 115 cm. Flexed.

No accompanying vessels.

Burial 5. Depth 100 cm. Extended.

(a) Polished red effigy jar (diam. 17 cm., ht. 14) possibly representing a monkey (fig. 28, F). The modeled head, the long arms and hands, which hold the erect penis (the urethra is represented by a hole 2.3 cm. deep, which nearly goes through the vessel wall), and the coiled tail on the opposite side of the vessel are covered by a white slip.
(b) Two gilded copper discs.

Burial 6. Depth 100 cm. Flexed.

No accompanying pots.

The grave vessels from Trench D, like those excavated by Bennett and Willey from Trenches A–C, and E, date from Gallinazo III. The stirrup-spout vessels from Burial 1 have a typical Gallinazo III form. On the other

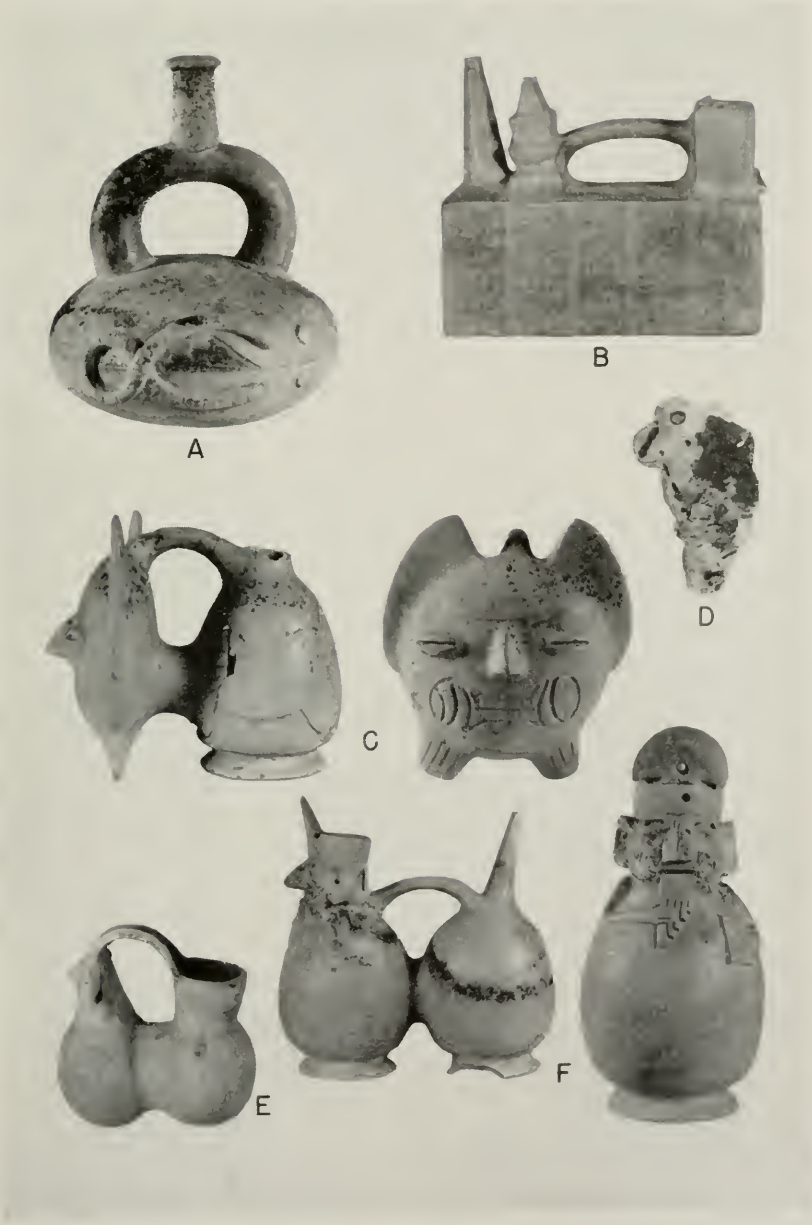

Fig. 29. Gallinazo pottery from V-252, Burial 3.

hand, the stirrup-spout vessels from Burials 2 and 3 show Mochica influence. Their vertically flattened bodies and the heavily flanged lips on their spouts are characteristic of Mochica phases I and II, postulated by Larco Hoyle (1948, pp. 28–30). The figure playing panpipes and carrying a shield on the double jar from Burial 3 shows strong influence from the Recuay style, although the vessel was undoubtedly made locally. Bennett (1950) has shown that the Gallinazo culture was not strongly influenced by Mochica and Recuay until the beginning of Gallinazo III.

The base of this mound was evidently an old habitation cluster, which, judging from the type of construction (ball adobes), was probably occupied during Gallinazo II. Some time after its abandonment, during the first half of Gallinazo III, the upper part of the mound was used as a cemetery.

SITE V-303

This is an oval mound, 60 by 80 meters and 4.75 meters high, located in the central part of the Gallinazo group, 150 meters west of V-154 (Bennett, 1950, fig. 2). Its long axis runs north to south. We excavated a trench, 4 by 10 meters, in the highest section of the mound midway from the north and south ends and slightly east of the center. Four extended burials were uncovered, containing a total of 14 vessels.

Burial 1. Depth 125 cm. Extended.

(a) Bird-effigy jar with modeled head and wings, and incised tail (diam. 19 cm., ht. 18.5). The vessel has a ring base and flaring rim, and the wings are painted white (fig. 30, A).

(b) Castillo Plain jar (diam. 14.5 cm., ht. 17) with straight spout and strap handle running from spout to shoulder (fig. 30, C).

(c) Small, red, ring base bowl (diam. 5 cm.) with everted, crenelated lip (fig. 30, B).

Burial 2. Depth 150 cm. Extended.

(a) Polished red, bird-effigy jar with sharp shoulder and tall, sharply flaring collar (diam. 18.5 cm., ht. 19). The head is a punched node, the wings are horizontal welts, and the tail is a flattened, incised lug (fig. 31, A).

(b) Castillo Plain miniature jar (diam. 7.5 cm., ht. 10) with flaring collar and pierced node handles at the neck (fig. 31, C).

(c) Small, flask-shaped bottle with flaring collar and pierced node handles at the neck (diam. 13 cm., ht. 17). There is a white painted band on the outside of the lip and two vertical white bands are on the body (fig. 31, B).

(d) Castillo Plain jar with straight spout and strap handle running from spout to shoulder (diam. 13 cm., ht. 17). There are six notched welts running from the neck to below the shoulder (fig. 31, D).

(e) Disc-collar jar with strap handle running from lip to upper shoulder (diam. 12 cm., ht. 15). On the upper shoulder is a modeled face with earplugs; from the head projects a hollow spout connected with the interior of the vessel (fig. 31, E). The vessel body is painted in Carmelo Negative style on the red paste, with white overpainting. The disc collar and head spout of this vessel are traits characteristic of the Recuay style (Schmidt, 1929, p. 232).

FIG. 30. Gallinazo pottery from V-303, Burial 1.

FIG. 31. Gallinazo pottery from V-303, Burial 2.

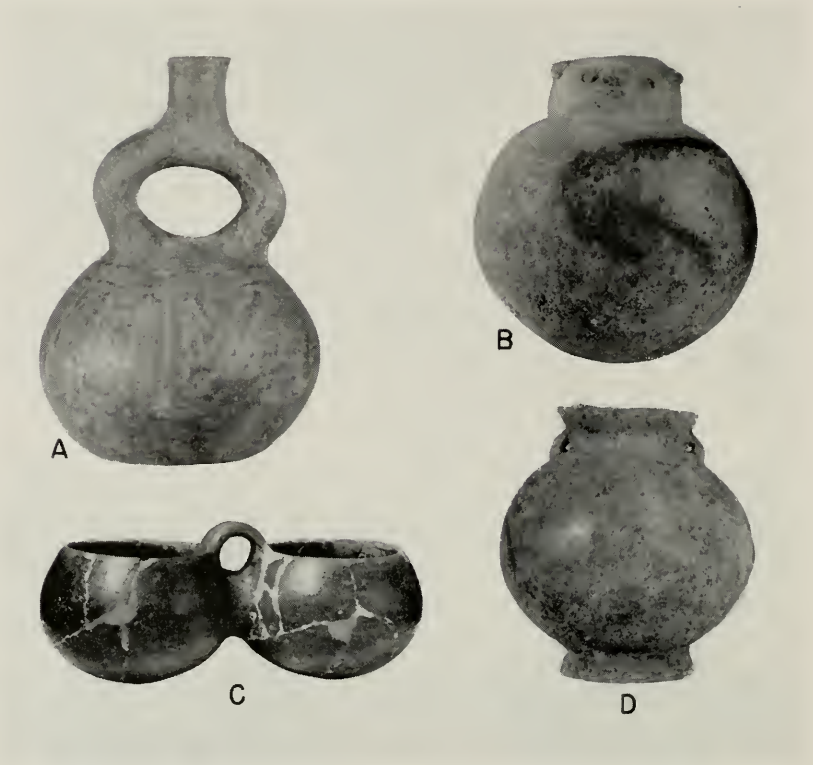

Fig. 32. Gallinazo pottery from V-303. A–C, Burial 4; D, Burial 3.

Burial 3. Depth 150 cm. Extended.

(a) Polished red jar with ring base, flaring rim, and pierced node handles at the neck (diam. 23 cm., ht. 23). There is a series of pressed-out bosses around the shoulder, and the body is decorated with negative painting in Gallinazo Negative style (fig. 32, D).

(b) Polished black bowl (diam. 20 cm., ht. 10) with ring base.

(c) Polished red jar with tall, concave, flaring collar and pierced node handles at the neck (diam. 13 cm., ht. 15). The body is ornamented with painting in Gallinazo Negative style.

Burial 4. Depth 175 cm. Extended.

(a) Jar with bulging face collar having appliqué ears (diam. 20 cm., ht. 22). A series of pressed-out bosses runs around the shoulder. The vessel is covered with a thin white wash (fig. 32, B).

(b) Gloria Polished Plain double bowl with looped strap handle connecting the bowl rims (total width 21.5 cm., ht. 7.5). The walls of the two bowls are held together by a solid section of clay (fig. 32, C).

(c) Stirrup-spout jar (ht. 23 cm.) painted in Gallinazo Negative style (fig. 32, A).

These graves date from the early part of Gallinazo III. Some of the grave vessels, such as the spout-and-handle jars, the bird-effigy vessels, and the flare-collar jars with node handles, could well be placed in Gallinazo II, but the stirrup-spout jar (Burial 4), the double bowl (Burial 4), and the Recuoid disc-collar jar with head spout and Carmelo Negative painting (Burial 2) point strongly to a Gallinazo III date. As pointed out by Bennett (1950, p. 100), most of the Gallinazo II vessel shapes and decorative features continued to be popular during the initial phase of Gallinazo III.

SITE V-302

This oval mound, 40 by 50 meters and 3.5 meters high, is 110 meters SSW from V-272. A modern brush fence cuts across the northwest corner of the mound, and a circular threshing floor in current use lies on the southern flank. The surface collection of sherds from the top of this mound was lost before it was classified, but at the time I made the collection I had noticed a few Guañape sherds as well as sherds of later types. These observations, together with the height of the mound, led me to hope that the structure contained refuse laid down during a long span of time and that the bottom layers might yield more information on the transition from Guañape to Puerto Moorin.

Excavation V-302A.—We laid out the usual 3 by 6 meter trench in a level and apparently undisturbed area on the eastern and lower side of the mound summit (fig. 33). The surface at this point was 2.6 meters above the ground level surrounding the mound. Beneath a thin layer of loose sand and bits of straw blown from the threshing ground the surface here, as apparently over the whole mound summit, was sealed by a cap of salty soil from 1 to 2 cm. thick and so hard that it had to be broken with picks. Beneath this crust the brown soil was much softer. Two areas of soft fill from 50 to 60 cm. in diameter were uncovered in Level 1 in the northern and eastern parts of the trench. Four additional soft spots of similar character, which were evidently filled pits, were encountered at the bottom of Level 1 in various parts of the trench. In order to isolate the fill in these pits from that of the rest of the trench the pits were left standing as columns of earth while the rest of the trench was cut down. Eventually, Tomaval (Tiahuanaco) period burials were found in these pits at depths ranging from 1 to 1.5 meters. Two more burials of the same type were found, one (Burial 7) in the south wall and one (Burial 8) in the north wall. The pits containing these latter burials did not show until portions of the skeletons were hit in the trench walls. In the case of Burial 8, the pit slanted upward to the north so that only the enlarged bottom of the pit cut slightly into the trench wall. The pit of Burial 7 was more or less vertical, but its enlarged

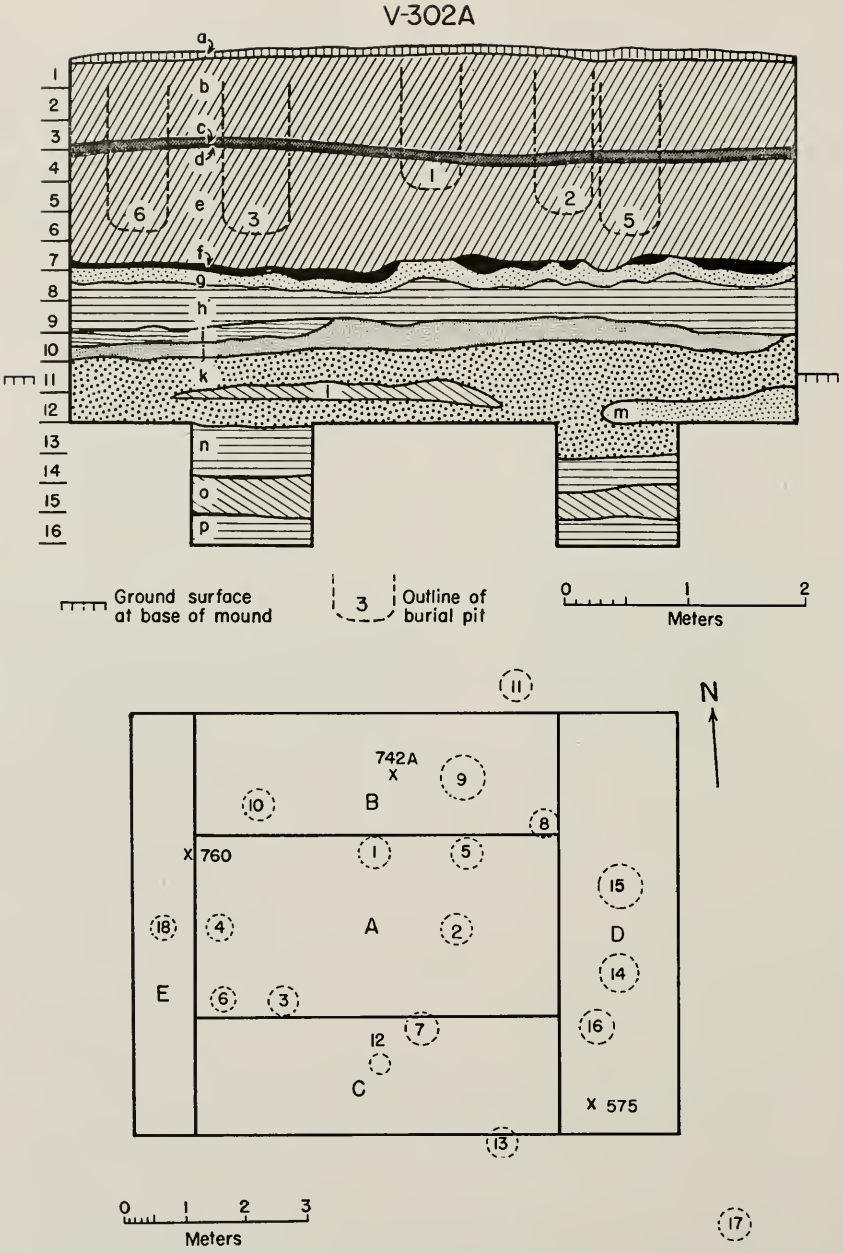

FIG. 33. Profile of Trench V-302A and plan of Trenches V-302A–E. Broken lines on profile and broken circles on plan indicate burial pits. *a*, *salitre* crust; *b* and *e*, brown earth; *c* and *m*, sandy, yellow clay; *d*, charcoal; *f*, charcoal and ash; *g*, yellow sand; *h*, sandy, brown earth; *i*, sandy, brown clay, flecked with yellow; *j*, hard, gray-brown earth; *k*, dark brown earth; *l* and *o*, sandy, yellowish-brown earth; *n*, sandy, dark brown earth; *p*, wet, sandy, brown clay.

bottom extended to the south wall of the trench. These burials will be described later, together with the other burials recovered from this site.

Despite our efforts to isolate these burial pits from the general trench fill, it is likely that a few sherds from the burial pit blocks and from the burials in the trench walls had become mixed with the trench fill. Furthermore, it is possible that there had been some mixing of sherds outside of the burial pits at the time the eight Tomaval dead were buried. There is reason, therefore, to suspect the reliability of the seriation results from the first four or more levels in this trench.

The refuse in the first seven levels (1.75 meters) of the trench yielded a fair but decreasing number of sherds. The quantity of sherds was reduced because the cubic content of the fill was cut down by the amount of the six burial pit columns. There was no perishable material in the refuse. This is not surprising in view of the fact that the bones in the Tomaval burials, of later date than the refuse, were in fragments, and the only perishable material left in the burials was cotton threads wrapped around copper plates, the copper salts from which had acted as a preservative. Evidently conditions of preservation in the dampish, salty soil of the mound were very unfavorable. The soil consisted of brown loam. At a depth of 75 cm. a layer of yellow, sandy clay 10 cm. thick overlay a thin layer of charcoal (fig. 33). At the bottom of Level 7 there was a layer of charcoal and ash from 5 to 18 cm. thick, on top of a layer of yellow sand. From here to the bottom of the trench (Level 12, depth 3 meters) were two thick layers of brown, sandy earth interspersed with layers of yellow sand or sandy clay.

In Level 8 there was a marked increase in sherds (274; Level 7 contained 49). In Level 9 there were 78 sherds, and Level 10 contained a single sherd (Guañape Red Plain) and a considerable amount of shell fragments. The dark brown earth in Level 11 contained no sherds but a large amount of charcoal, ash, burned earth, and shell (mostly fragments of large mussel shells). Level 12 was also without sherds, but it contained a smaller amount of shell. Against the north wall we cut two 1 by 0.5 meter pits in the floor of the trench to a depth of 1 meter. These contained two layers of dark brown earth separated by a layer of yellowish-brown sandy earth. The bottom level (Level 16, depth 4 meters) was saturated with water and the water table appeared to be not far below. The four levels in these pits contained some shell and bits of burned earth but no sherds.

No floors, walls, or even fragments of adobes were encountered in the fill of V-302A. Subsequent classification of the sherds from this trench showed that the upper 1.75 meters of the refuse (Levels 1–7) were deposited during the latter part of the Gallinazo period, probably shortly after the middle, whereas Levels 8–10 were laid down in Late Guañape times (fig. 46 and Table 10). There was a slight admixture of Guañape sherds in the

Gallinazo refuse in Levels 6 and 7. This part of the mound, at least, was unoccupied during the Puerto Moorin period. Levels 1–4 contained small percentages of Estero Plain and Rubia Plain, as well as decorated types: San Juan Molded, Las Lomas Cream, Purpur Red, Bitín White-on-Red, El Puente Red-on-White, and Santa Elena White and Black-on-Red. These types are characteristic of the Tomaval period and do not appear earlier than this in other strata cuts in Virú. Their occurrence here must be attributed to the presence of the Tomaval burials cut into the Gallinazo refuse and to our failure to isolate completely the burial fill from the general trench fill. The largest number of these intrusive sherds occurred in Level 1, which included the ground surface at the time the burials were made. Despite the presence of these sherds of Tomaval type, the Gallinazo age of the refuse into which the Tomaval burials were dug is quite clear, as a glance at Table 10 will show. Levels 11 to 16, all of which lie below the present ground surface surrounding the mound, contained no sherds, but there was evidence, in the form of charcoal, bits of burned earth, and shell, suggesting human occupation. It is tempting to infer that these lowest levels were deposited during a Cerro Prieto (Preceramic) occupation of the site, but the evidence is inadequate. Only an extensive excavation in the base of the mound could settle the point.

Burials at V-302.—After Trench A had been dug and found to contain eight Tomaval burials, the trench was enlarged laterally in order to search for more burials. Two burials were found in a northward extension 2 meters wide (Trench B), two in a southward extension 2 meters wide (Trench C), three in an eastward extension of the same width (Trench D), and one in a westward extension 1 meter wide (Trench E) (fig. 33). There were also three pits containing pots but no bones. Two other burials were located outside these cuts, one adjacent to the northeast corner of Trench B and the other 2 meters southeast of the southeast corner of Trench D. These were all Tomaval period interments of the same character as those in Trench A.

The bodies in the eighteen burials at V-302 were flexed and in a sitting position, in circular burial pits 50 to 60 cm. in diameter and 75 to 175 cm. deep (10 of the 18 were between 125 and 150 cm. deep). The bones were in very poor condition. A total of 29 pots was recovered (25 from the burials and 4 from pits without bones). All but three of the burials contained one or more pots (range 0–4, mean 1.4). About one-fourth of the pots (6 of 25 pots in burials, 8 of 29 total pots) had bottoms blackened and sooted in such a manner as to suggest they had been used for cooking before being placed with the dead. The sooted pots included the types Tomaval Plain, Rubia Plain, Castillo Plain, and San Nicolas Molded. Thirteen

FIG. 34. Tomaval pottery from V-302. A–C and E, Burial 1; D, Burial 3.

burials contained one or more pieces of copper placed on the mouth or near the front of the skull.

An inventory of the burials follows. The small artifacts and ornaments are listed but not described for the following reason. They were not described and photographed in the field because they were so unspectacular that I felt there would be no difficulty in getting them released for export. Unfortunately, none of them was contained in the collection finally received in Chicago, with the result that I can do no more than record the brief entries in the field catalogue.

Burial 1. Depth 90 cm. Adult, probably flexed and sitting.

(a) Castillo Plain globular jar (ht. 18.5 cm., diam. 22.4) with short, flaring neck and reed-punctated lug on rim (fig. 34, E). Sooted bottom. Construction: molded in horizontal halves (thickened shoulder joint with interior ridge) with separately applied neck (horizontal wiping on neck extends below neck joint).

(b) Tomaval Plain jar (ht. 13 cm., diam. 15.2) with flaring rim and pierced node handles at base of neck (fig. 34, A). Sooted bottom. Construction: molded in horizontal halves (shoulder joint cracked along half of circumference) with

separately applied neck (horizontal wiping on neck extends 1 cm. below neck joint).

(c) Bitín White-on-Red face-collar jar (ht. 25 cm.) with pierced node handles on upper shoulder (fig. 34, C). Body flattened in vertical plane of handles. Construction: molded in vertical halves (body joint thickened, with external ridge) with separately applied collar and handles placed over body joints at upper shoulder. Collar is mold-made, probably in vertical halves with ears applied by hand over joints. Lip and collar above face horizontally wiped inside and out.

(d) Santa Elena White and Black-on-Red effigy jar (ht. 24 cm.) with face collar, molded arms and legs, and double, pierced node handles (the upper halves of which form the ears of the face) at base of collar (fig. 34, B). Body flattened in vertical plane of handles. On back of figure is molded burden in mantle or carrying net painted white with black wavy lines suggesting textile or net. Eyes, mouth, and limbs painted white; black-and-white checker pattern on collar above face; black-on-white ornaments below chin probably representing necklace. Construction: molded in vertical halves (external ridge along body joint) with separately applied collar and handles placed over junction of body and collar joints. Collar is mold-made, probably in vertical halves, with ear-handles placed over joint. Lip and collar above face horizontally wiped before painting.

Burial 2. Depth 125 cm. Adult, flexed and sitting.

(a) Two rectangular pieces of copper near skull, each wrapped in two directions with cotton thread forming cross.

Burial 3. Depth 130 cm. Adult, flexed and sitting.

(a) San Nicolas Molded bowl (ht. 6.5 cm., diam. 16.5) with very low ring base (fig. 34, D). The surface is unpolished, the rim horizontally wiped. Indistinct molded design on exterior. Interior painted with double festoons pendent from lip; traces of white paint on exterior of rim. Construction: molded in one-piece mold.

Burial 4. Depth 130 cm. Adult, flexed and sitting.

(a) Rubia Plain globular olla (ht. 15 cm., diam. 15.9) with short, straight, horizontally wiped neck and flaring lip (fig. 35, A). Construction: molded in horizontal halves (shoulder joint thickened and roughly smoothed on exterior and interior) with separately applied neck (horizontal neck-smoothing carried 1 cm. below neck joint).

(b) Three pieces of copper near mouth, one wrapped in two directions with cotton thread forming cross.

(c) Twelve shell ornaments.

Burial 5. Depth 135 cm. Adult, flexed and sitting.

(a) San Nicolas Molded globular jar (ht. 16.5 cm., diam. 18.4) with cambered rim and three rows of molded bosses around upper shoulder (fig. 35, C). Construction: molded in horizontal halves (crack running along shoulder joint, interior ridge at joint) with separately applied neck (horizontal smoothing of neck partially obliterates upper row of molded bosses on shoulder).

(b) Two copper fragments near mouth.

Burial 6. Depth 137 cm. Adult, flexed and sitting.

(a) Fragmentary Santa Elena White and Black-on-Red flask-shaped jar (original ht. about 24 cm.) with face collar and pierced node handles on upper shoulder (fig. 35, B). Body flattened in vertical plane of handles. Eyes and handles painted white with black borders; collar above face white, with a series of black step designs pendent from the lip; body painted with broad, vertical white stripes bordered and overpainted with black. Construction: molded in vertical halves

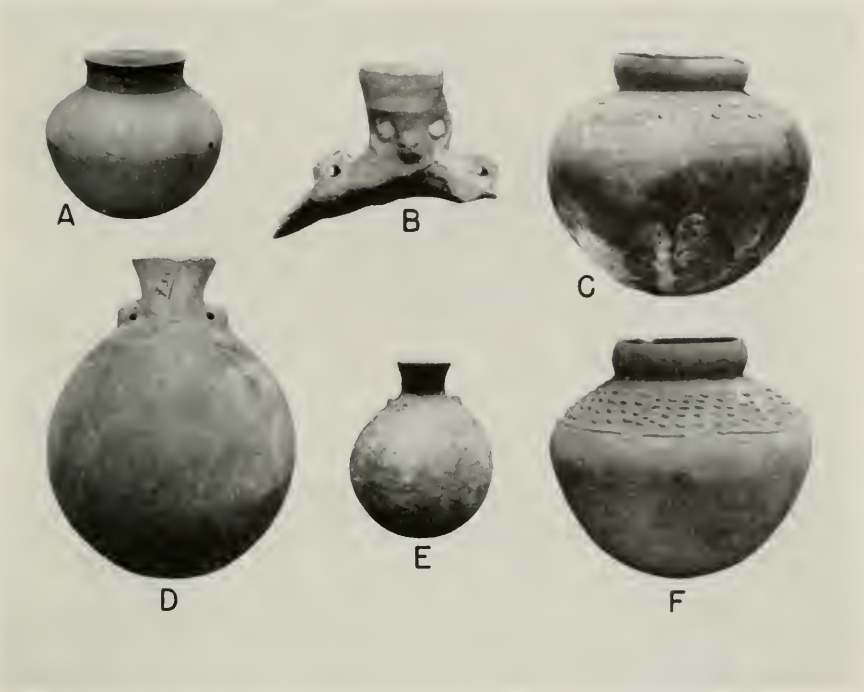

FIG. 35. Tomaval pottery from V-302. A, Burial 4; B, Burial 6; C, Burial 5; D–F, Burial 7.

(slight ridge at joint) with separately applied collar and handles applied over body joint. Face on collar is hand-modeled.

(b) Piece of copper beside skull, wrapped in two directions with cotton thread forming cross.

Burial 7. Depth 140 cm. Adult, flexed and sitting.

(a) Queneto Polished Plain bottle (ht. 22 cm., diam. 17.2) with flaring rim and pierced node handles at base of neck (fig. 35, D). Slightly flattened in vertical plane of handles. Polished from shoulder to neck only; neck horizontally wiped. Construction: molded in vertical halves (ridge at joint) with separately applied neck and with handles applied at junction of body and neck joints.

(b) Queneto Polished Plain bottle (ht. 16 cm., diam. 12.8) with flaring neck and two bosses at base of neck (fig. 35, E). Construction: molded in vertical halves (slight ridge along joint) with separately applied neck and bosses applied at junction of body and neck joints. Body polishing carried over neck joint; neck above joint horizontally wiped but unpolished.

(c) San Nicolas Molded globular jar (ht. 16.5 cm., diam. 17.3) with cambered rim and four rows (in places five rows) of molded bosses around upper shoulder, bordered below by thin, raised welt (fig. 35, F). Faint white slip over entire exterior surface and rim interior. Construction: molded in horizontal halves (shoulder joint thickened; joint cracked around half of circumference) with

separately applied, horizontally wiped neck (horizontal smoothing of neck joint extends 1 cm. below joint to top of molded design band).

(d) Piece of copper on mouth, wrapped in two directions with cotton thread forming cross.

Burial 8. Depth 140 cm. Adult(?), probably flexed and sitting.

(a) El Puente Red-on-White bottle (ht. 23 cm., diam. 17.9) with slightly flaring neck and pierced node handles at base of neck (fig. 36, A). Two areas of the body from shoulder to base have a molded, bumpy surface suggesting a warty squash; these are separated by a smooth band running around body in plane of handles. The whole exterior surface except the portion of the smooth band lying below the shoulder is slipped white. Three painted and polished horizontal red bands between shoulder and neck; top band interrupted by handles. Construction: molded in vertical halves (joint runs along smooth, unmolded band; thickening and interior ridge along joint) with separately applied, horizontally wiped neck and handles at junction of body and neck joints.

(b) Calunga Red and Black-on-White figure-and-spout whistling jar (ht. to top of figure 22 cm., body diam. 18.4) with carinated shoulder and ring base (frontispiece). The hollow, molded figure with hand-modeled arms and legs is seated; it is connected to the tall, tapering spout by a flat, arcked bridge. The whistling mechanism, which falls into Digby's type B (Digby, 1951, p. 255), is contained in an enlarged portion of the bridge adjacent to the back of the figure's head. The entire exterior surface, including the figure, is slipped white; there is a red horizontal band at the shoulder, and the jar surface above the shoulder is painted with stepped triangles and bands in red bordered with black. No polishing. Construction: molded in horizontal halves (sharp ridge at shoulder joint); ring base probably separately applied; spout and molded figure separately applied; hand-modeled arms and legs of figure applied last.

(c) Two rectangular pieces of copper near skull, each wrapped in two directions with cotton thread to form cross.

Burial 9. Depth 125 cm. Adult(?), seated and flexed.

(a) Castillo Plain globular olla (ht. 12.5 cm., diam. 13.1) with cambered rim and sooted bottom (fig. 36, C). Construction: probably molded in horizontal halves (thickened shoulder; rough jagged ridge on shoulder interior); neck probably applied separately (horizontal smoothing on neck extends 0.5–1 cm. below neck joint).

(b) San Juan Molded jar (ht. 24.5 cm., diam. 21.4) with flaring neck (fig. 36, B). Band of molded, raised designs around upper shoulder; row of diamonds filled with circle and dots, bordered above by two raised lines with dots between, and below by a raised line. Area from top of design band to bottom of shoulder polished; neck wiped horizontally. Construction: molded in horizontal halves (thickened shoulder, slight ridge along shoulder joint, polishing extended to lower edge of smoothed joint) with separately applied neck; the neck joint was first smoothed with vertical strokes and the neck and joint were then horizontally wiped, leaving vertical smoothing marks only partially obliterated on lower edge of joint.

Burial 10. Depth 150 cm. Child, position uncertain.

(a) Piece of copper.

(b) Bone flute.

(c) Beads (material unrecorded).

FIG. 36. Tomaval pottery from V-302. A, Burial 8; B and C, Burial 9; D and H, Burial 11; E, Burial 13; F, I, and J, Burial 15; G, purchased vessel from near Santa Elena; K, Burial 14.

Burial 11. Depth 125 cm. Adult, position uncertain.

(a) Sausalito Black-on-White miniature double jar representing two fruits or vegetables, with spout and flat loop handle (ht. 8.5 cm., fig. 36, H). All of exterior except base and inside of handle slipped white; traces of black stripe on lip and horizontal black stripes on handle. Construction: uncertain.

(b) San Nicolas Molded bowl (ht. 7 cm., diam. 15.5) with very low, vestigial ring base (fig. 36, D). The surface is unpolished, the rim horizontally wiped. Indistinct molded horizontal design band 2.5 cm. wide on exterior contains scroll and

step elements. Traces of thin white wash on exterior. Construction: molded in one-piece mold.

(c) Eight pieces of copper near skull, one with crisscross wrapping of cotton thread.

Burial 12. Depth 75 cm. Child, position uncertain.

(a) San Nicolas Molded jar (ht. 17.5 cm., diam. 13.5) with flaring rim. Horizontal, indistinct, molded design band on upper shoulder 1.7 cm. wide, divided into panels by vertical raised lines. Construction: molded in horizontal halves (shoulder joint thickened and roughly smoothed) with separately applied neck (horizontal wiping on neck extends 1 cm. below neck joint and in places has obliterated top of molded design band).

(b) Piece of copper near mouth.

Burial 13. Depth 175 cm. Adult, probably flexed and sitting.

(a) Calunga Red and Black-on-White globular bottle (ht. 24.5 cm., diam. 21.3) with cambered neck and pierced node handles at base of neck (fig. 36, E). Slipped white from lip to below shoulder. Painted design area from neck to shoulder as follows: horizontal red band around shoulder supports two arcked bands (curving over upper shoulder) of quartered diamonds bordered with broad lines painted in red bordered with black; the panels between the arcked bands are filled with black spherical triangles containing black dots; black reverse scroll elements on neck and black stripe on lip. All of the red bands are polished. Construction: molded in vertical halves (slight ridge along joint) with separately applied neck (neck joint cracked along half of circumference and at one point on opposite side the horizontal neck wiping did not entirely obliterate the joint); handles applied last over junction of body and neck joints, resulting in obliteration of horizontal lines of neck wiping for a distance 0.5 cm. around upper end of handles where they join the neck.

(b) Five pieces of copper near skull.

Burial 14. Depth 100 cm. Adult, probably flexed and sitting.

(a) Valle Plain globular jar (ht. 25.5 cm., diam. 21.8) with tall, slightly flaring neck (fig. 36, K). Construction: uncertain, probably coiled and smoothed; slight polishing at base of neck may indicate smoothing of joint after attachment of separately formed neck, but there is no horizontal wiping on neck.

(b) Copper awl.

Burial 15. Depth 125 cm. Adult, flexed and sitting.

(a) Rubia Plain jar (ht. 15 cm., diam. 14.2) with cambered rim, slight bulge at shoulder, and soot-blackened bottom (fig. 36, J). Construction: molded in horizontal halves (shoulder joint thickened and roughly smoothed); neck separately applied (horizontal wiping of neck extends slightly below joint).

(b) San Nicolas Molded jar (ht. 15 cm., diam. 14.2) with cambered rim and band of molded birds on upper shoulder and molded base ring, which does not serve as ring base because rounded base of jar projects below ring (fig. 36, I). Fire-blackened bottom. Construction: molded in horizontal halves (shoulder joint thickened and roughly smoothed) with separately applied neck (neck joint poorly smoothed over in places; horizontal neck wiping extends 1 cm. below joint).

(c) Calunga Red and Black-on-White bottle (ht. 13 cm., diam. 9.7) with slightly flaring neck and pierced node handles at base of neck (fig. 36, F). Slipped white on neck interior and on exterior from lip to below shoulder. Two horizontal red, polished bands, in part bordered with black, run around shoulder; white area between red bands filled with vertical, wavy black lines, which project onto upper

FIG. 37. Tomaval pottery from V-302. A, Burial 18; B, Burial 17; C–F, vessels from fill, unassociated with burials.

red band; black triangles on rim pendent from lip. Construction: molded in vertical halves (pronounced ridge along joint line; section of joint not obliterated by smoothing; crack runs along portion of joint); neck separately applied (thickening at neck joint, neck horizontally wiped). The handles were applied last at the junction of body and neck joints.

(d) Piece of copper near skull.

(e) Two tubular copper beads.

(f) Two copper "buttons" (square, with two holes near middle).

Burial 16. Depth 150 cm. Adult, probably flexed and sitting.

(a) Piece of copper near skull.

(b) Two flat shell ornaments with drilled holes.

Burial 17. Depth 100 cm. Adult, position uncertain.

(a) Estero Plain jar (ht. 22 cm., diam. 17.2) with tall, slightly flaring collar (fig. 37, B). Circling middle of collar is a band of seven molded welts on which is a triangular molded face and a pair of applied, hand-modeled ears. Construction: (1) body molded in vertical halves (slight ridge along joint); (2) mold-made collar, probably made in vertical halves, next attached to body (rough ridge on interior of collar-body joint, joint smoothed by horizontal wiping); (3) ears applied to

molded collar band in plane of body joint and over probable vertical collar joints, obscuring the molded welts close to base of ears; (4) rim hand-finished and horizontally wiped down to top of molded collar band, the wiping process leaving horizontal striations on the tops of the ears.

(b) Five pieces of copper near skull, two wrapped with crisscrossed cotton thread.

Burial 18. Depth 150 cm. Adult, probably flexed and sitting.

(a) San Nicolas Molded jar (ht. 21 cm., diam. 23) with short flaring rim (fig. 37, A). Upper shoulder ornamented with two horizontal rows of molded, elongated bosses, each of which is divided into three parts by transverse dentate impressions. Bottom fire-blackened. Construction: molded in horizontal halves (shoulder joint thickened with rough ridge along interior) with separately applied neck (neck joint not entirely obliterated at one place; horizontal wiping of neck extends 1 cm. below joint).

The following pots were found in pits unassociated with human bones, in Trenches B, D, and E (fig. 33):

742A. Trench B, 100 cm. west of Burial 9, depth 30 cm.

(a) San Nicolas Molded jar (ht. 27 cm., diam. 25) with cambered rim (fig. 37, C). Vertical bands of molded bosses on upper shoulder. Fire-blackened bottom. Construction: molded in horizontal halves (shoulder joint thickened and rough on interior, cracked along half its circumference) with separately applied neck (horizontal wiping on neck extends 1 cm. below joint, partially obscuring the top bosses of several of the vertical molded bands).

575. Trench D, 120 cm. south of Burial 16, depth 50 cm.

(a) Portion of Queneto Polished Plain bottle (ht. of fragment 14 cm., original ht. about 18), flattened in vertical plane, with flaring neck and pierced node handles on upper shoulder (fig. 37, D). Handles have notch at lower edge, giving them the appearance of a bird's head. Polishing from rim to shoulder. Construction: molded in vertical halves (ridge along joint) with separately applied neck (neck horizontally wiped on interior and exterior; horizontal striations on exterior largely obliterated by vertical polishing); handles applied on top of body joint.

760. Trench E, 120 cm. NNE of Burial 18, depth 100 cm.

(a) San Nicolas Molded jar (ht. 20 cm., diam. 18.6) with cambered rim, notched welt at base of neck, and ring of molded bosses near bottom (fig. 37, E). Bottom and lower shoulder fire-blackened. Construction: molded in horizontal halves (shoulder joint thickened and rough on inside) with separately applied neck (horizontal neck wiping extends slightly below neck joint); notched welt appears to have been applied last and notched by hand when the clay was still quite soft.

(b) Fragment of Castillo Plain jar (original ht. about 26 cm., diam. about 23) with cambered rim and sharp welt below neck (fig. 37, F). Construction: no clear evidence of molding; neck horizontally wiped; welt appears to have been applied to the vessel wall and then smoothed to a sharp edge.

SITE V-272

This oval mound, 30 by 60 meters and 1.75 meters high, is situated in a cornfield in the central part of the lower valley, 550 meters southeast of Hacienda Santa Elena, 110 meters southwest of the road running from

Santa Elena to the Pan-American highway, and 950 meters north of the Virú River. This site was selected for study because the surface collection made there by Ford contained both Guañape ceramics and Huacapongo Polished Plain, the typical plain ware of the succeeding Puerto Moorin period. This led me to hope that the site would yield information on the transition from Guañape to Puerto Moorin, a phase to which the Guañape materials from the subsoil at V-171 appeared to belong.

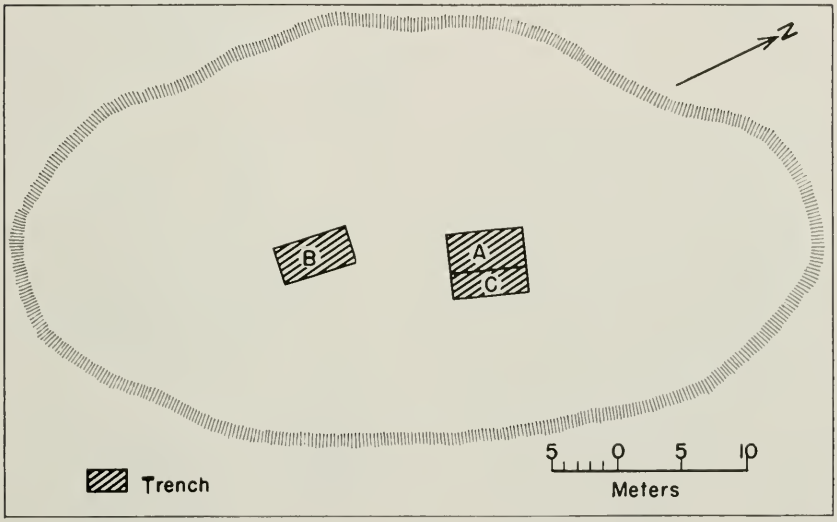

Fig. 38. Plan of V-272.

In the same cornfield are four similar but smaller and lower mounds (V-306, 307, 308, 309); a larger mound (V-302) lies just to the west. These mounds show plainly on the aerial sheet covering this part of the valley and are immediately noticeable from the ground because of their different soil color and their lack of vegetation. At the time of this study they contrasted sharply with the surrounding green of the corn which was planted up to the edges of the mound fill but never in it, even where the fill was no higher than the surrounding soil.

The apparent high concentration of saltpeter in these mounds was confirmed by excavations in three of them. They contain refuse, as well as burials, but no evidence of structures. It has been convincingly suggested (Ford and Willey, 1949b, p. 26) that these and similar mounds in the lower Virú Valley were built up by repeated dumping of salty soil scraped by the ancient farmers from their salt-encrusted fields. Irrigation of this soil dissolves the contained mineral salts and brings them to the surface, where

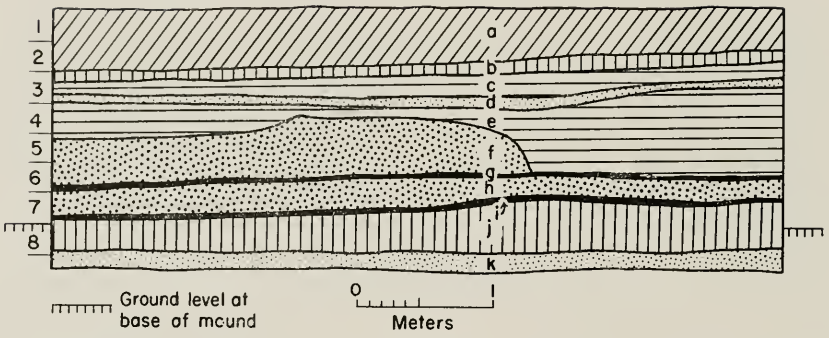

FIG. 39. Profile of Trench V-272A. *a*, light brown earth; *b*, yellow clay; *c* and *e*, brown earth; *d* and *k*, yellow sand; *f* and *h*, brownish-black earth; *g* and *i*, black earth; *j*, dark brown earth.

they form an infertile crust. Today, the formation of this crust is prevented by plowing, but the prehistoric farmers must have been compelled to scrape up the concentrated salts in order to maintain the fertility of their fields. These soil conditions exist also in the lower portions of the Moche and Chicama valleys to the north, where there are also numerous artificial mounds composed of salty soil.

The abundance of potsherds in these mounds indicates that they were used to deposit household refuse. They may have served also as dwelling places, although our trenches produced no traces of houses. More extensive excavation in these mounds might reveal evidence, in the form of post-holes and floors, of the use of flimsy houses of poles and adobe plaster like many of the local dwellings lived in today.

Excavation V-272A.—Although the surface of the mound is broken by pits dug by *huaqueros*, we were able to locate an undisturbed area on the north half of the mound, where we cut a 3 by 6 meter trench (fig. 38). The excavation was carried down to a layer of sterile yellow sand at a depth of 2 meters. The top of this sand was 25 cm. below the ground level of the surrounding cornfield. Sherds were present throughout the fill down to the yellow sand, but were unusually abundant in the lower half. The soil stratification consisted of alternating layers of dark earth, light brown earth, and yellow sand or clay (fig. 39).

Unfortunately, the bags containing the sherds from Levels 1–4, as well as those containing the surface collections from V-302, 307, and 308, were stolen from a patio in Trujillo where they had been placed to be washed and numbered in preparation for classification. Therefore we made another cut in V-272.

Excavation V-272B.—We located this 3 by 6 meter trench in an apparently undisturbed area on the south half of the mound (fig. 38). As in

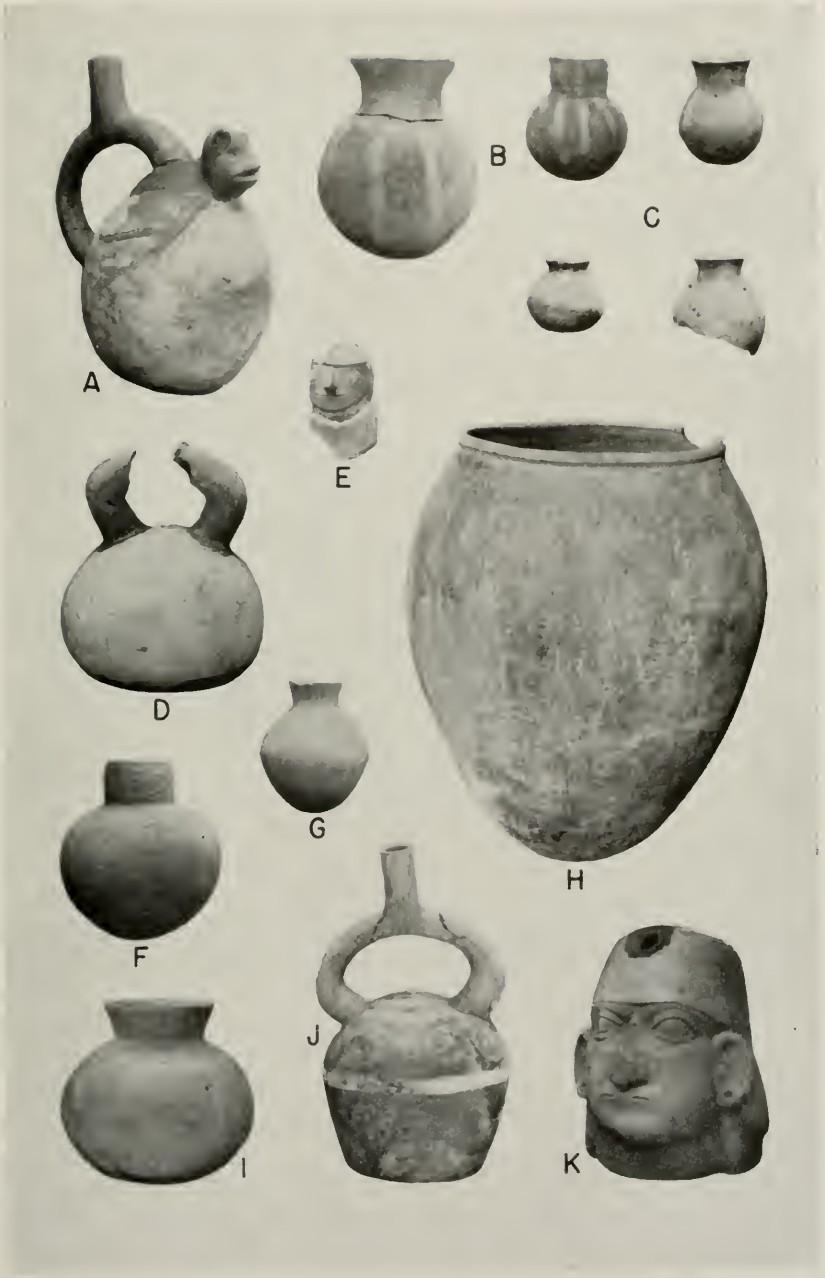

FIG. 40. Pottery. A–C, Gallinazo pots, V-272B, Level 1; D and E, Gallinazo pots, V-272B, Level 2; F and G, Gallinazo vessels, V-272B, Burial 1; H, Huacapongo Polished Plain jar, V-272B, Levels 6–8; I, Gallinazo vessel, V-272B, Burial 2; J and K, Huancaco vessels, V-272C, Burials 1 and 2.

Trench A, sherds were abundant down to a depth of 2 meters, where the same layer of sterile yellow sand was encountered. From the refuse in Level 1 came 14 whole or fragmentary jars of Gallinazo type. Two of these (fig. 40, B) were small, collared jars with broad vertical bands of white on the body (classified as Sarraque Cream), ten (fig. 40, C) were plain red or white-slipped miniature pots (classified as Castillo Plain and Sarraque Cream), and one was a miniature double jar with face and spout connected by a bridge. Another was a bat-effigy vessel with stirrup spout (fig. 40, A). The modeled bat with outstretched wings surmounts a bottle-shaped vessel with flat base. One end of the stirrup rises from the bat's neck. The bat figure and the stirrup spout are the natural red of the paste and are well polished. The remainder of the vessel surface, except the base, is slipped white and polished. The stirrup spout, which is broken off and ground smooth just below the lip, has a form typical of Mochica rather than Gallinazo.

Level 2 contained fragments of two miniature pots like those in Level 1, a fragmentary modeled face from a pot, and a stirrup-spout vessel. The face (fig. 40, E), which has a very well-smoothed but unpolished red surface (the paste color), is ornamented with white circles on the hair or headdress, white eye pupils, and a two-row necklace of white painted beads around the neck. The modeling of the eyes, the sharp nose, the slit mouth, and the use of white paint, particularly the white necklace, suggest strong Recuay influence. The stirrup-spout vessel (fig. 40, D) has a globular body with flat base, and a thickened, angular stirrup (the spout is missing). The stirrup and base are an unslipped, polished red and the body is covered with an opaque white slip on which are traces of interlocking chevrons bordered by narrow, horizontal bands. It is not clear whether the painting of these faint, reddish designs is positive or negative. The body has a form typical of Mochica. I would guess that this is a Gallinazo imitation of the Mochica style.

In Level 3 were two crude miniature jars with slightly constricted necks. Each had a pottery cover inverted over its mouth (fig. 41, A). The paste of these vessels is closest to that of Castillo Plain, but browner, sandier, and more crumbly. They are similar in paste and shape to the toy pots found in a cache (not a burial) by Bennett at the Queneto site in Virú (Bennett, 1939, p. 24; personal communication, 1952). Associated with them was a collared vessel of Gallinazo type. He also found a small pottery lid, but it was not directly associated with the toy jars. My toy pots are also similar to a crude miniature vessel found by Strong and Evans at V-163, a Gallinazo burial mound, and classified by them as Castillo Plain (Strong and Evans, 1952, p. 78 and pl. IX, G). The graves from this mound are dated as Gallinazo III by Bennett (1950, p. 57).

There was no clear evidence that the vessels in Levels 1–3 were in burials, although a few fragments of human bone were in the refuse near the pots in Level 1. Since there were no signs of burial pits, most of the pots were probably in small cache pits. These vessels appear to date from the late Gallinazo period (Bennett's Gallinazo III). The miniature pots, the thick, angular stirrup spout, and the evidence of Mochica and Recuay

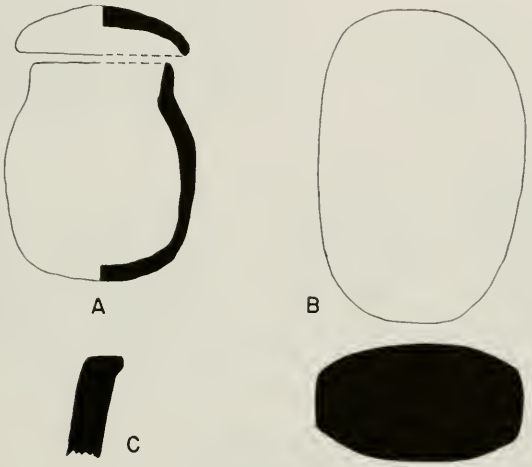

Fig. 41. Crude toy jar, fragment of stone bowl, and stone mano from V-272B. A, outline and profile of jar with lid, Level 3; B, outline and profile of mano, Level 5; C, rim profile of stone bowl, Level 6. × 0.3.

influence all point to the late phase of Gallinazo (Bennett, 1950, p. 100). Since the refuse in Levels 1–3 dates from Puerto Moorin or, at the latest, early Gallinazo (see below), the pots must have been intrusive, as a result of burials or caches cut into the refuse. The evidence also strengthens the probability that Bennett's crude Queneto vessels are from the late Gallinazo period rather than from a pre-Chavin, initial ceramic period postulated by Larco Hoyle (1948, p. 14).

Four carved mace heads of stone and a mano-shaped stone tool were found in Level 5 in the center of the trench. They lay at about the same level and in an area 40 cm. in diameter, but there was no evidence of a burial. Two of the mace heads have four vertical flanges and a vertical hole to be used in mounting the head. Two of the opposing spaces between flanges contain pairs of rounded spikes with collared bases, and the alternating spaces contain lugs with deeply incised crosshatching, giving the appearance of rows of teeth. One mace head (fig. 42, D) has a height of 80 mm., a basal diameter of 42 mm., and a hole diameter of 22 mm. The

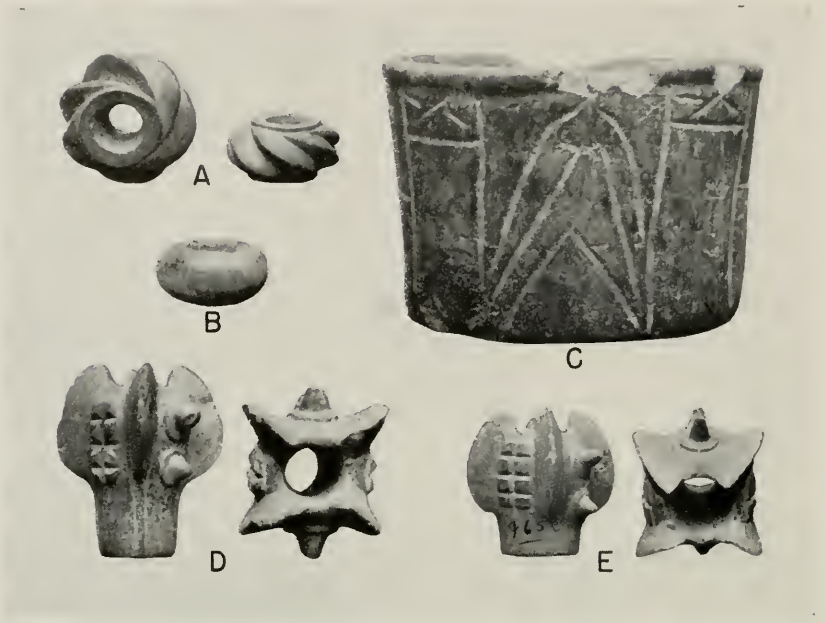

FIG. 42. Stone mace heads and bowl. A, B, D, and E, mace heads from V-272B, Level 5; C, purchased stone bowl from near Santa Elena.

corresponding dimensions of the other (fig. 42, E) are 105, 38, and 21. The holes of both are biconically drilled. There are traces of red pigment around the spikes of the larger specimen. These two mace heads are very similar to three from the Chicama Valley in the Museo Larco Herrera (Larco Hoyle, 1941, fig. 136) and one found at V-66 in Virú by Strong and Evans (1952, pp. 55–56, pl. III, E). These others differ from mine in having spikes in all the inter-flange spaces instead of dentate lugs alternating with spikes. They vary considerably in size and proportions and in the length of the spikes. The Chicama mace heads do not have a certain period association but are attributed by Larco Hoyle to Cupisnique, probably Cupisnique Transitorio. The V-66 specimen was found in what was thought to be burial fill and close to a Puerto Moorin burial. No Guañape burials were found at V-66. The majority of burials were from the fully developed Puerto Moorin period, but Strong considered the pots in two burials to be transitional in style between Guañape and Puerto Moorin (Strong and Evans, 1952, pp. 57–58). Thus, Strong's mace head was deposited in very early Puerto Moorin or somewhat later. In the latter case, it may well have been an heirloom from an earlier day. My examples belong to Late Guañape or early Puerto Moorin, or to the transition between

them. Their vertical position in the refuse would place them in very late Guañape but this evidence is not reliable, since they may have been dug in as a cache. Possibly their proximity to the stone bowl fragment in Level 6 (see below) strengthens the Late Guañape association. In any event, the possible time range is not very great. I agree with Larco Hoyle that stylistically they fit best with Guañape (Cupisnique).

The third stone mace head (fig. 42, A) is carved in the form of a helical gear. It is 70 mm. in diameter and 35 mm. thick, with a biconically drilled hole 20 mm. in diameter. The fourth mace head (fig. 42, B) is doughnut-shaped, 70 mm. in diameter and 32 mm. thick, with a biconically drilled hole 22 mm. in diameter.

The mano-shaped river cobble of granite (fig. 41, B) has an elongated oval shape with flattened edges and ends. It is 140 mm. long, 92 mm. wide, and 55 mm. thick. The top and bottom faces are well polished (more so than one would expect in an unaltered river cobble), but the ends are lightly battered and the edges are smoothly abraded, as if from light pounding on the ends and rocking and rubbing on the edges. The tool was used not as a mano, that is, for grinding with a reciprocating motion, but for crushing of corn or other seeds by means of a pounding or rocking mo-

Fig. 43. Mestizo woman near Machu Picchu grinding maize by rocker method.

tion. Probably it is a combination pestle and rocker. Use in a mortar would produce the battered ends, and rocking on a millstone would produce the abraded edges. A similar but more elongated cobble resting in a Cupisnique stone mortar is illustrated by Larco Hoyle (1941, fig. 130). The long edges appear to be flattened but it is impossible to tell from the picture whether they are abraded. The rocker mill was the typical Inca grinding device and is still in use among the Quechua and Aymara peoples of the

Sierra (specimens in the University Museum, Cuzco; Rowe, 1946, p. 221; Tschopik, 1946, p. 527). In 1946 I observed a mestizo woman grinding maize by the rocking method in a road camp near Machu Picchu (fig. 43). She was using a cobble similar to but larger than the one described here. The specimen from V-272 suggests that the rocking principle for grinding was employed in Peru as early as Puerto Moorin (Salinar), or earlier.

In Level 6 we found the rim fragment of a red granite bowl. It has a straight, slightly out-slanting wall and a flat, exteriorly thickened lip (fig. 41, C). The wall thickness is 15 mm., the lip thickness 17 mm., and the projected mouth diameter 250 mm. All surfaces are well polished. The shape and size of this bowl fall within the range of the stone bowls from the Middle Guañape period at V-71 (Strong and Evans, 1952, p. 43). Most of the latter were of basalt but one was of granite. A similar form of stone bowl, but lacking the thickened lip, is found in the Cupisnique period in Chicama (Larco Hoyle, 1941, fig. 129).

Figure 42, C, shows a basalt bowl with incised design. I purchased it from a farmer who had dug it up southwest of Hacienda Santa Elena, between the Carmelo road and the Virú River. It is 180 mm. in diameter and 125 mm. high, with a wall thickness of 15 mm. The lip is thickened on the exterior. The base is flat. The surface is well smoothed but not polished. This bowl is probably from the Guañape period, as it has the typical form of Guañape stone bowls. A drawing of this bowl is shown by Carrión (1948, pl. XI, fig. 3).

In Level 7 two Gallinazo burials were encountered in the west wall of the trench, one meter apart. Burial 1 contained a Castillo Plain jar with straight collar and a Sarraque Cream jar with flaring collar and vertical white bands painted on the body (fig. 40, F and G). Burial 2 contained a jar (fig. 40, I) with flaring rim and negative-painted decoration (Gallinazo Negative). Because of the fragmentary condition of the bones and the danger of caving the wall of the trench it was not possible to determine the position of the bodies in these burials. There was evidence that the burial pits had been cut in from above.

In Level 5 at the north end of the trench the broken edge of a large jar was uncovered. It proved to be the lower two-thirds of a very large Huacapongo Polished Plain storage jar in upright position with its conical base resting on the sterile sand layer at the bottom of Level 8. The existing part was 80 cm. high and about a meter in diameter; the original height must have been between 1.1 and 1.2 meters. The rim of an intact storage jar of the same type (with rim strap) appeared in the center of the trench in Level 6. This jar was 80 cm. high and 63 cm. in diameter (fig. 40, H). It stood upright and its base rested 20 cm. down in the yellow sand below Level 8. It is probable that both of these jars had remained *in situ* since the

time they were in use for storage purposes. Because of their conical bases, they would have been lying on their sides if they had been abandoned on the surface. No doubt their users had scooped out holes in the refuse in which to place them. Their relative positions suggest that the broken jar was in use at a later time than the intact one.

Fig. 44. Huancaco vessel from V-272C, Burial 1; × 0.4.

Excavation V-272C.—The probability of disturbance in Trench B, evidenced by the burials or caches of Gallinazo type in Levels 1–3 and the two Gallinazo burials at the edge of the trench in Level 7, led us to make a third cut in the mound. The only suitable undisturbed area remaining was on the east side of and immediately adjoining Trench A (fig. 38). Here we dug a 2 by 6 meter trench. A number of Huancaco (Mochica) sherds turned up in Level 1, and in Level 2 (extending into Level 3) there were two Huancaco burials 1.25 meters apart in the north end of the trench. Burial 1 contained two broken stirrup jars (figs. 40, J, and 44), and Burial 2 a single portrait vase with stirrup spout missing (fig. 40, K). The burial pits were indistinct and the bones very fragmentary. The bodies appeared

to have been in an extended position. The sherds from Levels 1–3 were not saved for seriation purposes because those levels had been disturbed and the Huancaco burial pits could not be isolated. Sherds were found in the refuse down to the bottom of Level 8, and a few were encountered in the upper part of Level 9 on top of the same sterile layer of yellow sand that was met in Trenches A and B. This sand layer was about 5.0 cm. lower than in adjoining Trench A, owing to the eastward dip of the soil strata.

Summary.—The seriation data from V-272 suffer from two difficulties. (1) The sherds from the upper four levels of Trench A, which was the only one of the three trenches at this site without intrusions in the form of burials or caches, were lost before classification. Also, the first three levels in Trench C were too disturbed by intrusive Huancaco burials to be used for seriation purposes. The interpretation of the upper 75 cm. of the site must rest, therefore, on the sherds from Trench B, which contained intrusive vessels of late Gallinazo type in Levels 1–3. On the other hand, the two Gallinazo burials in the wall of this trench in Level 7 did not introduce any disturbance, since there were no Castillo Plain or other sherds of Gallinazo type in the refuse of Level 7. (2) The breakdown of Guañape Plain into Red Plain and Black Plain was done in Chicago, where I had only rim sherds from which to determine the percentages of the two types in the various levels. In order to obtain a large enough rim sherd sample, it was necessary to combine the corresponding levels from the three trenches (see pp. 102 and 196; Table 11). There were insufficient rim sherds from the top three levels to make the division. Therefore, the seriation data as a whole, as well as the percentages for Guañape Red Plain and Black Plain, are subject to errors in addition to the usual sampling errors involved in the kind of digging carried out at V-272. But I am convinced that trends obtained are significant.

The seriation results are shown in figure 46 and Table 11. The lower five levels of refuse (100 cm.) were deposited during the Late Guañape period. The ceramics from this period have much in common with the pottery of the Middle Guañape period, which was found in the upper half of the refuse at V-71 (Strong and Evans, 1952, pp. 17–46 and Appendix I). The ceramic changes from Middle to Late Guañape—to be discussed in detail in Chapter IV—consist mainly of a shift in dominance from Guañape Black Plain to Red Plain, the addition of a polished red ware, and the presence or absence of certain decorated types. It is clear that there is a developmental gap and by inference a time gap between the abandonment of V-71 and the first occupation of V-272.

I have arbitrarily chosen the top of Level 4 as the division between the Late Guañape refuse and the overlying Puerto Moorin refuse, in which Guañape pottery types disappear and Huacapongo Polished Plain is the

dominant type. It is probable that the site was abandoned, except for burial purposes, before the end of the Puerto Moorin period, although the inadequate sample from Levels 1–3 leaves this conclusion open to doubt. It is also likely that some of the Castillo Plain sherds in Levels 1 and 2 of Trench B resulted from the intrusive burials or caches of Gallinazo age rather than from dumping. In any event, an increasing number of Castillo sherds toward the end of Puerto Moorin is expectable in terms of the point of division between Puerto Moorin and Gallinazo agreed upon by Ford (1949, fig. 4) and Strong and Evans (1952, fig. 34). A downward shifting of this division point would bring the top one or two levels at V-272 into early Gallinazo. This is a problem that inevitably arises in making arbitrary divisions in a cultural continuum.

Conclusions as to the age of the two large storage jars of Huacapongo Polished Plain type in Trench B are difficult to reach, since it is impossible to know how deeply they were set into the refuse when they were first placed in use. The mouth of the larger, broken jar was originally at the level of the lower half of Level 3. It is hardly likely that it was buried to the mouth when placed in use. Probably this jar was in use at the very end of Guañape or at the beginning of Puerto Moorin. The smaller, intact jar was set deeper than the other and its mouth was in Level 6. It must have been placed in use some time during the deposition of the refuse in Levels 8 and 7. I have considered the possibility of explaining the position of these jars by connecting them with Puerto Moorin burials, since Strong found evidence at V-66 that Huacapongo storage jars were sometimes placed with burials (Strong and Evans, 1952, pp. 56–58). But I found no evidence that my jars were in burial pits. Although this type of jar is characteristic of the Puerto Moorin period, it is not inconsistent that it should be found in refuse of Late Guañape, for this was a transition period and Huacapongo Polished Plain vessels were already in use. Rim sherds of this type of jar (Form 3, see p. 192) were found in the refuse as low as Level 7.

The stone mace heads found in Level 5 belong stylistically to the Guañape period, and their position in the refuse indicates that they and the rocker-pestle were placed there at the very end of the Guañape period. The possibility that they were cached at a slightly later time cannot be eliminated, but it could not have been much later, since there was no evidence that a pit had been cut through the overlying refuse. I should emphasize again that the placing of the division between Late Guañape and Puerto Moorin is necessarily arbitrary.

SITE V-306

This is an oval mound, 30 by 40 meters and 1 meter high, in the cornfield 110 meters southeast of V-272. Like the latter site and three other

small mounds in this field (V-307, 308, and 309), it is composed of salty soil and was probably built up by the dumping of refuse and the salty scrapings from the surrounding cultivated field. The surface collection of sherds from the site (Table 12) is a mixed one indicating a history similar to that of V-272: Late Guañape and Puerto Moorin occupation, Huancaco burials cut into the mound, and possibly some Gallinazo occupation or burial activity.

SITE V-307

This mound, which is similar to V-306, lies 250 meters SE by S from V-272. It is 25 by 28 meters and 50 cm. high. The surface collection of sherds was lost before classification, but notes made in the field indicate a history similar to that of V-306.

SITE V-308

This is another small mound 30 meters SE by S from V-307. The surface collection from this site was also lost before classification. This mound appeared to be similar to V-306 and V-307.

SITE V-309

This is another small but higher mound 160 meters SE by S from V-272. It is 30 by 45 meters and 2 meters high. The pitted condition of the top of the mound and a large excavation on the south side showed that several burials had been removed. Huancaco Decorated sherds were lying near some of these pits. The surface collection (Table 12) indicates a mixed occupation as follows: Late Guañape and Puerto Moorin, intrusive Huancaco burials, and possibly Gallinazo burials.

Excavation V-309A.—We cut a 2 by 5 meter trench into the north side of the mound. At a depth of 25 cm. we encountered several soft areas that later proved to be pits, and it was soon evident that the area picked was not favorable for a stratification test. The trench proved to contain two Gallinazo pots unassociated with a burial and four Gallinazo burials in simple pits at depths of 100 to 130 cm. The four burials contained a total of 10 pots.

Two pots close together at depth of 75 cm., not in a burial.

(a) Gloria Polished Plain jar with flaring collar and punched-node bird head on shoulder (diam. 17.8 cm., ht. 18).

(b) Miniature Gloria Polished Plain jar with flaring collar and modeled owl head on shoulder (diam. 8.5 cm., ht. 9).

Burial 1. Depth 100 cm. Flexed.

(a) Castillo Plain jar (diam. 23.5 cm., ht. 25) with cambered collar (fig. 45, A).

Burial 2. Depth 125 cm. Extended.

(a) Polished red bird-effigy jar with flaring collar (diam. 16.5 cm., ht. 18). The bird's head is a punched and incised node on the upper shoulder of the jar, in-

FIG. 45. Gallinazo pottery from V-309. A, Burial 1; B–F, Burial 2; G–I, Burial 4; J, Burial 3.

cised flanges representing wings on the sides; an incised lug at the back is the tail (fig. 45, D).

(b) Gloria Polished Plain jar (diam. 18.7 cm., ht. 21) with slightly flaring collar (fig. 45, B).

(c) Large Gloria Polished Plain jar with face collar (diam. 27.5 cm., ht. 32). The face has large disc-shaped earplugs (fig. 45, C).

(d) Gloria Polished Plain jar with bulging face collar and flaring rim (diam. 21.5 cm., ht. 25). The face had appliquéd ears, but the left ear has come off (fig. 45, E).

The surface to which the missing ear was attached has three vertical incisions made when the clay was wet. They were probably put there to make the ear attachment more secure, but the ear seems to have been pressed on so carelessly that this device was of no avail.

(c) Polished red jar with tall, flaring collar (diam. 18 cm., ht. 18.3). There is a punched node suggesting a bird's head on the upper shoulder. A raised, serpent-like welt runs around the shoulder and ends in a human face with incised mouth, appliquéd nose with punched nostrils, and appliquéd eyes with punctated pupils (fig. 45, F).

Burial 3. Depth 120 cm. Extended.

(a) Gloria Polished Plain jar with face collar (diam. 20 cm., ht. 22.5). The face has disc-shaped earplugs (fig. 45, J).

Burial 4. Depth 130 cm. Flexed and lying on side.

(a) Gloria Polished Plain jar (diam. 23.5 cm., ht. 27.5) with tall, straight collar (fig. 45, I).

(b) Stirrup-spout vessel with sharp shoulder (diam. 14 cm., ht. 19.5). It is covered with a polished white slip (fig. 45, H).

(c) Miniature jar with flaring collar and pierced node handles at the neck (diam. 7 cm., ht. 7.2). It has a rough, poorly smoothed surface covered by a dull, uneven white slip. Cursive orange-colored designs painted on the slip around the shoulder consist of vertical, roughly parallel lines and B-shaped figures (fig. 45, G). This type of painting is unique for the Gallinazo period.

The face collars with disc earplugs, the bulging face collar, and the stirrup spout serve to place these burials in early Gallinazo III. Like the late Gallinazo burials at V-272, they were cut into refuse dating from the Puerto Moorin period. I did not carry this trench below 130 cm. At this depth there were only a few Guañape Plain sherds, but the large number of Guañape sherds on the mound surface, which were brought up by *huaqueros*' activities, point to a Late Guañape age for the lower third of the mound. Possibly the intrusive Huancaco burials in this mound were placed at a greater depth than the Gallinazo graves. This would account for the large number of Guañape surface sherds near pits where there were some Huancaco Decorated sherds. It is fairly certain, then, that this mound had a history similar to that of V-272 and the nearby smaller mounds. The refuse was accumulated during Late Guañape and Puerto Moorin, and the people of late Gallinazo and Huancaco times used this mound as a burial place.

III. Architecture

Evidence on architectural patterns was obtained at only five sites. Four of these (V-108, V-124, V-171, and V-167) pertained to the Late Epoch, and one (V-252) to the Gallinazo period. These sites are described in detail in Chapter II.

SITE V-252

This oval mound is one of the smaller of many such mounds in the Gallinazo group. Bennett, Willey, and I excavated sections of the mound (pp. 59–60). Bennett and I encountered walls of ball adobes and two different floor levels, indicating that earlier rooms had been filled and later rooms built above them. The ball adobe construction and the sherds in the fill indicate a date of middle Gallinazo for these constructions. The upper part of the mound contained late Gallinazo burials, which were evidently cut into the mound after it had been abandoned as a dwelling place. Although the excavations were not extensive enough to reveal the complete pattern of rooms in the mound, the evidence indicates that this site is typical of the smaller dwelling-construction mounds of the Gallinazo period (Willey, 1953, pp. 121–122). The manner in which these mounds accumulated as old rooms were filled and new rooms were built on top of them has been amply demonstrated by Bennett's excavations in other mounds of the Gallinazo group (Bennett, 1950).

In the larger mounds Bennett found series of superimposed complexes of small, rectangular rooms in honeycomb-pattern, dating from the early Gallinazo period at the bottom to the first half of late Gallinazo at the top. This pattern of large agglutinated villages occupying the same location through many periods of rebuilding, which led to the accumulation of large mounds, is characteristic of the Gallinazo period. This pattern flourished during a period of expanding population, which culminated during late Gallinazo in a population greater than in any other period in the valley's history (Willey, 1953, p. 393).

SITE V-167

This site consists of a large area of refuse fill, a refuse mound rising 1.5 meters above the general refuse deposit, and two small pyramids built of

plain, rectangular, mold-made adobes (pp. 55–58 and fig. 24). Our excavations in the refuse mound showed that sherds dating from the first half of the Tomaval period extended to the bottom of the refuse mound and down through 1.75 meters of underlying refuse to a point 1.15 meters below the present ground level surrounding the site (fig. 25). This accumulation of 3.25 meters of refuse in such a short period is indicative of an intensive occupation of the site. In the upper part of the refuse we encountered a section of wall 1 meter high, the base of which was at the level of the base of the mound. It was built of rectangular adobes similar to those in the two pyramids. There was no discernible floor at the base of this wall.

We obtained a small sample of sherds of probable Gallinazo date in the 15 cm. between the Tomaval refuse and the underlying sterile clay. A surface collection made on the northern edge of the site was dated by Ford (1949, p. 84) as late Gallinazo.

We made no detailed investigation of the two pyramids. On the basis of Ford's surface collection, Willey has assigned the pyramids to the Gallinazo period, and the Tomaval refuse to a period of reoccupation (Willey, 1953, p. 289). On the contrary, I believe it is more probable that the pyramids were built during early Tomaval, and that this site should be added to the few examples of pyramids built during the Tomaval period (Willey, 1953, pp. 238–239). The question could be settled by excavating around the bases of the pyramids. If they are of Gallinazo date, the bases should extend below the general deposit of Tomaval refuse to a level approximately 1 meter below the present ground surface outside the site.

SITE V-171

This site consists of two large rectangular enclosures ("Great Rectangular Enclosures," in Willey's terminology; 1953, p. 350) 140 by 200 meters and 130 by 230 meters, respectively (pp. 48–55 and fig. 21). These enclosures have massive outer walls and few interior partitions. The outer walls are battered on both faces, are 2 meters wide at the base and about 3 meters high, and are constructed of tapia, which was poured in sections 1.5 to 2 meters long and 10 to 30 cm. thick. The interior walls, which are also of tapia and have battered faces, are only 60 to 115 cm. thick. The southwest enclosure, which was investigated thoroughly by Willey and me, is divided into three large courts. The center court contains two refuse mounds and two depressions, which may be old, partially filled reservoirs. Another refuse mound lies in the southeast court. Along the northeast side of the enclosure are several smaller subdivisions. Even the smallest of these is 10 by 20 meters, so there is some doubt that any of them was ever roofed.

Our excavations in two of the refuse mounds showed that the site was occupied from the middle of the Tomaval period onward and that the walls were probably built toward the end of Tomaval. There was a less intensive use during the La Plata period and a heavy use during Estero. The subsoil under the central court contained evidence of sparse occupation during the Late Guañape, Puerto Moorin and Gallinazo periods, but none during the Huancaco period. These earlier occupations have no connection with the surface structures.

The way in which these large, empty compounds were used remains a puzzle. The nature of the heavy deposits in the mounds indicates that these were built up by the dumping of domestic refuse. Yet there is no evidence of houses within or near the compound. Possibly the occupants lived in perishable pole-and-adobe houses that have left no trace on the present ground surface. This hypothesis could be tested by stripping the surface to reveal post-holes, old floors, and hearths. No such evidence occurred in the trenches in the refuse mounds.

There are two other sites with great empty compounds in the lower valley, both dating from the Tomaval period (Willey, 1953, pp. 250, 256). One is V-172, which lies on the same side of the river and 2 km. southwest of V-171. The massive enclosure walls are made of tapia poured in the same manner as the walls at V-171. The other is V-246, which is on the other side of the river, about 1.5 km. west of Hacienda Calunga. It consists of two empty enclosure compounds 75 by 130 meters and 50 by 100 meters. The walls, which are made of tapia poured in sections, are 1.5 meters wide at the base and have battered faces. In places the walls are topped with plain, rectangular adobes. Unlike V-171, neither of these sites was occupied after the Tomaval period.

It may be concluded that the great, empty, rectangular compound with tapia walls was a feature characteristic of the Tomaval period. Whether this type of structure was an enclosure for flimsy houses or served as an administrative center or a fortification remains to be determined. The refuse evidence from V-171 points to intensive residential occupation within or close to the compound.

SITE V-108

This rectangular enclosure compound, 31 by 88 meters, lies on the sandy flat northwest of the river mouth and 1 km. from the beach. About 100 meters northeast of the site is a garden plot with a curvilinear, interlocking canal pattern similar to that of garden plots near V-106 (Willey, 1953, fig. 79 and p. 46). The compound wall encloses 30 to 40 rooms (precise number not determined) ranging in size from 4 by 5 to 8 by 10 meters, some smaller storerooms and bins, and two large courtyards (pp. 30–35;

figs. 2 and 3). The compound is not a perfect rectangle, and some of the room walls are not parallel or at right angles to the compound walls. Just outside the east end of the compound are three refuse mounds about 10 meters in diameter and 1 meter high.

The compound and interior walls are built of rectangular, mold-made adobes (32 by 25 by 20 cm. and 32 by 15 by 15 cm.). The outer walls are 75 cm. thick and were originally at least 2.5 meters high. The interior walls are 30 to 60 cm. thick and were probably not more than 2 meters high. The smaller rooms were roofed with canes bound with fiber ropes and covered with adobe. In the larger rooms the canes were probably supported by wooden beams. Floors and walls were plastered. Below the floor of a room there was an earlier floor, which extended beneath and beyond the walls associated with the upper floor. There had been filling and rebuilding on a different room pattern in this part of the site.

Sherds from top to bottom of one of the refuse mounds dated from the La Plata period, as did the sherds from both floor levels in the excavated room. The compound was built and occupied during La Plata, and at least part of the site was rebuilt during the period of occupation. This rebuilding may account for the irregular arrangement of some of the rooms in a structure that otherwise appears to be planned.

SITE V-124

This site, which is 1,500 meters southeast of V-108 and 700 meters from the beach, consists of a rambling compound composed of two conjoined rectangles enclosing courtyards, rooms, and platforms of solid tapia or adobes (pp. 35–46 and figs. 10–18). The massive compound walls, which are battered on both faces and 2.0 meters thick at the base, have a tapia base 1.5 to 2.0 meters high, capped with courses of rectangular, mold-made adobes. These walls were originally 3–3.5 meters high. The interior walls have the same construction but are thinner and have less batter. In the center of the outer wall of the northwest rectangle is the main gateway, flanked on the inside by massive tapia piers capped with adobes. Special features of the site are the three-sided room or court with rectangular wall niches having squared wooden lintels and cane ceilings, the adjoining platform of solid tapia 2.9 meters high with stairway leading to the summit, and the reservoir in the angle of the joined rectangles.

It is uncertain whether the court with niches was roofed and how it was used, although the flying façades on the inner faces of the walls suggest an open court. Nor can it be determined whether the tapia platform was the base for an upper room, the traces of which have disappeared, or an observation post, or a religious pyramid-platform. The relation of the platform to the court of niches suggests a ceremonial function.

The sherds from the fill over the floors of the court of niches and the adjoining passage and room date from the Estero period (3.1 per cent were of Inca type). These sherds serve to date the final occupation of the site but do not fix the period of construction, which could have been the Estero period or earlier. A search for refuse dumps within and close to the compound revealed a surprising lack of refuse for a site of this size and suggested that the occupants had practiced the systematic disposal of refuse away from the site or in one of the corners too thickly overgrown with *algarrobo* to be examined. We found only one small deposit at the northern edge of the site. Here was a thin layer of refuse around the base of a low tapia wall. The sherds dated from late Tomaval. There was thus some occupation of the site during Tomaval, but the period of major construction remains uncertain.

I am inclined to doubt Willey's tentative Estero date for the construction of V-124 (Willey, 1953, p. 329). A comparison of the layout, wall construction, and special features of V-124 with those of other sites throws some light on this problem. There are no exact counterparts of this site in Virú. Willey (loc. cit.) has noted a resemblance in ground plan to V-179, a rambling compound in Upper Virú to the northeast and above Huacapongo pueblo. Inca sherds comprised over 5 per cent of the large surface collection from this site. But V-179 is more irregular in plan, has a different arrangement of interior rooms, lacks wall niches and an imposing gateway, and has walls of river boulders, mud mortar, and rock rubble fill capped by courses of rectangular adobes, in contrast to the tapia-based walls of V-124. Stone foundations for walls of adobe bricks were built in the upper valley during the Tomaval and La Plata periods (Willey, 1953, pp. 350–351), and this type of construction was probably used at V-112, another site of the Estero period (op. cit., p. 331). It was also an Inca practice, found at Pisac and other sites in the Cuzco region, as well as on the coast (e.g., at Tambo Colorado, Pisco; Kroeber, 1944, p. 41), to construct foundations of field stone or river cobbles for walls of rectangular adobes. It is possible that V-179 was constructed by the Inca or under their direction. The relatively large proportion of Inca pottery at the site suggests its importance during Inca rule, but the absence of niches and other Incaic features of ornamentation indicates a purely administrative use, perhaps that of housing a small garrison.

The niches at V-124 are not Incaic in character. Inca niches are shallower in proportion to height and width, and are almost always slightly trapezoidal; their wooden lintels (at Yucay and Pisac, La Centinela in Chincha, and Pachacamac) are round sticks bound together with grass rope (Uhle, 1924, p. 80; Rowe, personal communication, 1951) rather

than squared timbers as at V-124. Neither the niches nor the wall construction point to the Inca as the builders of V-124.

This site shows several similarities to V-269, a planned rectangular compound of La Plata date (Willey, 1953, pp. 307–311). V-269 resembles the southern projection of the main quadrangle at V-124 in size, proportions, and internal layout. The slightly battered walls, less massive than those at V-124, are of tapia capped with rectangular adobes. The compound is entered through a gate in the north wall, which leads to another gate opening into a large court. The latter gate and another opening into a smaller court at the south end of the site are flanked on the inside with rectangular piers. Two of the piers have bas-reliefs in Chimu style carved in the tapia, a feature which, if it ever was present, has been destroyed by erosion on the gate piers at V-124. Other similarities are two long, narrow courts or corridors on the eastern side, and two raised platforms. There are no wall niches.

To the south of Virú there are small, planned compounds analogous to V-124 in the valleys of Nepeña (Punkuri Alto) and Casma (Manchal, Moxeque Pueblo) (Schaedel, 1951, pp. 241–242; personal communication, 1951). These sites have tapia walls capped with rectangular adobes, courts with rectangular (parallel-sided) niches on two or three sides, and niche friezes as cornices. Schaedel dates these sites as late Tiahuanaco-Chimu. The U-shaped court with rectangular niches occurs also at Chanchan in Moche Valley, as do massive, tapered, compound walls of tapia capped with rectangular adobes. Chanchan looks like a greatly elaborated, vastly expanded version of V-124, V-269, and V-108. At Chanchan and at the Nepeña and Casma sites mentioned there was systematic disposal of refuse either on dumps away from the sites or in abandoned courts.

These comparisons indicate that V-124 was probably built at the end of the Tomaval period or during the La Plata (Chimu) period. The evidence is against any important construction during the Inca occupation (Estero). It may well have served as the administrative center in Virú during the Chimu kingdom. It is larger and more elaborate than the compound at V-108 and seems a more likely seat of government than the great empty compound at V-171. It continued to be used after the coming of the Inca. In terms of quantity of Inca pottery present, V-179 and V-124, at opposite ends of the valley, were the two most important sites in Virú during the Inca period. The former may have housed a garrison, and the latter, which was a much more imposing structure, may have been the seat of the local ruler under the Inca.

IV. Ceramic Analysis

CLASSIFICATION

Some discussion of typology is necessary in order to make clear the meaning and limitations of the results obtained from the classification applied to the refuse ceramics in Virú. The concepts and assumptions involved and the ends sought have been amply discussed by Ford (1949, pp. 38–43), and the general point of view has been further elaborated by Phillips and Ford (Phillips, Ford, and Griffin, 1951, pp. 61–66). These ideas had been previously discussed by Krieger (1944), Brew (1946, pp. 44–66), and Taylor (1948). A résumé of these matters will be sufficient here.

A basic assumption underlying the Virú pottery classification is that the particular typology chosen from an infinite number of possible typologies is not inherent in or imposed by the material but is devised by the classifier to achieve chosen ends. In this case, although the ultimate end is a reconstruction of the culture history of Virú (see p. 28), the immediate objective is to obtain a quantitative measure of ceramic changes through time that will serve to date other cultural phenomena. The primary purpose of the classification is therefore chronological rather than cultural, although cultural inferences may be drawn from it. Other, differently devised typologies would lead to greater insight into such questions as the changing habits of and the technical control achieved by the potters, the changing functions of pottery vessels, differential rates of change of domestic and ceremonial wares, and value systems as reflected in ceramics. But such knowledge is dependent on a chronological framework. Neither is this classification intended as a description of the material found, although the sum of the descriptions of all the pottery types recognized does serve that purpose.

In the words of Taylor (1948, pp. 114–115), the ceramic typology used here is empirical rather than cultural. That is not to say that the members of the Virú Project were not interested in the cultural meanings of the pots from which the classified sherds came, but rather that this typology was devised specifically as a tool to achieve a relative chronology for measuring cultural change.

The primary typology of plain wares was set up by Ford (1949, pp. 41–42) with material from surface collections. The types of decorated wares followed in large part the styles of mortuary pottery already recognized for the North Coast, although some of these were broken into constituent categories. Some of the decorated types of the Guañape periods, as revealed by the strata cuts of Strong and Evans at Huaca Negra (V-71), were very similar to types found in Early Ancón and Supe, and were consequently given the same names. This decision was based on the judgment of Willey and Evans, who had recently completed an analysis of the large collection of Chavín period sherds excavated at Ancón and Supe by Willey and Corbett in 1941–42 (Willey and Corbett, 1954).

Ford checked his tentative pottery types against the sherds from the deep strata cuts that were being dug by Strong and Evans and later by me, and tested them by preliminary seriation analysis. This checking led to the abandonment or combining of some pottery types and the segregation of new ones. The limits of each type concept were then agreed upon by the members of the Project in order to make their typological results comparable, and efforts were made to maintain consistency among the various classifiers. At a later time, I found it useful to segregate several additional pottery types in my refuse material from the Late Epoch and the Late Guañape period.

In order to attempt fine temporal distinctions by means of a ceramic chronology it is necessary to make fine type distinctions. Even though care is taken to avoid making these distinctions too subtle for the classifier to handle consistently, certain difficulties of type recognition are unavoidable. These result from the fact that the segregation of types from a continuum in time or space involves the arbitrary segmentation of changes that typically occur in a series of small increments rather than in the form of sudden and drastic shifts. As a consequence, types tend to merge into other types. Examples of this are discussed in dealing with the distinctions between Castillo Plain and Rubia Plain, and between Guañape Red Plain and Huacapongo Polished Plain (pp. 166 and 197).

The solution of this difficulty is to draw arbitrary boundaries between such merging types and to follow these boundaries as consistently as possible. Even so, there will be some inconsistency in handling the sherds that fall at or near these boundaries, with resulting small errors in the sherd counts. But I believe that these errors are not very serious, since the type trends, which are the final step in creating the ceramic chronology, are reached by the seriation of numerous sherd units. In this process the errors tend to cancel out, especially since the seriation position of a particular collection unit is determined not by the percentage value of a single type but by the frequency pattern of all the types present in the unit.

Another difficulty has to do with the tendency for type concepts to drift in the mind of the classifier during the course of classification. This tendency is intensified if one is dealing with an extensive time or space continuum. For this reason it is preferable to classify collection units in random rather than temporal or spatial order. This problem may also become serious when, as was the case with the Virú Project, a very large number of sherds is classified by several individuals over a period of many months. We controlled this tendency by frequent conferences, by checking each other's type samples, and by reclassifying, from time to time, samples of our own sherds.

The ceramic chronology that we have achieved reflects not only human errors, which we tried to minimize but could not eliminate, but also certain external errors. These are of three sorts: (1) Our assumption that there were no significant variations in the ceramic complex over the whole of Virú at a given time may not be wholly valid. Marked variations on a community or class level would certainly introduce distortions into the ceramic chronology. This assumption could be checked only against an independently derived chronology. (2) We have assumed that the refuse deposits we sampled had accumulated as a result of random dumping and that the sherd samples from them are actually representative of the ceramics in use at given times. Any deliberate or accidental departure from random dumping on the part of the ancient inhabitants would tend to introduce additional errors into the chronology. We have further assumed that our sherd samples are representative of the refuse deposits from which they came. In order to establish the probability of this assumption it is desirable to obtain more than one sample from each deposit. This we did in many cases. The best way to guard against errors in this class is to collect samples from a sufficient number of deposits with similar or overlapping time spans so that the atypical samples become evident. We succeeded in obtaining this kind of check for a large part but not all of the Virú chronology. (3) The undetected disturbance of refuse dumps by man and animals subsequent to the time of deposition introduces another source of error. Again, sampling of parallel or overlapping refuse deposits is the best safeguard here.

It is clear that this and all similar ceramic chronologies based on the seriation of sherd units from refuse deposits do not constitute infallible time machines but are imperfect devices subject to the fallibility of their manipulators and to a number of external errors that may be detected and partially controlled but never eliminated. Nevertheless, such chronologies are extremely useful and are valid if not pushed too far or too dogmatically. Specifically, the exact placement of a sherd unit on a seriation chart or the precise dating of a surface collection obtained by fitting it to a master

seriation chart should be regarded with scepticism. At best the method can differentiate time blocks but never points in time.

SERIATION OF REFUSE CERAMICS

After the completion of our excavations and the preliminary analysis of the sherd collections from trenches in refuse deposits, Strong and Evans and I turned over to Ford the sherd count data from our strata cuts. Ford used these data to construct a master seriation chart showing ceramic trends throughout the history of Virú (1949, fig. 4) to serve to date the 300-odd sites from which he had surface collections of sherds. The method of constructing this master chart and of fitting the surface collections to it has been fully described by Ford (1949, pp. 44–52) and need not be discussed here. In order to get a clearer picture of trends in the Puerto Moorin period, which was inadequately represented in the strata cuts, he interpolated into the graph seriated collections from surface sites. In other parts of the graph he did not use some of the strata cuts (or parts of strata cuts) available, either because they duplicated other cuts and would have served only to overcrowd the chart or, in the case of some of my cuts, because parts of them had been deposited at such a slow rate as to produce an overlapping or telescoping of ceramic periods, which would have given a misleading result if included in the graph.

At a later time, Strong and Evans constructed a seriation chart based on the data from all their strata cuts (1952, fig. 34), which is in substantial agreement with Ford's chart. The final seriation of my strata cuts, based on the tables in Appendix I, is shown in figures 46 and 47. These differ slightly from Ford's chart because of revisions and refinements in the classification of the data that I gave Ford at the time the field work was completed. These changes consisted of (a) corrections in the sherd counts of some plain wares, (b) a completion of the classification of the decorated sherds, which led to the establishment of several new decorated types in the pottery of the Late Epoch, and (c) the separation of my Guañape Plain sherds from the Late Guañape period into Red Plain and Black Plain. The last of these revisions involved the combining of the three cuts at V-272 (see p. 88). Consequently, the V-272 sherd counts represented in figure 46 do not correspond numerically to the counts graphed in Ford's chart, which are from V-272B only. This revision resulted in quite different trends for the types Guañape Red Plain and Guañape Black Plain from those extrapolated by Ford from the Middle Guañape trends. These differences are shown in figure 46 by the inclusion of Ford's smoothed curves for these two pottery types. Ford's surface collections from Late Guañape sites (V-83, V-84, V-85, V-127, V-128; Ford, 1949, figs. 4 and 5) fit the new curves much better than they do Ford's curves. But the relative dating of

these sites, both as to period and temporal order, is not significantly changed. This is because in the dating of these sites Ford justifiably depended primarily on the frequencies of Huacapongo Polished Plain, the trend of which was not altered by my data.

The data on which figures 46 and 47 are based are shown in Appendix I. The former diagram represents 8,722 sherds and the latter 10,241. These charts show graphically the ceramic trends expressed in percentages. The levels of the several strata cuts are represented by the staffs on the right side. Frequencies of the pottery types named at the top or the top and bottom of the diagrams are shown by the lengths of the horizontal bars, which are centered on the type axes. These bars are drawn to the scale shown in each figure. Symbols (solid, open, hatched, and stippled) connect the various horizontal bars with their respective strata-cut staffs. Smoothed curves representing the type frequency trends, which were constructed by inspection, are drawn with dotted or broken lines. The divisions of the relative time scales at the extreme right of the graphs are designated with the same letters that Ford used.

There follows a list of my strata cuts with the reasons for not graphing certain cuts or portions of cuts.

V-108A. Only the first four levels of this trench were graphed, since Level 5 contained only 39 sherds.

V-108B. The three levels of this excavation, from different room levels, were not graphed, since they cover the same span of time as V-108A and represent it less well.

V-124A and V-124B. These are single sherd units from different time periods (Estero and Tomaval) and would have added nothing useful to the graph.

V-301. This trench contained nine levels, but Level 9, which contained only 27 sherds, was omitted. Analysis indicated that the upper two meters had been deposited during a very short span of time as compared to other refuse deposits covering this period. Levels 1–4 and 5–8 were combined and shown on the graph as two levels, each 1 meter thick.

V-305. This trench had six levels, but Level 6, which contained only 9 sherds, was omitted.

V-171A. This cut had nine levels, all of which were graphed.

V-171B. This trench had sixteen levels. The seriation of these levels showed, as was to be expected, that the refuse covers the same time span as that in the adjoining trench, V-171C. As in Trench C, Levels 1–3 are of Estero age, La Plata refuse is missing, Levels 4–6 date from Tomaval, and Huancaco refuse is missing. Level 5 contains a sherd of Calunga Red and Black-on-White, which confirms its placement, on the basis of plain ware frequencies, in middle Tomaval, and Level 6 is somewhat earlier than the earliest Tomaval level in Trench C (Level 5). Levels 7–9 cover a period of slow deposition spanning the Gallinazo and Puerto Moorin periods, and Levels 10–16 were deposited during the Late Guañape period. Since the upper levels duplicate the sequence in Trench C, they were omitted from figure 47 in order to avoid overcrowding. The Guañape levels were omitted from figure 46 because they duplicate the early levels in Trench C, because the sherd

samples were so small, and because there were too few rim sherds to break Guañape Plain into its red and black variants.

V-171C. This trench had twelve levels. The first five levels fell in the Late Epoch, and were graphed in figure 47. Levels 6 and 7 were laid down in a time of slow deposition during the Late Guañape, Puerto Moorin, and Gallinazo periods, with a consequent overlapping of pottery types not found in other cuts covering these periods. These two levels were therefore not graphed. Levels 8–11 are graphed in figure 46. The relative frequencies of Guañape Red Plain and Black Plain in Levels 9–11 are estimated, as indicated by the broken outlines of their frequency bars in the graph. Level 12 had only 15 sherds and was omitted.

V-167A. This trench contained sixteen levels, which were deposited in a very short time during the early part of the Tomaval period. It was necessary to combine these into four levels as follows: 1–3, 4–6, 7–9, and 10–12. Levels 13 and 14, which contained 54 and 16 sherds, respectively, were omitted.

V-310A. The single 25 cm. level of this cut, which had suffered from burial intrusions, was omitted.

V-302A. This trench contained nine levels. The refuse of Levels 1–5 was deposited during the latter part of the Gallinazo period but contained some later sherds probably coming from the intrusive Tomaval graves. Levels 6 and 7, with 59 and 49 sherds, respectively, contained a mixture of Gallinazo and Guañape sherds, which probably resulted from the slow deposition of middle to late Gallinazo refuse on top of a Late Guañape deposit. Levels 1–7 were not graphed. Levels 8 and 9 are graphed in figure 56.

V-272A, B, and C. These trenches had eight levels. Their sherd counts were combined into one series (see p. 88). Levels 1 and 2 show an overlapping of Guañape, Puerto Moorin (Huacapongo) and Gallinazo (Castillo) types that is inconsistent with the trends found by Strong and Evans (1952, fig. 34) in their deep cuts (V-51, Cut 1, and V-59, Cut 1). This overlapping was due to slow deposition during the Puerto Moorin period and possibly to the intrusion of Castillo sherds resulting from Gallinazo burials or caches in these levels (see p. 82). Levels 1 and 2 were not graphed. Levels 3–8 are graphed in figure 46.

CERAMIC TRENDS

The Late Guañape Period.—Strong and Evans divided the Guañape ceramic sequence found at V-71 into two phases. These they called Early Guañape and Middle Guañape in order to emphasize the temporal and developmental relationships between them and between the latter and a third Guañape phase encountered by me at V-272 and other sites, which we agreed to call Late Guañape. The pottery of Early Guañape consisted of a plain red ware (Guañape Red Plain) and a plain black ware (Guañape Black Plain), which was twice as frequent as the red ware. The only decorative features were pinched and incised ribs (Guañape Finger-pressed Rib and Guañape Incised Rib) and crude modeling (Guañape Modeled). Two new decorated types (Guañape Punctate and Ancón Fine-line Incised) appeared toward the end of the phase (Strong and Evans, 1952, fig. 34). The present evidence suggests that, with the exception of the manufacture and use of pottery, Early Guañape was not very

different from the preceding preceramic culture in Virú (Cerro Prieto) and its Huaca Prieta counterpart in Chicama (Strong and Evans, 1952, pp. 206–207; Bird, 1948).

In Middle Guañape the plain red and plain black pottery continued with about the same relative frequency, but a polished black ware (Ancón Polished Black) and five new decorated types (Guañape Zoned Punctate, Ancón Zoned Punctate, Ancón Engraved, Ancón Brushed, and Ancón Broad-line Incised) came into use. Not only were there more kinds of decorated pottery but also the total proportion of decorated sherds in refuse was greater than in Early Guañape. Associated with these ceramic innovations were other new traits, such as stone bowls, jet mirrors, spindle whorls, evidence of use of the llama, and a crude religious structure of stone, indicating a considerable elaboration of culture. These ceramic and other cultural features strongly link Middle Guañape on the one hand to Early Ancón (Willey and Corbett, 1954) and on the other to Cupisnique in Chicama (Larco Hoyle, 1941; 1945b).

The ceramic trends of Early and Middle Guañape are shown in figure 46 (by fine dotted lines, interval L–M) so that they may be compared with the trends in Late Guañape (broken lines, interval L–K). The former are based on Ford's chart (Ford, 1949, fig. 4), with minor additions and corrections to bring it into agreement with the more complete data published later by Strong and Evans (1952, fig. 34).

Guañape Red Plain and Guañape Black Plain continue as the basic plain wares during Late Guañape, but their frequency is the reverse of that in Middle Guañape. In the earliest level at V-272 Red Plain is more than twice as frequent as Black Plain and this dominance becomes even greater in later levels. This drastic shift is strong evidence that there was a time interval of unknown length between the latest occupation at V-71 and the earliest occupation at V-272. This interval is shown in figure 46 by the bracket at the extreme right labeled "Ford's chart stretched here." The present meager evidence indicates that there was a shift in Virú from settlements near the beach in Early and Middle Guañape to settlements farther inland in Late Guañape, with less dependence on the sea. Probably this shift took place during the interval between the abandonment of V-71 and the occupation of V-272.

The vessel shapes of the plain wares in Late Guañape are very similar to the shapes of the preceding phase, with the exception of two new shapes in Guañape Red Plain (Form 6 and Form 7, p. 199). These new shapes are similar to shapes of the succeeding type, Huacapongo Polished Plain.

Continuity between Middle and Late Guañape is shown by the continued presence in the latter of the following types: Guañape Incised Rib, Guañape Modeled, Guañape Punctate, Guañape Zoned Punctate, Ancón

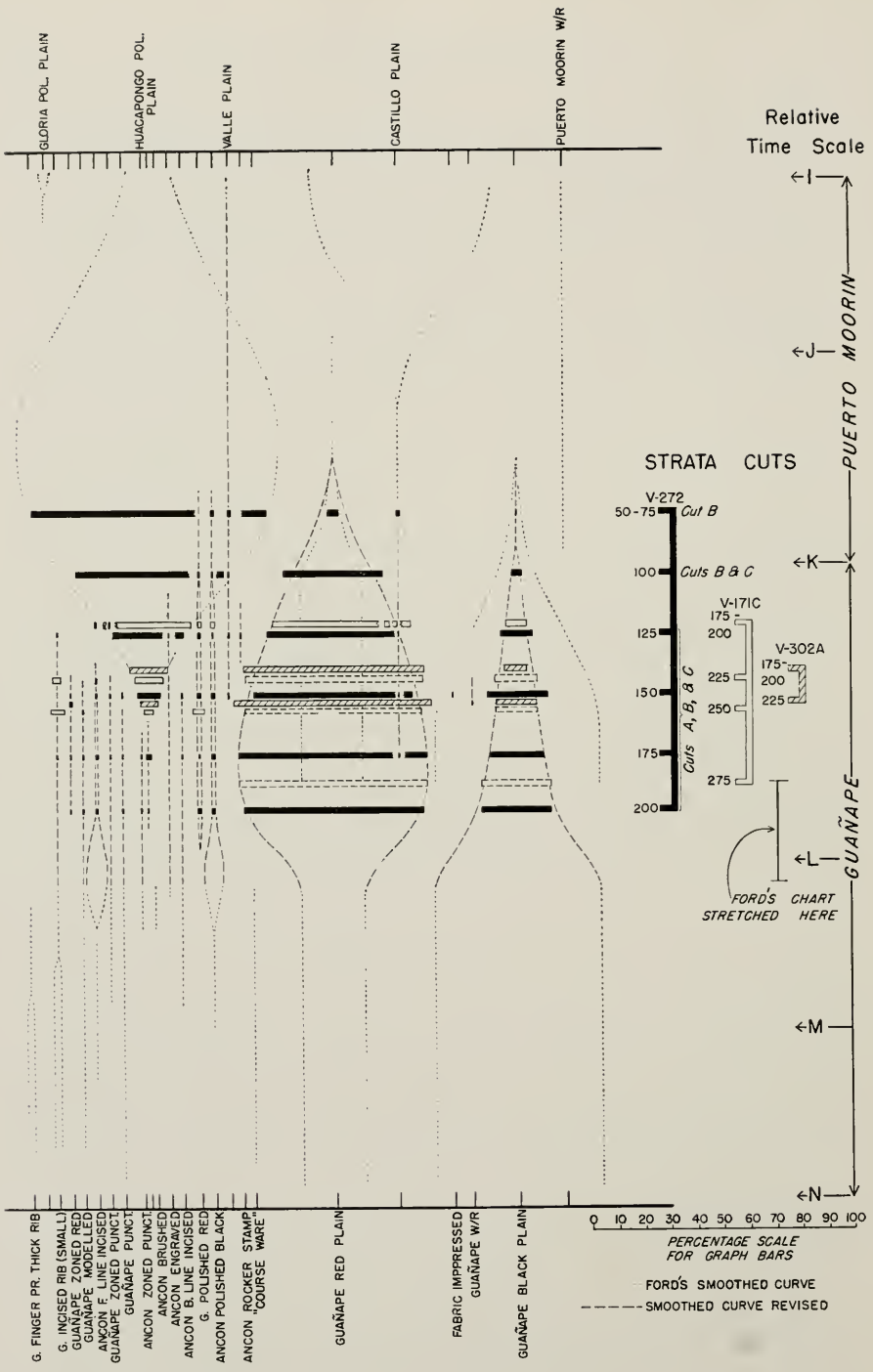

FIG. 46. Graphic seriation of sherd units from strata in refuse of the Late Guañape period. See page 103.

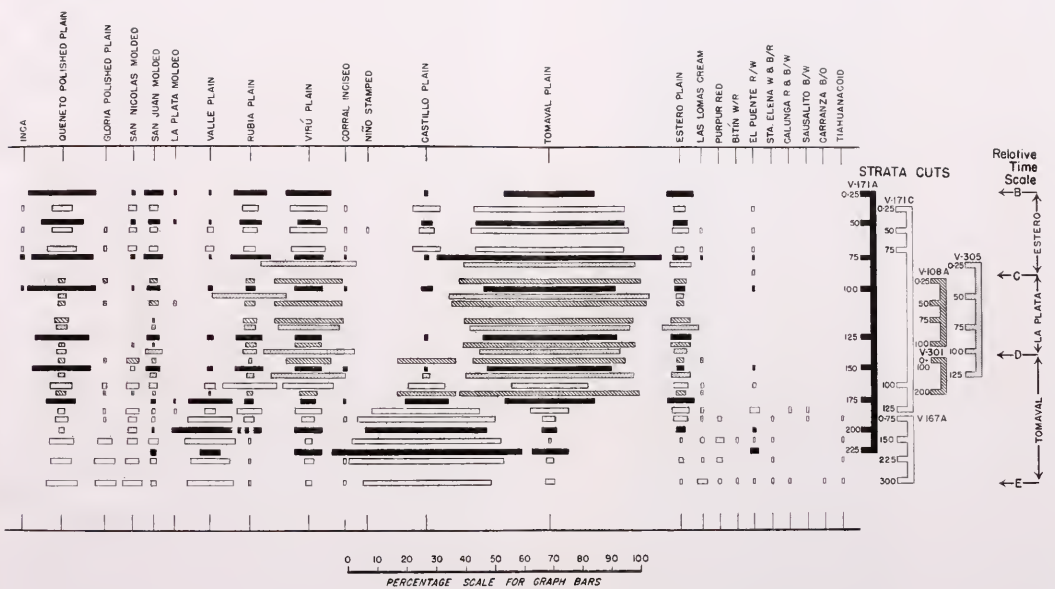

FIG. 47. Graphic seriation of sherd units from strata in refuse of the Late Epoch. See page 103.

Fine-line Incised, Ancón Broad-line Incised, Ancón Polished Black, and Ancón Engraved. (Stone bowls were also still in use.) On the other hand, the following types apparently went out of use before the first occupation of V-272: Guañape Coarse Plain, Guañape Finger-pressed Rib, and Ancón Brushed. The new types in Late Guañape were as follows: Guañape Polished Red, Guañape Zoned Red, Ancón Rocker Stamped, and Huacapongo Polished Plain.

During Late Guañape the dominance of Guañape Red Plain and the appearance of polished red and zoned red pottery are part of the trend from the black (reduced) ceramics of Middle Guañape to the red (oxidized) ceramics of the Puerto Moorin period. This conclusion is strengthened by the similarities between the ceramics of Late Guañape and those of Cupisnique Transitorio in Chicama, which appears to be a transitional phase between Cupisnique and Salinar (Larco Hoyle, 1948, pp. 18–19). It is difficult to compare the refuse sherds of Late Guañape with the selected grave vessels of Cupisnique Transitorio, but it is clear that they shared polished red vessels, zoned red decoration with added black pigment, and occasional use of white paint. The evidence for the last trait in Late Guañape is confined to a single sherd from Level 8 at V-302 (see p. 210).

The ceramic evidence from V-272 suggests a gradual transition rather than a sudden shift into Puerto Moorin. The latter is characterized by plain red pottery finished with distinct, separated polishing tracks rather than over-all polishing (Huacapongo Polished Plain), and by red pots with simple white geometric designs (Puerto Moorin White-on-Red). It is my opinion that the upper three levels of V-272 were laid down during a time of slow deposition in the Puerto Moorin period. This conclusion is weakened by the fact that the sherds from the upper levels of Trench A were lost before classification and by the Gallinazo and Huancaco intrusions in the upper refuse of Trenches B and C. If it be assumed that my conclusion is correct, it is necessary to explain why the type Puerto Moorin White-on-Red was not present in the top levels. According to our definition of Puerto Moorin, based on late Puerto Moorin refuse at the bottoms of Cut 1 at V-51 and Cut 1 at V-59 (Strong and Evans, fig. 34) and on the seriation of certain of Ford's surface collections (Ford, 1949, fig. 4), this type should be present. This expectation is strengthened by the presence of the Guañape White-on-Red sherd at V-302 in Level 8, which dates from about the middle of the Late Guañape period. This sherd suggests the early, if not the earliest, phase of local experimentation with white paint. There are two possible explanations for the absence of Puerto Moorin White-on-Red sherds at V-272. One is that some were present in the lost levels from Trench A but were accidentally absent from the small remaining sample of the upper three levels from this site (Trench B only). The second is that

although some attempts at white painting were made in early to middle Puerto Moorin, white decoration was very rare until late Puerto Moorin.

This argument need not be carried further. The evidence from V-272 is not very helpful in clarifying the nature of Puerto Moorin culture. It is clear that the Puerto Moorin period is the most weakly defined ceramically of any of the periods established by the Virú Project. The duration and the significance of the apparent external relationships of Puerto Moorin culture cannot be known fully until refuse spanning all or most of the period is excavated and until additional grave lots of mortuary pottery are available for analysis. Until then, the precise equation of Puerto Moorin with Salinar (Ford, 1949, p. 63; Strong and Evans, 1952, pp. 210–211), although probable in terms of similarities and relative chronological position, should be considered tentative. At present we know only the graves of Salinar, so that it is not possible to compare Puerto Moorin plain pottery and houses and other structures with similar features in Salinar.

The Late Epoch.—Before discussing the ceramic trends of the Tomaval, La Plata, and Estero periods shown in figure 47, it is necessary to explain the discrepancies between my chart and the corresponding portion of Ford's chart (1949, fig. 4). These differences have resulted largely from the fact that Ford was obliged to use my preliminary sherd-count data, which lacked the finer distinctions that I later made in the decorated types. The principal differences are as follows:

1. Ford lacked data from my collections on the following types, which are components of the Tiahuanacoid and Black-White-Red complexes: Las Lomas Cream, El Puente Red-on-White, Purpur Red, Bitín White-on-Red, Santa Elena White and Black-on-Red, Calunga Red and Black-on-White, Sausalito Black-on-White, Carranza Black-on-Orange, and Tiahuanacoid. All but the first two of these are confined in their distribution to the Tomaval period, and as a group they serve to set off Tomaval from the following La Plata period. The virtual absence of this group from the refuse at V-171A and V-171C (and V-171B) led me (fig. 47) to place the Tomaval levels from these two trenches later in relation to V-167A than Ford did.

2. When I supplied Ford with my preliminary sherd-count data, I unfortunately neglected to tell him that in the preliminary classification my type San Juan Molded included also the sherds belonging to the type San Nicolas Molded. As a consequence, he graphed the combined distribution of these two types under San Juan Molded. He concluded that San Nicolas Molded lasted only until the end of the La Plata period, although the seriation of his surface collections (1949, fig. 5) showed its presence in the Estero period. Figure 47 shows the actual distribution of these two types

in my refuse materials. They both are found throughout the Late Epoch but San Nicolas Molded gradually decreases in frequency from early to late, whereas San Juan Molded gradually increases.

3. A minor difference between the two charts has resulted from my combining the twelve levels from V-167 into four units, instead of the three used by Ford, in order to show more clearly the ceramic trends at V-167.

4. A difference of opinion between Ford and me as to the time span of Corral Incised and Niño Stamped (see pp. 110 and 176) is due only in part to his lack of complete data on the distribution of my decorated types. He has stated that these two types were confined to or centered in the Tomaval period (Ford, 1949, p. 68). But the seriation of his surface collections (op. cit., fig. 5) shows Corral Incised distributed from late Tomaval through Estero, and Niño Stamped from middle Tomaval through La Plata. A Niño Stamped vessel came from a Chimu-Inca period burial at Moche (Kroeber, 1925a, pl. 61, *l*); on the far North Coast, where the technique is much more common, check stamping was practiced during the Chimu period and until the Spanish Conquest (Lothrop, 1948, p. 65). My revised data show a rather even but very sparse occurrence of Corral Incised from the beginning of Tomaval through Estero, and a single occurrence of Niño Stamped in Estero. I conclude that Corral Incised was in use throughout the Late Epoch, and Niño Stamped probably from late Tomaval onward. But these two types are too infrequent to be very useful in distinguishing time differences within the Late Epoch.

Tomaval Period: This period is marked by a shift from red (oxidized) pottery to black (reduced) pottery, the appearance of new vessel forms, and the complete replacement of the decorated ceramics of the Huancaco period by new painted and modeled wares carried by or associated with the spread of the Coast Tiahuanaco style. The shift in firing habits is best seen in the plain wares. The types Castillo Plain, Valle Plain, and Gloria Polished Plain, which together constituted 60 to 70 per cent of the refuse sherds during the Gallinazo and Huancaco periods, were replaced respectively by Tomaval Plain, Virú Plain, and Queneto Polished Plain. These replacements, which were virtually complete by the end of Tomaval, resulted from the acceleration of a trend that had already begun in the Huancaco period (Ford, 1949, fig. 4; Strong and Evans, 1952, fig. 34). Tomaval and Queneto had been present in small quantities throughout the Gallinazo period and Virú Plain had first appeared in late Gallinazo. The trend toward black ware is seen first in Tomaval Plain, which began its growth toward dominance in late Gallinazo. The production of Virú Plain did not increase significantly until the beginning of Huancaco and that of Queneto Polished Plain until the beginning of the Tomaval period. It seems likely that the trend toward black ware affected polished pottery

last because the latter was intimately associated in Virú with the Huancaco (Mochica) complex of oxidized mortuary ceramics. The beginning of the Late tradition of polished black ceremonial ware coincided with the sudden disappearance of the Mochica style, which had been mainly expressed in burial pots. At this time also the trend toward black utilitarian ware was greatly accelerated, and a new black ware type, Estero Plain, first appeared.

The post-Mochica expansion of black ware is connected with the diffusion and blending of artistic ideas carried by the motive force of the Coast Tiahuanaco spread, but the details of that process are little understood. It has been suggested that the black ware tradition originated on the far North Coast, perhaps in Lambayeque (Kroeber, 1925b, p. 253), and that the sporadic occurrence of black ware in Virú during the Gallinazo period was the result of weak or intermittent influence from such a center (Ford, 1949, p. 65). But we need information on the occurrence of black utilitarian ware in Moche and Chicama during the Mochica period and on the pre-Late Epoch black ware developments farther to the north. Until such information is available, it will be impossible to determine the wider significance of the pre-Huancaco black ware in Virú and of the beginnings there of black ware expansion just before and during the Huancaco period.

Two decorated black wares occur infrequently in Tomaval. These are Corral Incised, which first appears at the beginning of the period and persists through the Late Epoch, and Niño Stamped, which first appears in late Tomaval (Ford, 1949, fig. 4) and lasts into Estero. The latter has a check-stamped decoration made by striking the vessel surface with an incised paddle. Niño Stamped has been found also at Moche in a Chimu-Inca context (Kroeber, 1925a, pl. 61, *l*) and at Pata de Burro in Chicama (Bennett, 1939, p. 88; Kroeber and Muelle, 1942, p. 24), a cemetery that probably dates from some time during the first half of the Tomaval period. Niño Stamped thus appears to be earlier in Chicama than in Virú. Stamped ware has not been reported from south of Virú. To the north, in Lambayeque and Piura, check stamping is much more common than in the Chicama-Virú region, and there are simple stamping and a great variety of complicated stamping as well. In Lambayeque the stamped pots are predominantly red, in contrast to the exclusively black stamped ware of Chicama-Virú. This strongly suggests that the stamping technique is earlier in Lambayeque than to the south, and the greater elaboration of stamping in Lambayeque points to that area as the center of elaboration of the technique. It is very probable that check stamping diffused from Lambayeque to Chicama and somewhat later to Virú as a part of the

backwash of influence from the far North Coast that followed the Tiahuanacoid spread.

Although there was an overwhelming trend toward black ware during the Tomaval period, oxidized pottery continued to be made. Rubia Plain, which was browner (less completely oxidized) and less sandy than Castillo Plain, appeared at the beginning of the period and increased gradually to a maximum of about 10 per cent during the succeeding La Plata period. Rubia may well have resulted from diffusion or stimulus from the Central Coast, for the ceramics of that region contained a strong red ware component during the Tiahuanacoid period (Kroeber, 1944, p. 67). Red ware was also fairly common in Lambayeque at the same period (Bennett, 1939, p. 143; Larco Hoyle, 1948, pp. 43–44). The Tiahuanacoid and related painted wares of Virú were also red. And finally, there was the red, mold-made, "pressed ware" type, San Nicolas Molded, which first appeared in the late Huancaco period (Ford, 1949, p. 68), reached a maximum of about 6 per cent at the beginning of Tomaval, and thereafter gradually decreased in frequency. It was supplanted but never completely replaced by the black and more elaborate molded type, San Juan Molded, which first appeared at the beginning of Tomaval and gradually increased to a frequency of about 5 per cent by the end of the Estero period.

An important feature of the ceramics of the Tomaval period is that the overwhelming majority of plain and decorated pots, both from graves and refuse, were made in molds. This practice constitutes a notable shift from the manufacturing methods of the preceding period, for although molding was frequently applied to Mochica mortuary vessels, Mochica domestic pottery was hand-made. The details of the molding techniques of the Late Epoch will be discussed in a following section.

Several vessel forms are characteristic of the Tomaval period and are markedly different from the typical forms of the Huancaco and earlier periods. These are the mold-made bowl with low ring base, the tripod bowl, the flask-shaped jar (laterally flattened), the double spout (Bennett, 1939, fig. 10), the jar with head and spout connected by a flat bridge (often with whistling mechanism), the cylindrical or slightly flaring goblet, the jar with small, painted face collar, and the jar with cambered rim. The ring base bowl occurs occasionally in Gallinazo and Mochica ceramics but in different form. Ford (1949, fig. 7) found a few fragments of tripod bowls in surface collections dating from the Gallinazo and Huancaco. I do not know how they compare in shape with the Tomaval tripods. The cambered rim first appeared in Virú in late Gallinazo (on Castillo Plain jars; Strong and Evans, 1952, p. 266) and occurred infrequently during Huancaco, but it became the dominant form of rim on all types of jars during Tomaval.

The stirrup spout, so characteristic of Mochica and, later, of Chimu, is very rare during the Tomaval period in Virú, and this seems to be the case with the Tiahuanacoid periods elsewhere on the Coast. I found no examples in my refuse collection or in the Tomaval burials at V-302, Kroeber (1930, p. 100) found none at Taitacantin, and Bennett (1939, fig. 9, *c*) found only one aberrant example, with flaring spout, in the Tomaval burials at Huaca de la Cruz. Ford (1949, fig. 7) reports four fragments of hollow arcs in polished black ware, presumably from stirrup spouts, in his surface collections dating from Tomaval. Willey (1947, fig. 1, *f*) found a polished red effigy vessel with stirrup spout in the Tomaval period cemetery at V-142. The spout base is ornamented with a small modeled monkey in the typical Chimu manner. V-142 appears to be considerably later than the cemeteries at Huaca de la Cruz, Taitacantin, and V-302, which have less black ware, and more red and painted ware. Willey dates V-142 at late Tomaval, and I agree. That the stirrup spout is rare in Tomaval is not surprising. It was part of the Mochica style, which was shattered by the Tiahuanacoid expansion. The form traits most characteristic of Tomaval pottery are ones found widely on the Central and North Coasts during this period. They were evidently diffused directly with the northward spread of Tiahuanacoid influence (e.g., the double spout), or in the other direction from the far north as a backwash of that diffusion (e.g., the ring base). But the stirrup spout was not diffused in this manner during the Tiahuanacoid period, nor were other traits of the Mochica style, except possibly the use of the pottery mold.

Ceramics in Coast Tiahuanaco style are very rare in Virú. I found only a single sherd (V-167, Level 5), and Strong (Strong and Evans, 1952, fig. 31, G and H) found only two sherds at Huaca de la Cruz. A few sherds from the Gallinazo group were originally called Tiahuanaco by Bennett (1939, p. 73), but we now know that these were examples of Castillo White-Red-Orange, a painted type dating from the Gallinazo period (Bennett, 1950, p. 84). Coast Tiahuanaco pottery appears to be somewhat more common at Moche and in Chicama (Kroeber, 1925a, p. 208 and pl. 63, *a–e;* Larco Hoyle, 1948, p. 38), but this may merely reflect the more extensive excavation of graves in these valleys, which had much larger populations than Virú. The Epigonal ceramic style, which was derived from Coast Tiahuanaco (Kroeber has called it "debased Tiahuanacoid"; 1925a, p. 229), is somewhat more common in Virú. The evidence from V-167 indicates that Tiahuanaco and Epigonal were contemporaneous in Virú, and probably diffused together from the Central Coast (Kroeber, 1925a, p. 211). (In figure 47, I have included the two together under Tiahuanacoid.)

The final group of painted pottery of the Tomaval period consists of the Black-White-Red Geometric and related wares. I have broken these into several types.

1. Black-White-Red. I have divided this style into two types: Santa Elena White and Black-on-Red and Calunga Red and Black-on-White. The two have about the same time span in Tomaval but the latter is much less common. They are described in detail (pp. 180–183). Santa Elena has white and black geometric designs on the red paste or a red slip, and Calunga has red and black geometric designs on a white slip. Bowls, many with ring bases or tripod supports, are the commonest form in both types. Other forms are bottles, collared jars, face-collar jars, cylindrical goblets, and a Calunga figure-and-spout whistling jar. Such features as the use of black lines to border white or red bands, black stripes on vessel lips, white dots with black centers, and a Tiahuanacoid modeled cat on the collar of a Calunga jar appear to be derived from the Tiahuanacoid style. But the ware and the painting are much cruder and the designs have degenerated to slovenly geometric forms. Cylindrical goblets and double-spout jars (Bennett, 1939, fig. 10, *b*), so characteristic of Tiahuanacoid, are rare.

2. Las Lomas Cream. This type serves to measure the use of white slip or wash on red ware in the Late Epoch. It applies primarily to pottery with no other painted decoration, but it unavoidably includes white-slipped sherds from such painted types as Calunga Red and Black-on-White and Sausalito Black-on-White. The type occurs most frequently during the Tomaval period but continues into Estero. White wash occurs also on San Nicolas Molded bowls. In the classification, I have treated these as a variation of the San Nicolas type.

3. El Puente Red-on-White. This type has red geometric designs on a white slip. It is most frequent in the Tomaval period and appears to be a simpler version of the Black-White-Red Geometric types, but unlike them it continued to be made in small quantities during the La Plata and Estero periods.

4. Bitín White-on-Red. This infrequent type, having white geometric designs, is confined to the Tomaval period.

5. Sausalito Black-on-White. This is a red pottery with white slip on which are painted geometric figures with somewhat cursive, narrow black lines. The commonest forms are tripod bowls, the interiors of which are decorated, and collared jars. Kroeber (1930, pl. XXIII, figs. 1 and 5) found fragments of this type at Taitacantin, and it occurred at Moche, Site A (Kroeber, 1925a, pl. 66, *f*). In Virú the type is confined to the Tomaval period.

6. Carranza Black-on-Orange. This rare type is made up of orange-red open bowls with plain bottoms, ring bases or tripod supports. The interiors

are painted with black, thin-lined geometric figures. Kroeber (1930, pl. XXIII, fig. 6) found a fragmentary tripod bowl of this type at Taitacantin. The type is encountered only in the first half of the Tomaval period. Two San Nicolas Molded bowls with similar black designs on the interior came from the bottom levels of V-167.

7. Purpur Red. This type of red pottery, which is confined to the first half of the Tomaval period, is distinguished by a peculiar purplish-red, polished slip. The commonest form is an open bowl with slightly constricted mouth and sharply flaring rim.

Bennett (1939, pp. 138–142) attempted to divide the North Coast Tiahuanaco period, of which Tomaval is the Virú manifestation, into three sub-periods, which he called Middle Moche II A, B, and C. In sub-period A he placed Uhle's Tiahuanacoid material from Moche A, as well as the Cursive Tripod style of Cajamarca and the clay trumpet style, both also found at Moche A. Sub-period B was represented by Kroeber's Cursive Modeled and Red-White-Black Recuoid styles from Chanchan (1926, pp. 32–36) and the grave collection from Pata de Burro, Chicama (Bennett, 1939, pp. 87–89). Sub-period C, the latest, was represented by the Black-White-Red style. He based this scheme, for which stratigraphic evidence was not available, on stylistic analysis and the association of styles at various sites. The stratigraphic evidence from Virú appears to partially confirm and partially contradict the scheme.

The Cursive Tripod, Cursive Modeled, and Red-White-Black Recuoid styles have not been found in Virú, and the clay trumpet style has not been identified in stratified refuse. Only the Tiahuanacoid (Coast Tiahuanaco and Epigonal) and Black-White-Red styles are well represented in refuse deposits. The stratigraphic evidence, particularly that from V-167, shows a definite chronological overlap of Tiahuanacoid and Black-White-Red. That the latter style persisted longer is shown by the refuse evidence and by the presence of cemeteries containing Black-White-Red pots but no Tiahuanacoid pots. It is improbable that a pure Tiahuanacoid period will ever be isolated in Virú, since on the Central Coast the Tiahuanacoid style is invariably associated with other styles (Kroeber, 1925a, p. 211). What is expectable in Virú is a sub-period in which Tiahuanacoid vessels are associated with predominantly red molded-relief ware, but not with Black-White-Red vessels. It has not been possible to isolate such a sub-period by means of the refuse evidence. This may mean that there is a slight time gap between the earliest Tomaval refuse that I excavated and the first impact of Tiahuanacoid influence, or it may indicate that a Tiahuanacoid sub-period will be isolable only in graves. Such a cemetery has not been discovered in Virú.

What is clear is that the prolonged overlap in Virú of the Tiahuanacoid and Black-White-Red styles leaves no place for Bennett's postulated intermediate sub-period B. It is of course possible that such a sub-period did occur in Moche or Chicama, but the B styles could also be explained as regional variations. The Pata de Burro pottery is an important component of the B sub-period. An effective comparison of this collection with Tomaval refuse and burial ceramics is not possible because Bennett described the pots only briefly and did not illustrate them; but I have the impression from his descriptions that Pata de Burro could be fitted into the first half of the Tomaval period, that is, into the period of overlap of the Tiahuanacoid and Black-White-Red styles. This time placement of Pata de Burro involves two difficulties: (1) The Black-White-Red style is very weakly represented at Pata de Burro, in contrast to its strong influence at sites assumed to be coeval in Virú; (2) check-stamped ware, which is present at Pata de Burro, does not occur until late Tomaval in Virú. If, as seems probable, the Black-White-Red style was spreading northward from the Central Coast (Kroeber, 1925a, p. 206) and check stamping southward from Lambayeque (see p. 110), then these apparent contradictions can be explained by the fact that the Black-White-Red style was adopted earlier in Virú than in Chicama, whereas check stamping reached Chicama first.

Further light can be thrown on style differentiation and time distinctions in the Tomaval period, as well as on the dating of the ceramics from Pata de Burro and Moche A, by a seriation of cemetery lots of burial pots (see pp. 121–124).

La Plata Period: The trend toward black ware, which mounted throughout the Tomaval period, reached its culmination in the La Plata period. Tomaval Plain comprises slightly over half the pottery, Virú Plain reaches a maximum of over 16 per cent and Estero Plain more than 7 per cent. Queneto Polished Plain and San Juan Molded are the only black ware types to increase after this time. The red ware types, Castillo Plain, Valle Plain, and Gloria Polished Plain, which decreased steadily in frequency during Tomaval, have now virtually disappeared. Ford (1949, p. 48) has suggested that the occurrence of Castillo and Valle sherds in refuse of La Plata and Estero date resulted from upward migration of sherds in the middens caused by the activities of the Indians who lived on the middens. The absence of these types at V-108, which was occupied only during La Plata, is evidence for this interpretation. But they do occur in the above-floor refuse at V-124A, associated with Inca sherds. A few of these might have become mixed with the Estero refuse through the collapse of walls containing sherds of earlier date. But these walls did not contain many sherds and it is unlikely that such a process could account

for all of the Castillo sherds, which amounted to 4.8 per cent of the total. I believe that some part of the Castillo sherds in the late portions of deep middens was due to upward migration but that a very small amount of Castillo and Valle was in use during the Estero and La Plata periods.

Two other types of red ware are present during La Plata. Rubia Plain reaches its maximum of about 10 per cent during La Plata, and San Nicolas Molded continues to be made in decreasing amounts as it is gradually replaced by its black counterpart, San Juan Molded. Very small amounts of Las Lomas Cream and El Puente Red-on-White are still in use.

The only new type to appear is La Plata Molded, a black ware with small, molded half-round fruits or vegetables attached to vessel shoulders. Its frequency is too low to be very useful for dating purposes.

With the exception of Las Lomas Cream and El Puente Red-on-White, the painted wares of the Tomaval period have completely disappeared. Painted decoration has given way to polished black surfaces, figure modeling in the round and in low relief, and various sorts of surface treatment in stipple and low relief in geometric designs. All of these decorative modes were executed with the pottery mold, and molds were used for making plain pottery also. The more elaborate grave vessels of the Chimu style are rare in refuse. I opened only four very poor La Plata period graves, so I am unable to add anything new on Chimu burial pottery.

Vessel forms are in part carried over from the Tomaval period and in part revivals of Huancaco (Mochica) forms. Most notable among the latter is the stirrup spout, which disappeared during Tomaval. The arcs of La Plata stirrup spouts often are rectanguloid or D-shaped in cross section, in contrast to the invariable round section of Huancaco arcs, and usually there is a small monkey or a bird at the junction of spout and stirrup. It is interesting that the meager evidence from refuse material suggests that the stirrup spout is more frequent in Estero than in La Plata. The manner in which the stirrup spout was revived is not clear. There is some evidence that in Lambayeque, where the Tiahuanacoid impact was much weaker than in Virú-Chicama, the stirrup spout did not die out during the Middle periods (Bennett, 1939, p. 143; Larco Hoyle, 1948, pp. 43–44). It is tempting to speculate that the Chimu stirrup spout derived from Lambayeque or a related source.

Such characteristic Tomaval forms as the tripod bowl and the cylindrical goblet are absent in La Plata. The ring base bowl has also disappeared, but the ring base jar, which occurred occasionally in Tomaval, is now common. This is another form that probably originated in Lambayeque or Piura.

In terms of ceramics the La Plata period is set off from Tomaval by the disappearance of certain characteristic Tomaval types, notably those de-

rived from or associated with the Tiahuanacoid style, and by the culmination of the red ware–black ware trends present during Tomaval. The only new features are the revival of the stirrup spout, and the elaboration of mold-made black ware. There is no easily determined point of demarcation between the two periods. In figure 47, I have drawn the boundary at the point of virtual disappearance of Castillo Plain. This places the major emphasis on the changing frequency of the plain wares. Greater emphasis on painted wares would lead to placing the division slightly earlier, just after the disappearance of the Black-White-Red complex.

Estero Period: The only new pottery type in Estero is Inca, which includes Inca painted pottery and Inca-derived pottery. Both Ford and I have considered Inca pottery as the primary diagnostic of Estero and have taken its first appearance to mark the beginning of the period. I found Inca pottery in only two sites: V-171 and V-124. At the former it did not exceed 1 per cent in any of the trenches and at the latter it comprised 3 per cent of the sherds in the above-floor fill. A total of only 18 sites with Inca sherds, including the two just mentioned, was found by Ford in his surface survey (1949, Appendix II). None of these sites had more than 1 per cent of Inca pottery, with the exception of V-179, which had over 5 per cent (Ford, 1949, fig. 5). Some of the Inca sherds are in good Cuzco style and were either imported or made locally by potters well accustomed to the style. Others are quite degenerate and appear to be local imitations. There are a few examples of aryballoid forms made in local wares. All of these together comprise a very small proportion of Estero pottery. It is evident that the Inca conquest and the art style carried by the invaders had no significant impact on the local pottery styles. Since the quantity of Inca pottery is so small at any site, it is probable that at least some of the sites dated as La Plata by Ford were occupied during Estero also. Excavation at these sites might reveal a few Inca sherds; it is also possible that there are sites occupied during Estero that contain no Inca sherds.

During Estero there are no marked changes in ceramic trends. The black ware types, Tomaval Plain, Virú Plain, Estero Plain, and the red ware type, Rubia Plain, remain constant or decrease slightly in frequency. The only types definitely on the increase in refuse deposits are Queneto Polished Plain and San Juan Molded, which reach their maximum frequencies (about 15 and 5 per cent, respectively) at the end of the period. Furthermore, the stirrup spout, which is associated primarily with Queneto but is applied also to San Juan vessels, seems to be more frequent in refuse during Estero than in La Plata. Since these two pottery types incorporate most of the features of form and decoration that characterize the Chimu style, this evidence suggests that the Chimu style did not reach its culmination in terms of quantity (i.e., number of vessels) until the Estero

period. This conclusion is based entirely on refuse deposits, and may not apply at all to burials. There is no evidence on the relative frequencies of grave vessels in good Chimu style during the La Plata (Chimu) and Estero (Inca) periods. It is improbable that this quantitative culmination in Estero is a reflection of the aesthetic climax of the Chimu style, which is more likely to have been achieved before Inca domination than after. On the contrary, it seems to be evidence that the aesthetic climax is past, and evidence of the final intensification of two processes of the Late Epoch. One of these processes was a standardization of the Chimu style and an accompanying tendency toward mass production of mold-made pots, which resulted in greater availability of fancy pots. Pottery-mold production was well established in the Tomaval period and reached its culmination in late La Plata and in Estero. The Inca also practiced mass production of crafts (Rowe, 1946, p. 287). It is likely that their mass production of goods, as well as many of their technological and political refinements, were borrowed from or stimulated by Chimu culture (Rowe, 1948, p. 46). The other process was that of the secularization of art during the Late Epoch. This process began in the Tomaval period, when there was a breaking down of the distinction—so marked during Mochica times—between domestic pottery and elaborate mortuary pottery. During Tomaval and later, a considerable proportion of grave vessels were plain cook pots that had been used, and a much larger amount of decorated pottery found its way into domestic refuse deposits than formerly. The best products of the potter's art were no longer reserved for the dead and the temple, and the lowly cooking olla also served the dead. The interaction of these two processes, mass production and secularization of art, serves to explain the increase of Chimu decorated pottery in the domestic refuse of the Estero period.

It is clear that in Virú the Inca conquest had almost no discernible effect on art style and craft production. The ceramic trends of the La Plata period continued uninterrupted during Estero. If it were not for the few Inca sherds in refuse there would be no archaeological evidence of the Inca domination. Probably the secular nature of both Inca art and Inca administration was a basic factor in this lack of influence.

GRAVE POTTERY

Gallinazo Period.—We excavated a total of 18 Gallinazo burials containing 48 pots at V-154, V-252, V-303, V-272, and V-309. The first three sites are in the Gallinazo group and the last two are inland near Hacienda Santa Elena. These burials and their contents are described in detail in Chapter II. The number of vessels involved is not sufficient to warrant the type of detailed analysis of shape and decoration made by Bennett of his

collection of 320 Gallinazo grave vessels (Bennett, 1950, pp. 89–100). Bennett divided his graves into three phases, I, II, and III, paralleling the three sub-periods that he defined on the basis of construction analysis and refuse ceramics. Phase I was the least well defined of the burial divisions because of the small number of vessels (19) assignable to it.

I opened two graves containing four pots at V-154, which is one of the two cemeteries tentatively assigned to Gallinazo I by Bennett (1950, p. 99). Two of the vessels fit well enough into Gallinazo I, but the scalloped-rim bowl (fig. 26, B) and the Valle Plain double-bulge jar (fig. 26, C) seem to fit better into Gallinazo II. The latter vessel belongs to Strong's Form 3 of Valle Plain, which does not appear in his refuse cuts until after the middle of the Gallinazo period (Strong and Evans, 1952, p. 269). However, this form is so infrequent at any time that it may well have first appeared earlier than the refuse evidence indicates. It is apparent that my meager evidence from V-154 does not strengthen the definition of Gallinazo I burial ceramics.

The vessels from my Gallinazo burials at V-252, V-303, V-272, and V-309 all fit well into Bennett's early III group. Not only do they strengthen the consistency of the Gallinazo III style defined by Bennett, but they confirm his conclusion that Gallinazo culture was affected by strong influences from Mochica and Recuay during the early part of sub-period III. The two stirrup-spout vessels with vertically flattened bodies and flanged spouts (figs. 28, A, and 29, A) from V-252, Burials 2 and 3, have a form characteristic of Mochica Phases I and II, postulated by Larco Hoyle (1948, pp. 28–30). On the other hand, the bat vessel with stirrup spout (fig. 40, A) from Level 1 at V-272B, which was not in a burial but appears to have been in a Gallinazo III context (see p. 82), has a spout form typical of Mochica III. It is not clear to what extent Larco Hoyle's Mochica phases have temporal validity. If we assume that they do constitute temporal and sequent phases, then the bat vessel should be later (perhaps terminal Gallinazo III) than the two vessels from V-152.

Two vessels show strong influence from the Recuay style. One (V-252, Burial 3) is a figure-and-spout double jar with a human figure playing panpipes, wearing a Recuay headdress, and carrying a typical Recuay shield on his left arm (fig. 29, F). The other (V-303, Burial 2) is a jar with Carmelo Negative designs and white overpainting, that is, three-color negative painting (Strong and Evans, 1952, p. 309), a disc collar, and, on the shoulder, a modeled human head with horizontal spout projecting from the forehead (fig. 31, E). A modeled and painted face from V-272B, Level 2, which appears to date from Gallinazo III, also shows strong Recuoid influence (fig. 40, E).

Two crude miniature jars with pottery lids from a cache in Level 3 at V-272B are similar in form and paste to a cache of toy pots found associated with a collared vessel of Gallinazo type at Queneto temple by Bennett (see p. 82). My examples appear to be late Gallinazo in date, and this dating is confirmed by their similarity to a miniature jar found by Strong at V-163, a Gallinazo III burial mound. This evidence points to a late Gallinazo date for Bennett's Queneto cache rather than the very early date postulated by Larco Hoyle (1948, p. 14).

Tomaval Period.—We recovered 29 vessels from the Tomaval graves at V-302. These are described in detail (pp. 71–78) and illustrated (figs. 34–37). The distribution of pottery types in this lot is as follows:

Type	*Number*	*%*
Queneto Polished Plain	3	10
Tomaval Plain	1	3
Estero Plain	1	3
Rubia Plain	2	7
San Nicolas Molded	9	33
San Juan Molded	1	3
Bitín W/R	1	3
El Puente R/W	1	3
Santa Elena W and B/R	2	7
Calunga R and B/W	3	10
Sausalito B/W	1	3
Castillo Plain	3	10
Valle Plain	1	3

These combine by basic ware as follows: red, 52 per cent; black, 21 per cent; painted, 27 per cent. In terms of decoration the breakdown is plain ware, 38 per cent, and decorated ware, 62 per cent, of which molded relief (San Juan and San Nicolas Molded) constitutes 56 per cent (36 per cent of total vessels) and painted ware 34 per cent (28 per cent of total vessels). In the molded relief group, red ware is ten times more frequent than black ware. In the painted group, the two types constituting the Black-White-Red style (Santa Elena and Calunga) comprise about two-thirds of the pots, and the remaining painted types one-third.

The frequency of vessel forms is as follows:

Form	*Number*	*%*
Ring base bowl	2	7
Jar with tall collar	2	7
Jar with flaring rim	6	21
Jar with cambered rim	8	28
Bottle	6	21
Face-collar jar	3	10
Figure-and-spout jar	1	3
Miniature double vessel	1	3

The grave pots from V-302 cannot be dated by fitting their type frequencies directly to the seriation chart based on refuse material (fig. 47).

This is because decorated pottery, both molded-relief and painted, is so much more frequent, and plain pottery, both red and black, correspondingly less frequent in the graves than in Tomaval refuse. Although the type frequencies in the grave ceramics are different, it is of interest to note that all of the plain ware types found in Tomaval refuse, with the exception of Virú Plain, also occur in graves.

In spite of the impossibility of strip-matching the grave pots against the refuse seriation, the approximate position of the V-302 burials is fairly clear. The predominance of red ware over black ware and of red molded relief over black molded relief, the strong Black-White-Red component, and the absence of Tiahuanacoid vessels all indicate the middle of the Tomaval period. This placement is confirmed by a seriation of V-302 and other grave lots from the Tomaval period in terms of frequencies of red ware, black ware, and painted ware. For purposes of comparison I give first these frequencies in refuse deposits.

	Red	Black	Painted
	%	%	%
Late Tomaval	22	75	1
Middle Tomaval	45	51	3
Early Tomaval	74	19	6

The trend from red ware to black ware and the marked decrease of painted ware are striking in the refuse pottery, and these trends should be reflected also in grave pottery.

Site	Red	Black	Painted	Total
	%	%	%	no.
V-142, burials (Appendix V; Willey, 1947)	21	71	7	28
Huaca de la Cruz (V-162), burials (Bennett, 1939, p. 44)	24	62	14	93
Taitacantin (V-235), burials (Olson) 8% of vessels unspecified (Bennett, 1939, pp. 51–53)	24	44	24	44
Taitacantin (V-235), pit and surface sherds (Bennett, 1939, p. 51)	21	42	37	92
"Taitacantin" (Huaca Larga, V-238), surface sherds (Kroeber, 1930, Table I)	31	25	44	65
V-302, burials (see p. 120)	52	21	27	29
Pata de Burro, Chicama, burials (Bennett, 1939, pp. 139–140)	64	21	15	47
Moche A, burials and sherds from fill 5% of pieces unspecified (Kroeber, 1930, Table I). A retabulation from Kroeber's descriptions (1925a, pp. 208–210) gives these percentages: red, 17; black, 46; painted, 35; unspecified, 2.	11	45	39	64

In the table appearing on the preceding page are given the ware frequencies for eight lots of cemetery pottery seriated so as to place the latest at the top and the earliest at the bottom. Moche A, at the bottom, is not a part of the sequence.

With the exception of Moche A, to be discussed presently, these cemetery lots fit easily into a sequence that gives rather consistent trends. The two Taitacantin lots described by Bennett, which came from the same site (V-235), match each other very well. The higher proportion of painted pottery in Bennett's pit and surface sherds is probably due to selection at the time the collection was made. The very high proportion of painted sherds in Kroeber's collection from Taitacantin, which appears to be a different site from Bennett's Taitacantin and is probably Huaca Larga (V-238) (Bennett, 1939, p. 51), is doubtless also due to selection. The seriation places Willey's V-142 cemetery, which contained a vessel in Chimu style, latest, and Pata de Burro, which shows little Black-White-Red influence, earliest. The sites with strong Black-White-Red components fall between. I have already discussed (p. 115) the problem of dating Pata de Burro in terms of the Virú sequence. The chart below illustrates the relative temporal positions of the burials from these sites in the Tomaval period as a whole.

Late	V-142
	Huaca de la Cruz
	Taitacantin (Bennett and Olson)
	"Taitacantin" (Huaca Larga, Kroeber)
Middle	V-302
	Pata de Burro
Early	

The chart emphasizes the lack of evidence on early Tomaval burial pottery, which was discussed on page 114. Pata de Burro in Chicama is placed at a time after the initial Tiahuanacoid impact but before strong Black-White-Red influence. Bennett would make of this a sub-period, but in Virú the overlap of Tiahuanacoid and Black-White-Red leaves no room for such a sub-period (see p. 115).

Moche A does not fit at all into the seriation or the chronology derived from it. Whereas the strong Tiahuanacoid element in the Moche A collection dates it as early Tomaval, the small amount of red ware (11 per cent) points to very late Tomaval, and the medium amount of black ware (45 per cent) and large amount of painted ware to middle Tomaval. There are two possible explanations for these discrepancies. One involves the assumption that the basic ceramic trends at Moche during the period coeval

with Tomaval were quite different from those in Virú, the next valley to the south, and that Moche cannot be expected to fit into the Virú sequence. This assumption, if true, would probably invalidate my dating of Pata de Burro. But the assumption is highly improbable in the face of the evidence that the two valleys contained similar ceramic complexes at the end of the Huancaco (Mochica) period, were subject during the Tomaval period to the same basic influences from the Central Coast and the far North Coast, and in the following period contained the full-blown Chimu style. The much more probable explanation, which I believe to be the correct one, is that the collection from Moche A contains two or more temporal components.

Uhle, who excavated the Moche A collection, referred to three different lots of pottery from the site in his published account (1913, pp. 111–115) and less clearly in his field catalogue (Kroeber, 1925a, pp. 207–208), as follows: (1) Tiahuanaco vessels and sherds from fill; (2) post-Tiahuanaco vessels from graves; (3) non-Tiahuanaco vessels and sherds (including the Cursive Tripod style) from the same soil as the Tiahuanaco pieces. Kroeber (1925a, pp. 207–213) gave a detailed description and analysis of Uhle's Moche A material but he was able to separate Lots 2 and 3 only in part, because of the inadequacy of the field record available to him. He concluded that Lots 2 and 3 were coeval in time and that probably the Tiahuanaco group was contemporaneous with them, pointing out that similar associations occurred on the Central Coast at Pachacamac, Ancón, and Supe. Later, Bennett (1939, p. 138) accepted this conclusion in treating the Moche A collection as a unit that he identified as his Middle Moche II A sub-period.

I have attempted to analyze by basic ware frequency the three Moche A lots indicated by Uhle. The most clear-cut is the group of 10 vessels, described by Kroeber (1925a, p. 209), from the post-Tiahuanaco graves (Lot 2). The group breaks down as follows: red ware, 20 per cent; black ware, 70 per cent; painted ware, 10 per cent. These frequencies, which are very close to those from V-142, suggest a late Tomaval date. The number of pots in this lot is so small as to render unreliable the crude measure applied here, but the result does seem to rule out an early Tomaval date and contemporaneity with the Tiahuanaco sherds from the fill.

Tabulation of the wares in the non-Tiahuanaco group (Lot 3; Kroeber, 1925a, p. 210) gives the following frequencies: red, 20 per cent; black, 48 per cent; painted, 33 per cent. When matched against the Virú series of burial collections, this lot falls at or just after middle Tomaval. But the Lot 3 pottery is only partially comparable to middle Tomaval burial ceramics. It contains no Black-White-Red, in contrast to the strong component of this style in Virú grave pots at this time. And the Cursive Tripod

style of Lot 3 is absent entirely in Virú, although other tripod bowls (plain red, red molded relief, and painted) are fairly common. On the other hand, the molded-relief bowls with ring base in Lot 3 are quite typical of middle Tomaval refuse and burials, and the somewhat cursive black-on-white painting (Kroeber, 1925a, pl. 66, *f*) is present in Virú at this time (Sausalito Black-on-White).

I am not convinced that a middle Tomaval date for Lot 3 is correct, nor am I even sure that Lot 3 is made up of a single temporal component. A combination of Lot 3 and the Tiahuanaco pieces (Lot 1) is even harder to reconcile. The combination has the effect of lowering red ware and black ware frequencies and increasing painted ware, as follows: red, 17 per cent; black, 42 per cent; painted, 40 per cent; unspecified, 1 per cent.

The conclusion that emerges from this analysis is that with the information available it is impossible to decide how many temporal components are included and which styles are associated in the Moche A collection. But it is clear that more than one time period is represented and that the collection cannot stand as a unit in any reconstruction of North Coast ceramic history.

La Plata Period.—We excavated four burials at V-304, a small La Plata period cemetery near the beach on the north side of the river (pp. 46–48 and fig. 19). The five pots in these graves included a Tomaval Plain jar with cambered rim, a Rubia Plain jar with cambered rim, a Queneto Polished Plain bottle with cambered neck and vertical loop handle at the neck, the molded figure from a Queneto Polished Plain figure-and-spout whistling jar, and a Queneto Polished Plain stirrup-spout vessel with a D-section stirrup and a small molded bird at the junction of spout and stirrup. The stirrup-spout vessel is in typical Chimu style and serves to date this otherwise meager and rather plain collection of pots. The molded corn ears forming the headdress on the figure-and-spout fragment also suggest the La Plata period.

MOLD-MADE POTTERY OF THE LATE EPOCH

The molding techniques of pottery manufacture employed on the North Coast during the Late Epoch were the culmination of a long development. The pottery mold was first used in the Cupisnique period. According to Larco Hoyle (1941, pp. 35–36), the Cupisnique potters employed the two-piece mold to manufacture the bodies of grave vessels. The stirrup spouts were made separately and attached to the openings left for that purpose in the upper surface of the bodies. Larco Hoyle has not discussed the evidence for this conclusion nor the technique of attaching the stirrups to the vessel bodies. Molds continued to be used during the Salinar period but mold-made grave pots were less common than in Cupisnique

(Larco Hoyle, 1948, p. 21). During the Mochica period most mortuary pots were made in molds, and the finding of duplicate pots in Mochica graves is fairly common (op. cit., pp. 28, 31, 33). Two new techniques were employed in connection with the two-piece mold with vertical joints. One was to leave an opening in the base of the vessel to facilitate fusing of the body joints and the joining of the separately formed stirrup spout. The basal opening was closed last. The other technique involved molding the base separately and applying it to the vessel last, which made the smoothing of the body joints and the joining of the stirrup spout very easy.

Digby (1948, p. 607) has shown by radiographs that the stirrup portions of at least some Mochica stirrup-spout vessels were made in four sections. The stirrup ends were butted onto the vessel body, not inserted through the holes in the body. In Chicago Natural History Museum there are eight broken Mochica stirrup-spout vessels from Chimbote that show clearly this butting technique for attaching stirrup spouts. In some cases there is a slight projection of clay around the edge of the body holes on the inside. These projections resulted from punching the body holes from the outside or from the smoothing of the stirrup-body joint on the inside by insertion of a tool into the hole from below rather than from the projection of inserted spout ends. A more extensive study is needed to determine if butting was the only method of stirrup-spout attachment employed by the Mochica.

Larco Hoyle thinks that the majority of Gallinazo grave vessels were made in molds. He bases this conclusion on what appears to be a poor fit between stirrup spout and body on many of the vessels. This, he suggests, may be evidence that the stirrup spouts of different pots were cast in the same mold and then bent while still soft to fit a particular vessel body (Larco Hoyle, 1948, p. 23). On the contrary, Gallinazo stirrup spouts appear too irregular to me to have been mold-made, and their imperfections point to hand modeling rather than a poorly integrated system of mass production. I have not made a detailed study of Gallinazo grave pots for evidence of molding techniques, but my strong impression is that although the pottery mold was used to some extent during the Gallinazo period, particularly during late Gallinazo, the majority of grave vessels were made by hand.

During the Cupisnique, Salinar, and Mochica periods the pottery mold was used only in the manufacture of the more elaborate grave ceramics. Plain pots, which are predominant in domestic refuse and are found only occasionally in graves, were made by hand, largely if not exclusively by the coiling method. Although plain pottery has been little studied in Chicama Valley, the hand manufacture of domestic pottery in pre-

Tomaval times in Virú is quite clear (Strong and Evans, 1952, Appendix I). Not until the Tomaval period was the mold employed to make pots for everyday use.

Very few pottery molds and matrices have been discovered on the coast of Peru, probably because nearly all collections are from graves. The conclusions on pottery molding already mentioned and those I am about to discuss are based on the evidence found on the pots, the end product of the technique. This evidence is most easily seen and understood on intact or nearly complete vessels. Only when the techniques are understood can much of the evidence of molding be recognized in sherd material, although the simple fact of molding is at once evident on any fragment of a molded-relief vessel of the Late Epoch.

The burial pots from V-302, a middle Tomaval cemetery, furnish conclusive evidence of the great importance of the ceramic mold and of the existence of three types of mold at this time. The detailed evidence is discussed in the descriptions of these vessels (pp. 71–78). Out of the total of 29 vessels, 26 (90 per cent) were molded, two were hand-made (probably coiled), and the construction method of one is uncertain. The molded vessels fall into the following classes: (1) 2 bowls (8 per cent) were made in one-piece molds; (2) 14 jars (54 per cent) in two-piece molds with horizontal joints; (3) 10 jars and bottles (38 per cent) in two-piece molds with vertical joints. In every case the vessel was molded on the interior or concave surface of the mold. All of the pots made in two-piece molds have separately applied rims or necks. The necks of three face-collar jars or bottles were formed separately in two-piece molds with vertical joints and applied to the vessel bodies. The remainder of the rims and necks are so well-smoothed and finished by horizontal wiping that it is impossible to determine whether they were hand-made or cast in molds.

All of the pots made in horizontal two-piece molds have a pronounced or at least noticeable shoulder angle, which is the point of junction of the upper and lower halves of the vessel body. The joint is well smoothed on the outer surface but often quite rough on the inside. The shoulder joint is invariably thicker than the surrounding vessel walls. This thickening resulted in part from the process of smoothing the joint but was probably deliberately achieved in order to counteract the structural weakness caused by the joint (many of the pots have developed cracks along the joint). Similarly, the molded vessels with vertical joints have a noticeable angle at and sometimes a ridge along the joint, but the joint thickening is less pronounced than in the pots with horizontal shoulder joints. This latter difference is no doubt related to the fact that pots with vertical joints are predominantly the more carefully made decorated vessels, whereas the horizontal joints are found mostly on cook pots. All of the vertically flattened,

flask-shaped vessels have vertical joints, and the pierced node handles so characteristic of this shape are invariably applied on top of the joint.

The distribution by pottery type of these methods of construction in the V-302 collection is as follows:

	Uncertain	Handmade	1-piece mold	2-piece horizontal mold	2-piece vertical mold
Queneto Polished Plain					3
Tomaval Plain				1	
Estero Plain					1[3]
Rubia Plain				2	
San Nicolas Molded			2[1]	7	
San Juan Molded				1	
Bitín W/R					1[3]
El Puente R/W					1
Santa Elena W & B/R					2[4]
Calunga R & B/W				1[2]	2
Sausalito B/W	1				
Castillo Plain		1		2	
Valle Plain		1			

[1] Bowls.

[2] Figure-and-spout whistling jar.

[3] With molded collar.

[4] One with molded collar.

There is clear division on the basis of construction between the utility wares (Tomaval Plain, Rubia Plain, San Nicolas Molded, and Castillo Plain) and the polished and painted wares (Queneto Polished Plain, Estero Plain, Bitín W/R, El Puente R/W, Santa Elena W and B/R, and Calunga R and B/W). The former group has horizontal joints and the latter vertical joints. San Nicolas Molded may be considered a utility ware because four of the seven jars of this type from V-302, as well as the Tomaval, Rubia, and Castillo vessels, have heavily sooted bottoms, suggesting they had been used for cooking. I do not include San Juan Molded in either group because, as I shall indicate presently, both types of mold were used with San Juan. Although, strictly speaking, Estero Plain is a plain ware, pots of this type are more carefully made and fired than the other plain and molded-relief utility wares of the period, and they share with the painted wares the mold-decorated collar. An interesting exception to this constructional division is the Calunga whistling jar with figure-and-spout and ring base (frontispiece), the body of which was made in a two-piece mold with horizontal joint. The jar with ring or pedestal base was characteristic of Lambayeque at this time (Larco Hoyle, 1948, pp. 43–44) and probably diffused to Virú from that region. The form was later carried on in Chimu black ware.

Evidence from refuse materials throws further light on the molding techniques of the Tomaval period and later. The practice of horizontally wiping the rims of jars and bowls, so characteristic of the Late Epoch, was

functionally related to the use of molds. On bowls this wiping is sometimes found on the lip only; more often it is on the lip and both sides of the rim for about 1 cm. below the lip, and occasionally on the whole interior of the bowl; it is never on the outside of the bowl. This wiping was part of the finishing process of the bowl rim, performed when the bowl was still in the mold or just after it was removed from the mold when the clay was still soft enough to be smoothed. In the case of Queneto Polished Plain bowls, the interior is well polished but the exterior is left as it came from the mold except for a rim-band of horizontal wiping, which is evidence of the rim-finishing process. On jars and bottles the wiping is found on the rim and neck interiors and exteriors to a point slightly below the junction (joint) of rim and body. On these vessels the horizontal wiping is the final process in the finishing of a hand-made or molded rim or neck and the smoothing of its joint with the mold-made body. On some San Nicolas and San Juan jars this joint smoothing has been carried lower than necessary so that the top of the molded relief area is partially smoothed over and obscured. This wiping was probably performed with nothing more than the fingers and thumb of one hand, held so as to smooth the inner and outer surfaces simultaneously. The other hand was used to revolve the vessel or to hold it steady while the smoothing hand was moved with a circular motion of the wrist. It is clear that horizontal wiping was an important and necessary part of the finishing of mold-made pots rather than merely a fashion of surface finish.

Bowls of the Tomaval period were of four types in terms of type of support: plain base, low ring base, tall ring or pedestal base, and tripod legs. The low ring base was incorporated in the one-piece mold but the taller, flaring pedestal base could not be made in this way. The pedestal base is invariably horizontally wiped, which is evidence that it was attached after the bowl was removed from a one-piece mold rather than being formed with the bowl in a two-piece mold. Tripod legs were also attached to bowls after removal from the molds (the smoothing marks at the joints of attachment are easily seen).

Both horizontal and vertical two-piece molds were used in the manufacture of San Juan Molded vessels. Vessels made in the horizontal mold have a band of molded relief only between shoulder and neck or rim, that is, on the upper half of the vessel, whereas products of the vertical mold have two opposing relief panels running from near the neck well down toward the base. Characteristically the latter have two vertical raised bands separating the two design panels, and the vertical joints pass down the middle of these raised bands. I have not examined enough examples to be sure, but I have the impression that the two design panels are never identical and hence the two halves of a vessel were not made in the same

half-mold. San Juan pots from horizontal molds seem to be more common in refuse, and pots from vertical molds more common in burials. This is to be expected, since the pots with simple relief bands on the shoulder (horizontal mold) served as utility ware, although used also in burials, whereas the more elaborate relief decoration on bottles and effigy forms, more apt to be placed with the dead, was produced in the vertical mold.

Although the vertical mold was used occasionally in producing San Nicolas Molded, the horizontal mold was most used for this type, which lacks the more elaborate relief designs of its black-ware counterpart, San Juan Molded.

A large number of fragments of Tomaval Plain figure-and-spout whistling jars came from the Estero refuse at V-124 (figs. 51, B, and 52). The bodies of these vessels were made either in a two-piece horizontal mold (two examples) or a two-piece vertical mold with the joint at right angles to the plane of the figure and spout (one example). The figures were molded separately in a two-piece mold with vertical joints running up the sides of the figure, and were furnished with collars of reduced diameter that were inserted into the openings left in the vessel bodies. The tapering spouts were also inserted by means of a collar. There is no evidence that these spouts were made in piece molds. The interiors are even and regular but show no evidence of having been smoothed. It is probable that they were molded over a slightly tapered, cylindrical form, which was withdrawn when the clay was partially dry. The bridges and the whistling mechanisms at their head ends appear to be hand-modeled.

Digby (1948) has shown that the characteristic method of spout attachment on both Nazca and Tiahuanacoid double-spout jars was the insertion of the spout through the body holes. This method was evidently brought to the North Coast by Tiahuanaco influence, and was later applied to the Chimu figure-and-spout jars.

During the Tomaval period the stirrup spout was virtually absent in Virú and neighboring valleys but in the La Plata (Chimu) period it was revived, and several new techniques were applied to its manufacture and attachment. Stirrup spouts were cast separately in two-piece molds with vertical (longitudinal) joints, and were attached by butting the stirrup ends to the vessel body (Digby, 1948, pp. 607–608). Another technique was the molding of the spout integrally with the vessel body (Digby, loc. cit.; Larco Hoyle, 1948, p. 51). The body, without a base, and the stirrup spout were cast together in vertical halves with the joint splitting the stirrup spout longitudinally. After the halves had been joined the base was applied, with an opening left to facilitate the smoothing of the joints. Finally, the basal opening was closed. A third technique consisted

of molding the spout separately in a two-piece mold and attaching it by inserting collars of reduced diameter into the holes in the vessel body.

We excavated at V-124A a fragmentary stirrup-spout vessel (Estero period; type, Queneto Polished Plain) that was assembled by the butting technique. The stirrup spout, which has a small monkey at the junction of stirrup and spout, was molded in two longitudinal sections. After the two halves had been joined, the ends of the stirrup were butted to the vessel body (fig. 49, lower right). Two other stirrup spouts from the same refuse at V-124 were made and applied by the same techniques.

Another fragmentary Queneto stirrup-spout vessel from V-124A (fig. 51, A) was made by the second technique mentioned above. The spout and body were molded together in vertical (longitudinal) halves. The mold joints along the inner and outer edges of the stirrup and down the sides of the vessel are quite clear on the inside, there are neither thickenings at the stirrup-body junctures nor insertion collars, and the rough, thickened area of basal closure can be seen plainly on the interior of the bottom.

A broken but complete stirrup vessel from a La Plata burial at V-304 (fig. 19, B) was assembled by means of the collar-insertion technique. The body was molded in vertical halves. The spout holes were punched in a plane at an angle of 45 degrees to the plane of the body joint. The spout was molded separately in longitudinal halves, and the ends of the assembled spout were inserted into the holes in the body. The opening in the base was closed last. There are three additional Chimu stirrup vessels in Chicago Natural History Museum, two from Trujillo and one from Chimbote, the separately molded spouts of which were attached by insertion into the body holes. The body of one was cast in a vertical mold and the second in a horizontal mold; the third is too fragmentary for determination.

Of the three techniques discussed, the separately molded spouts attached by butting or by insertion seem to be more frequent, and where these are used the body may be cast in a vertical or horizontal mold. I have been able to examine only one example in which the spout is molded integrally with the body. The butting technique was evidently carried over from the Mochica stirrup spout, the insertion technique was a transferal from Tiahuanacoid double-spout vessels, and the integral molding technique was a Chimu invention. A much larger sample of Late stirrup vessels needs to be examined to determine the relative and changing frequencies of the three techniques in post-Tiahuanaco times.

To summarize: During the Late Epoch most of the pottery vessels were made in molds, and by late La Plata or Estero times probably the large storage vessels were the only ones made entirely by hand. The one-piece mold and two types of two-piece mold were employed, and these were used

in various combinations. Probably more intensive study of Peruvian collections from the Late Epoch would reveal additional molding techniques and combinations of techniques.

A study of surviving molding methods in Peru would throw much light on the way in which the prehistoric techniques were carried out. Pottery molds are still used on the North Coast of Peru (Larco Hoyle, 1948, p. 60; Truman Bailey, personal communication, 1953). A study of the surviving pottery industry would serve not only to enrich and check inferences as to pre-conquest methods of pottery-molding, but also would throw light on technological continuity and change during the Colonial and recent periods. Such a study would have the advantage of a very rich archaeological base. Foster (1948) was able to collect some very fruitful information on the use of pre-Columbian molding methods in contemporary Mexico and their combination with techniques borrowed from the Spanish, but he was handicapped by a lack of archaeological data. A similar study for Peru would produce equally or even more interesting results.

V. Conclusions

CERAMIC TRENDS AND CULTURE CHANGE

The bulk of this report has been devoted to the detailed analysis of ceramics from stratigraphically excavated refuse deposits in the Virú Valley, supplemented by grave pottery. The purpose of this analysis has been to contribute to one of the primary objectives of the Virú Project, that of establishing a ceramic chronology to serve in the reconstruction of the culture history of the valley. My area of concentration in this task has been the Late Epoch, which covers the span from the smashing of the Mochica culture to the fall of the Inca empire, but I have dealt also with Late Guañape, which was the transitional phase between the Chavinoid Guañape culture and the succeeding Puerto Moorin culture. The combined results of the work of Ford (1949), Strong and Evans (1952), and myself have established the ceramic chronology and have demonstrated the utility of a refined analysis of the heretofore neglected domestic pottery of the coast of Peru.

A further contribution of my work has been toward the understanding of the techniques and pervasiveness of pottery-molding during the Late Epoch (Chapter IV). These techniques were applied not only to fancy pots, a practice long recognized by Peruvianists, but also to domestic pottery produced for everyday use. This achievement of mass production methods was one of the most striking culminations of Peruvian technological development and furnishes important insights into the nature of Late Peruvian society.

The detailed results of my ceramic analysis have been set forth in Chapter IV and in the Appendices. Here I shall emphasize general trends of ceramic development and link these to other aspects of culture change.

Late Guañape Period.—This was a period of ceramic transition. It was the time of the shift from the predominantly black (reduced) pottery of Middle Guañape to the red (oxidized) pottery of Puerto Moorin. The shift is seen in the increasing predominance of Guañape Red Plain over Guañape Black Plain and in the appearance of the new red types, Guañape Polished Red and Guañape Zoned Red. At this time also the potters began to experiment with the application of pigments to the previously monochrome pottery. They decorated red pots with areas of polished, metallic

black, and they tried the effect of white paint on a red background. The former practice had a short life but the latter developed into Puerto Moorin white-on-red painting.

The evidence from refuse deposits indicates that these ceramic changes were gradual and developmental rather than sudden. This would suggest that these changes resulted from purely local, internal developments, were it not for the fact that parallel changes were occurring in other coastal valleys at about the same time. In Chicama Valley to the north the shift took place during Cupisnique Transitorio, in the course of which there was a ceramic transition from Cupisnique, the equivalent of Middle Guañape in Virú, to Salinar, which appears to correspond in time and pattern to Puerto Moorin (Larco Hoyle, 1948, pp. 18–19). To the south a similar shift probably occurred from the Chavinoid pottery of Early Ancón–Supe to the white-on-red pottery of Chancay, although the phase of transition has not been isolated there (Willey, 1943; Willey and Corbett, 1954). A similar transition from Chavín to white-on-red ceramics may have occurred at Chavín de Huántar in the highland, but again the transitional phase is not known (Bennett, 1944). The present evidence does not indicate the center of development of this widespread shift in the ceramics of central and northern Peru at the end of the Chavín horizon. It probably was not the Virú Valley, which in Guañape times, as later, seems to have been a less populous and less culturally elaborated community than the groups in the larger coastal valleys to the north and south.

The ceramic changes during Late Guañape were accompanied by marked shifts in settlement pattern and economy. The only two known Middle Guañape living sites (V-71 and V-100) are situated near the beach (Willey, 1953, p. 371). In contrast, the Late Guañape sites are all located inland (op. cit., p. 373). These are in three localities: on the south side of the lower valley at the northern foot of Cerro Compositán (V-83, V-84, V-85, V-127, V-128); in the center of Lower Virú just north of the river (V-272, V-302, V-306, V-309, and possibly V-307 and V-308); and farther upstream on the south side of the river (V-171, V-311).

This shift in the location of dwelling sites assumes greater significance when considered in conjunction with the evidence of changes in economy. The Middle Guañape refuse at V-71 contained large quantities of marine shells, fish bones, and sea mammal bones (Strong and Evans, 1952, pp. 23–26), whereas the Late Guañape refuse at V-171, V-272, and V-302 contained only a few marine shells and no bones of fish or sea mammals. Evidently dependence on the sea for food sharply diminished during Late Guañape. Unfortunately, no plant remains were preserved at any of these sites. At Huaca Prieta, near the beach in Chicama Valley, Bird (1948) found an apparently unbroken sequence from the preceramic Huaca

Prieta culture through a first pottery phase (corresponding to Early Guañape) to Cupisnique. The mixed fishing, gathering, farming economy of Huaca Prieta seems to have persisted into the first ceramic phase, during which there is no evidence of additions to the plants cultivated by the Huaca Prieta people (cotton, gourds, peppers and beans [*Canavalia*]). But at the beginning of Cupisnique, maize, warty squash, *pacay* (a fruit), and brown cotton were first cultivated. Peanuts were also grown during Cupisnique (Larco Hoyle, 1941, p. 145). To the south, the fishermen of Early Supe and probably of Early Ancón, whose culture was closely related to the cultures of Middle Guañape and Cupisnique, grew both maize and peanuts, as well as *yuca* (sweet manioc) and Lima beans (Uhle, 1925, p. 263; Willey and Corbett, 1954, pp. 130–138).

Evidently the Chavín horizon, in which Cupisnique and Early Ancón–Supe fall, was the time of introduction on the coast of Peru of cultivated plants which were to become the basic staples of the coastal peoples. It is highly probable that these plants reached Virú during Middle Guañape. If this was the case, then the turning away from the sea of the Late Guañape people must have resulted from an increasing dependence on the new cultivated crops, particularly maize, and the movement of settlements inland was necessitated by the expansion of maize agriculture.

The part-time farmers of Early and Middle Guañape evidently planted their crops in the damp areas near the beach, where today the ground water that has been absorbed near the head of the valley comes close to the surface and forms lagoons in wet years (Ford and Willey, 1949b, p. 27). These areas must have been too limited and too uncertain for the Late Guañape farmers. Whether irrigation was practiced by them is unknown. Willey has suggested that canal irrigation did not begin until the Puerto Moorin period, when there was an expansion of population and settlements were concentrated at the head of the valley where irrigation would have been easier (Willey, 1953, p. 392). It is possible that the Late Guañape farms in the lower valley depended on simple flood-water irrigation. The farms near the river could have utilized the winter overflow of the river, the evidence for which is seen in the silt deposits mixed with and deeply burying the Late Guañape refuse at V-171 and V-311 (p. 54). But this water would not have been available at the sites along the foot of Cerro Compositán, for these sites lie 2–5 kilometers from the river. Ford (Ford and Willey, 1949b, pp. 22–23) has cited evidence to show that in Guañape times the rainfall zone on the coastal hills was lower than today, and has suggested that the people living at these sites practiced flood-water irrigation with the water that descended from these hills under the more moist conditions of that time. This simple form of irrigation along the river

and at the foot of the hills could have led to the development of canal irrigation in the following Puerto Moorin period.

This postulated sequence does not imply that the achievement of canal irrigation in Virú was entirely a local development. Although the time of first systematic irrigation in other coastal valleys is not known, the imposing ceremonial structures of the Chavín horizon in some of the valleys (e.g., Nepeña and Casma; Tello, 1943, pp. 136–146, and Willey, 1951a, pp. 117–119) suggest the existence there at the time of Middle Guañape of an already expanded food supply based on some form of irrigation. It is probable, therefore, that the development of irrigation in Virú was stimulated from without. But the postulated practice of flood-water irrigation during the Late Guañape period would have predisposed the Viruñeros to adopt more elaborate irrigation techniques.

Tomaval Period.—Tomaval was the period of Tiahuanaco influence that followed the collapse of the Mochica state in Virú and other North Coast valleys. It was a time of marked changes in both ceramic technique and style. The changes in domestic pottery were slow and progressive, resulting in a gradual transition from the cook pots and storage vessels of the Huancaco (Mochica) period to those of the La Plata (Chimu) period. This transition involved a shift from the red (oxidized) pots of Huancaco to the black (reduced) pots of La Plata, and from hand-made to mold-made cook pots. Neither reduced-firing nor pottery molds were new at the beginning of Tomaval. Black pottery had been made in small quantities throughout the Huancaco period, but its popularity steadily increased during Tomaval. The pottery mold had been used during Huancaco only for the making of elaborately modeled grave vessels. In Tomaval it was applied increasingly to all types of pots and was used to produce, at first mainly on red ware but later on black ware, the stipple-relief and figure-relief decoration that was to become the hallmark of Chimu ceramics.

In contrast to the gradual modification of domestic pottery during the interval between Huancaco and La Plata, the changes in ceremonial and mortuary pottery at the beginning of Tomaval were abrupt. The Mochica style of burial pots suddenly disappeared and was replaced by the Tiahuanacoid style and a mixture of other styles or fragments of styles, which were carried northward along with Tiahuanacoid or reached Virú in a backwash of influence from the north Highland and the far North Coast. This mixture of styles constitutes the Tiahuanaco or Tiahuanacoid horizon style, which spread along the Peruvian coast from Nazca to Chicama (Kroeber, 1944, pp. 65 ff.). Chapter III discusses in detail the ceramics of the Tiahuanaco horizon in Virú and sets forth the evidence for the division into two phases, a Tiahuanacoid phase and a later Black-White-Red

phase. This section emphasizes the pattern and the meaning of the Tiahuanaco impact in Virú and the neighboring North Coast valleys.

The Huancaco culture of Virú was an extension of the Mochica culture, which developed and reached florescence in the Moche and Chicama valleys to the north during the Gallinazo period of Virú (Strong and Evans, 1952, pp. 216–226). Mochica art was mature and non-symbolic; it excelled in realistic modeling and painting on pottery vessels. A major portion of artistic production was for purposes of ritual, particularly as offerings to be placed with the dead. Another aspect of religious belief was the building of massive pyramid mounds of adobe, which attest to a well-organized labor force. The class stratification of Mochica society can be inferred from the depiction of dignitaries in vase paintings and frescoes, and from the marked differentiation in tomb construction and elaborateness of grave goods. The Mochica pattern of warfare included the building of castle-like fortresses at strategic points, specialized and elaborate accoutrements for warriors, and the taking of prisoners. Toward the end of the Mochica period, Mochica political domination was extended into Virú and as far south as Nepeña. This expansion was probably accomplished by force of arms, and it resulted in making Virú a province in a multi-valley state (Strong and Evans, 1952, p. 217; Willey, 1953, p. 397). Judged by the shallowness of Huancaco refuse in Virú, the enlarged Mochica state lasted only a brief period before it was overwhelmed by the Tiahuanaco expansion from the south.

The nature of the contact between the Mochica and Tiahuanacoid cultures is inferable from the kinds of change that took place in Virú at the time of and after the collapse of Mochica culture. I agree with Willey (1948, p. 13) that the sudden smashing of Mochica ceremonial art, which had such a strong socio-religious content, must have been the result of military conquest rather than peaceful penetration. Strong has discussed evidence for cultural decline during the Huancaco period and has suggested that the Mochica ceramics of the period were influenced by the Tiahuanacoid style (Strong and Evans, 1952, p. 218). Such a decline may well have contributed to or brought about the military defeat of the Mochica state, but it could not of itself have led to the sudden and complete obliteration of the Mochica art style. This obliteration is the more striking when compared with the gradual and presumably more peaceful blending of Tiahuanaco with local styles on the Central and South Coasts. This is seen clearly in Lima (Gayton, 1927) and Nazca (Kroeber and Gayton, 1927; Kroeber, 1944, pp. 28–30), where many local stylistic traits continued to exist alongside Tiahuanaco, or were incorporated in the Tiahuanacoid style and carried along with it (e.g., double-spout and figure-and-spout vessels). It is not clear whether this more peaceful mixing

occurred in the south because the Tiahuanaco style was not spread there by military force, or whether the local cultures escaped smashing because there were no states strong enough to oppose the spread of Tiahuanaco.

The violent changes at the end of Huancaco did not interrupt the continuity of domestic pottery in Virú. This and the fact that many of the Huancaco settlements continued to be inhabited during Tomaval indicate that there was no drastic displacement or replacement of the local population after the Mochica collapse. There is, however, evidence of new religious and socio-political patterns (Willey, 1953, pp. 397–398). Although some of the Huancaco pyramid mounds were occupied during the Tomaval period, few if any new pyramids were built. Evidently the pyramid had ceased to be important as a religious center and community nucleus. The *castillo* fortresses of the Huancaco period were no longer used. Instead, the large compounds with high massive walls of tapia, like V-171, may have served as defensive strongholds, as well as administrative centers. And finally, a new type of settlement, the rectangular compound with regularly arranged interior rooms and courts, became common. It is very probable that the planned-compound settlement was a reflection of new patterns of organization brought in by the Tiahuanacoid invasion. Although the evidence is far from clear, there are indications that the planned, rectangular, walled settlement was associated with Tiahuanaco influence also in the coastal valleys to the south of Virú (Schaedel, 1951, pp. 240–242; Willey, 1953, p. 414). Whether the place of origin of this new settlement pattern was the South Coast or back in the mountains in the Montaro drainage, which may have been the center of irruption of Coast Tiahuanaco (Rowe, Collier, and Willey, 1950), remains to be discovered.

La Plata Period.—Toward the end of Tomaval the style of painted ware that had derived from the earlier Tiahuanacoid style (Black-White-Red Geometric) died out. By the beginning of La Plata, which was the Chimu period of the North Coast of Peru, the transition from red ware to black ware was virtually complete, and the painted decoration of the previous period was replaced by polished black surfaces, figure-modeling in the round and in low relief, and various sorts of surface ornament in stipple and low relief in geometric designs. All of these devices were executed with the pottery mold, which was used also for making plain cook pots. Many features of vessel form, such as the face collar, the figure-and-spout, the flaring double spout, and the ring base, were carried over from the Tomaval period. But the stirrup spout was revived from a characteristic Mochica form that had disappeared during the Tomaval period. The way in which this revival took place is not clear, but this Chimu form may have been derived from Lambayeque, where apparently the stirrup spout survived the much reduced Tiahuanacoid influences reaching that region.

Patterns of settlement of the La Plata period in Virú were not very different from those of the previous period. One of the great open compounds constructed during Tomaval continued to be occupied, although no new ones were built, and the planned, rectangular dwelling compound was the characteristic form of settlement. Some of the La Plata dwelling compounds were larger (if I am correct in attributing the main construction at V-124 to this period) and more elaborate than the earlier ones, with such specialized features as interior platforms or mounds, imposing gateways (with relief decoration in one case), and wall niches (at V-124).

Traditional history begins on the North Coast with the kingdom of Chimu, or Chimor, of which Virú during the La Plata period was a part (Rowe, 1948). The Chimu kingdom was founded at Chanchan in Moche Valley, probably during the first half of the fourteenth century. According to the Anonymous History of Trujillo of 1604 (Vargas Ugarte, 1936; Rowe, 1948, pp. 28–30), which records the traditional history of the Chimu dynasty, Virú was conquered by the third Chimu king, Ñançen-pinko, who controlled the valleys of Saña, Pacasmayo, Chicama, Moche, Virú, Chao, and Santa. On the basis of the dynasty list, which extends into the seventeenth century, Rowe (1948, p. 40) has estimated that this conquest occurred about 1370. Shortly before the Inca conquest of Chimor, which took place between 1462 and 1470 (Rowe, 1945, p. 280; 1948, p. 40), Chimu control extended from Tumbez in the north to the valley of Lima in the south.

During the period of Chimu control, Virú was evidently an unimportant province, for the valley supported no urban elite centers (Schaedel, 1951) like Chanchan in Moche, Pacatnamu on the Río Jequetepeque, or El Purgatorio in the valley of La Leche, which were large, imposing dwelling-palace-temple complexes laid out within a series of rectangular enclosures. The rectangular compound settlements of Virú were miniature versions of another type of settlement in Moche and other northern valleys, which Schaedel (1951) has called urban lay centers. These were planned settlements enclosed within rectangular compounds, but they were smaller than the elite centers and lacked the terraces, mounds, and decorated rooms and courts of the latter. Of these comparatively humble Virú centers, V-124 (if my dating is correct) and V-269 were the most elaborate, and probably one or the other of these sites was the seat of the hereditary local nobility that governed the valley during the Chimu regime (Rowe, 1948). Other indications of the unimportance of Virú at this time are the small number of La Plata dwelling sites as compared with the number during Tomaval, and the apparent reduction in the amount of land under cultivation (Willey, 1953, pp. 366–369, 394). Both of these conditions are evidence of a decline in population. Willey (op. cit., pp. 420–421) has sug-

gested that this reduction in population in Virú resulted either from a breakdown of the irrigation system or from the resettlement activities of the Chimu government. The former was more likely a result rather than a cause of population decline, since in general the Chimu period was a time of perfection and expansion rather than breakdown of planning and co-operative effort. Another possibility is that the reduction was part of a general population decline at this time on the North Coast (Rowe, 1948, p. 45). The probability of these alternatives cannot be tested until there is more information on the number, size, and location of the living sites of the Tiahuanaco and Chimu periods in the valleys to the north and south of Virú.

Estero Period.—During Estero the pottery trends of the La Plata period continued without noticeable shift in direction. In fact, the division between the two periods in terms of site-dating is based on the presence or absence of sherds of Inca style rather than on marked differences in the local ceramic complex. There was, however, during Estero a noticeable increase in domestic refuse of the fancier polished black and mold-decorated pots. This increase suggests a greater mass production of elaborate pottery and a further step in the trend toward the secularization of art that had begun with the collapse of Mochica culture (see pp. 117–118).

Many La Plata settlements continued to be occupied during Estero, and the same architectural and settlement patterns prevailed. There is only one site, V-179, that may have been built by the Inca, and it has no typically Incaic features. And no Inca shrine has been found in Virú. If it were not for the small quantity of Inca sherds at a few sites, there would be no evidence of the Inca conquest.

The lack of Inca influence in Virú on art, architecture, and, by inference, on social patterns was due in part to the short span of Inca domination, from about 1470 until the Spanish conquest in 1532 (Rowe, 1948, p. 40); but other coastal valleys to the south that were occupied for an equal or shorter period were more strongly influenced by the Inca. Two factors other than length of domination seem to have been important: First, Virú under the Inca, as during the Chimu kingdom, was a small, provincial, politically unimportant community; and secondly, the Inca governed the North Coast through the local hereditary nobility, leaving the Chimu administrative system largely undisturbed on the local level (Rowe, 1948). The Inca seem to have been much impressed by Chimu technology and political organization. Rowe (1948, p. 46) has suggested that the later political organization of the Inca empire was based on the Chimu model, and that the Inca probably learned from the people of Chimor "the rectangular town plan, mass production methods, certain metal working

techniques, and refinements . . . in tapestry weaving and feather cloth making."

Summary of the Late Epoch.—This account of the changing culture patterns of the Late Epoch on the North Coast ends with the arrival of the Spaniards. The epoch began with the smashing of the florescent, expansive Mochica culture by the northward spread of Coast Tiahuanaco, a smashing that must have involved organized military force. The political nature of the Tiahuanacoid spread is not known, but it modified or destroyed the regional coastal cultures and brought about a leveling, mixture, and diffusion of artistic, religious, and social ideas along the whole expanse of the Peruvian coast. This fermentation and spread of ideas led Larco Hoyle and Strong to call this time the Epoch of Fusion (Larco Hoyle, 1948; Strong, 1948). It was a time of more than fusion, for there also appeared new ideas and patterns, the origins of which are as yet largely obscure but which were a part of the emergence of a new kind of society, larger, more secular, more industrial, more urban, and more tightly organized than the old florescent societies that it replaced. These new trends are seen in the application of the pottery mold to large scale production of pots for everyday use, in the decline of the temple-pyramid as a religious center and community nucleus, and in the appearance of planned, urban-type settlements.

With the ebbing of Tiahuanacoid influence in art there was a marked artistic decline and probably a breaking down of whatever wider political integration had been established by the Tiahuanaco expansion. Out of this cultural slack emerged the Chimu civilization with an eclectic art style based on a reworking of Tiahuanacoid ideas and forms combined with revivals from the Mochica style. The spread of the Chimu style coincided with the expansion of the kingdom of Chimu from its beginning in the Moche Valley to a powerful state controlling the Peruvian coast from Tumbez to the valley of Lima. During this expansion the emergent urbanism of Tiahuanaco times was intensified, and the increased specialization and class differentiation of Chimu society led to the development of two types of urban center: the architecturally elaborate seat of administration and residence of the nobility and their retainers; and the simpler but planned and compact settlement of commoners.

The Chimu kingdom was overthrown by the superior military strength of the Inca. But Chimu culture patterns were little modified by the Inca conquest. Chimu influence on Inca culture was much more profound, and Chimu patterns seem to have been a very important ingredient in the culture of the later Inca empire. The continued vitality and prestige of Chimu culture are seen in the strong Chimu stylistic influences that affected the

cultures of the South Coast after the Inca conquest (Kroeber, 1925b, p. 253). Chimu culture was on the way to becoming pan-coastal when the Spaniards arrived.

Appendix I

Percentage Distribution of Sherds by Trench Level

TABLE 1.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL IN TRENCHES V-108A AND V-108B

Level	Queneto Pol. Plain	Tomaval Plain	Estero Plain	Virú Plain	Rubia Plain	La Plata Molded	San Juan Molded	San Nicolas Molded	Gloria Pol. Plain	Valle Plain	Unclassified	No. of Sherds
V-108A												
1	2.3	62.3	4.5	22.7	3.2	...	3.2	...	1.4	...	0.5	220
2	2.4	67.1	2.4	22.4	3.5	1.2	3.5	...	1.2	...	...	85
3	4.8	58.7	4.8	23.8	5.5	...	0.8	...	...	...	1.6	126
4	2.2	59.9	7.7	23.6	3.8	...	0.5	0.5	...	...	1.6	182
5	2.6	49.0	5.1	33.4	10.3	...	...	...	...	...	...	39
										Total.....		652
V-108B												
1	1.7	71.2	6.8	17.8	..	0.8	...	...	...	0.8	0.8	118
2	12.9	48.4	...	19.4	...	...	16.1	...	...	...	3.2	31
3	3.1	18.8	15.6	15.6	12.5	...	28.1	...	3.1	...	3.1	32
										Total.....		181

TABLE 2.—PERCENTAGE COUNTS OF SHERDS AT V-124A AND V-124B

Cut	Inca	Queneto Pol. Plain	Tomaval Plain	Estero Plain	Virú Plain	Rubia Plain	San Juan Molded	San Nicolas Molded	Corral Incised	Las Lomas Cream	Castillo Plain	Gloria Pol. Plain	Valle Plain	Unclassified	No. of Sherds
A	3.1	19.1	50.4	6.8	3.4	3.6	3.4	0.2	1.5	0.5	4.8	0.2	2.2	0.7	413
B	...	...	38.8	5.0	6.5	17.3	...	...	...	...	24.5	...	7.9	...	139

TABLE 3.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL IN TRENCH V-301

Level	Queneto Pol. Plain	Tomaval Plain	Estero Plain	Virú Plain	Rubia Plain	San Juan Molded	San Nicolas Molded	Las Lomas Cream	Castillo Plain	Gloria Pol. Plain	Valle Plain	Unclassified	No. of Sherds
1	3.2	71.0	...	12.9	...	...	...	...	12.9	...	...	...	31
2	8.9	42.9	1.8	17.9	...	1.8	...	...	23.2	...	...	3.6	56
3	4.8	47.7	4.8	19.1	1.2	...	...	...	20.3	1.2	...	1.2	84
4	6.3	55.3	2.1	11.5	3.1	...	1.0	1.0	19.9	...	...	...	96
5	5.3	56.6	...	8.6	1.6	...	1.6	0.9	22.3	...	1.6	...	113
6	3.6	62.4	0.8	8.7	1.8	...	...	...	19.6	0.8	0.8	...	112
7	7.7	57.1	...	13.2	1.1	...	1.1	...	19.7	...	...	...	91
8	...	69.7	2.9	2.2	3.6	4.3	...	...	15.8	...	0.7	0.7	139
9	...	40.7	11.1	...	...	...	...	...	37.0	...	...	11.1	27
												Total.....	749

TABLE 4.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL AT V-305

Level	Queneto Pol. Plain	Tomaval Plain	Estero Plain	Virú Plain	Rubia Plain	San Juan Molded	Castillo Plain	Unclassified	No. of Sherds
1	...	59.0	7.4	33.4	...	...	...	...	27
2	2.9	68.6	2.9	25.7	...	...	...	...	35
3	3.9	55.7	12.4	20.9	3.9	1.6	...	1.6	129
4	3.2	48.0	5.3	30.8	5.3	6.4	...	1.1	94
5	2.3	58.1	7.0	25.6	2.3	2.3	2.3	...	43
6	11.1	44.4	...	44.4	...	...	...	...	9
								Total.....	337

TABLE 5.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL IN TRENCH V-171A

Level	Inca	Queneto Pol. Plain	Tomaval Plain	Estero Plain	Virú Plain	Rubia Plain	La Plata Molded	San Juan Molded	San Nicolas Molded	Corral Incised	Las Lomas Cream	El Puente R/W	Castillo Plain	Valle Plain	Unclassified	No. of Sherds
1	...	22.8	31.1	8.6	13.8	11.4	0.4	6.3	1.2	...	...	...	0.8	0.8	6.7	254
2	...	14.6	51.1	4.5	7.8	7.8	0.4	4.1	2.2	...	...	...	3.7	0.7	3.0	268
3	1.3	21.9	76.8	5.5	10.1	13.9	...	6.3	1.7	0.4	0.4	0.4	1.7	0.4	...	237
4	0.4	23.5	45.4	3.8	9.5	3.4	...	4.5	0.4	0.4	...	0.4	3.8	1.5	3.0	264
5	...	18.0	46.1	7.0	8.8	8.8	...	4.4	...	...	...	...	0.9	1.3	4.8	228
6	...	20.4	43.1	1.6	9.3	9.9	...	4.9	1.4	1.6	...	0.5	1.6	2.2	3.3	183
7	...	11.1	30.7	9.4	6.0	4.3	0.9	1.7	...	0.9	...	...	14.5	15.4	5.1	117
8	...	1.3	5.1	4.5	9.6	8.3	...	0.6	2.6	...	...	0.6	41.0	26.3	...	156
9	...	...	12.7	...	9.1	...	...	1.8	...	...	...	3.6	65.5	7.3	...	55
10	...	...	7.0	...	...	...	...	...	...	...	...	...	93.0	...	...	16
														Total.....		1,778

TABLE 6.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL IN TRENCH V-171B*

Level	Inca	Queneto Pol. Plain	Tomaval Plain	Estero Plain	Virú Plain	Rubia Plain	La Plata Molded	San Juan Molded	San Nicolas Molded	Corral Incised	Las Lomas Cream
1	0.1	10.1	55.2	4.4	5.9	6.4	...	3.7	2.0	0.2	0.2
2	0.5	10.9	53.2	5.9	12.4	6.9	0.5	2.6	1.9	...	0.2
3	1.0	9.0	37.8	9.7	21.0	11.0	0.5	3.6	1.8	...	...
4	...	3.8	24.0	11.1	24.0	17.8	...	0.5	1.9	...	0.5
5	0.4	2.6	16.0	6.3	10.8	26.1	...	0.4	4.9	...	0.7
6	...	...	16.6	...	...	14.6	...	...	...	...	2.1
7	...	...	0.8	...	...	1.7	...	...	...	...	..
8	...	...	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...	...	..	...
10	...	...	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...	...	...

Level	El Puente R/W	Calunga R&B/W	Castillo Plain	Gloria Pol. Plain	Valle Plain	Huacapongo Pol. Plain	Guañape Plain †	Guañape Pol. Red	Ancón Pol. Black	Unclassified	No. of Sherds
1	0.2	...	7.1	0.6	2.2	...	...	...	...	1.8	1,215
2	0.3	...	1.7	0.3	0.8	...	...	...	...	2.1	643
3	0.3	...	2.3	...	1.8	...	...	...	...	0.3	391
4	...	...	11.0	0.5	3.8	...	...	...	...	1.0	208
5	0.4	0.4	29.8	0.4	...	...	...	...	...	0.4	268
6	4.2	...	54.1	2.1	6.3	...	...	...	...	...	48
7	...	...	88.2	...	9.2	...	...	...	...	...	120
8	...	...	46.2	...	...	47.5	5.0	...	...	1.3	80
9	...	...	...	...	...	100.0	...	...	...	...	1
10	...	...	...	...	...	14.5	85.5	...	...	...	54
11	...	...	...	...	...	...	92.0	4.8	1.6	1.6	62
12	...	...	...	...	...	...	100.0	...	...	...	25
14	...	...	...	...	...	...	100.0	...	...	...	3
16	...	...	...	...	...	...	100.0	...	...	...	3
										Total	3,121

* Sherds from Level 13 lost before classification; no sherds in Level 15.

† Too few rim sherds to break into Red Plain and Black Plain.

TABLE 7.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL IN TRENCH V-171C

Level	Inca	Queneto Pol. Plain	Tomaval Plain	Estero Plain	Virú Plain	Rubia Plain	La Plata Molded	San Juan Molded	San Nicolas Molded	Niño Stamped	Corral Incised	Las Lomas Cream	El Puente R/W	Calunga R&B/W	Sausalito B/W	Castillo Plain
1	0.5	6.9	52.2	4.2	12.4	6.0	...	3.3	2.9	...	0.2	...	0.1	...	...	9.9
2	0.3	7.0	54.4	4.9	12.7	5.1	...	2.4	2.5	0.1	0.3	0.1	0.1	...	...	5.5
3	0.2	10.0	50.5	3.0	11.1	4.2	...	3.1	2.8	...	0.2	0.2	0.1	...	...	9.5
4	...	7.8	26.2	4.6	17.4	18.2	...	2.5	4.4	...	...	0.6	0.2	...	...	12.2
5	...	2.6	13.7	6.3	8.9	8.9	0.5	1.6	4.2	...	...	1.1	3.7	0.5	0.5	37.4
6	...	0.5	2.6	...	...	...	...	...	...	...	...	...	...	...	...	79.1
7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	40.5
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10.0
9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE 7.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL IN TRENCH V-171C (*continued*)

Level	Castillo Molded	Gloria Pol. Plain	Valle Plain	Huacapongo Pol. Plain	Guañape Plain*			Guañape Pol. Red	Ancón Pol. Black	Guañape Modeled	Guañape Incised Rib	Guañape Zoned Punctate	Ancón Fine-line Incised	Unclassified	No. of Sherds
					Total	Red	Black								
1	...	...	0.9	...	...	...	...	...	...	...	...	...	...	1.3	911
2	...	0.1	2.4	...	...	...	...	...	...	...	...	...	...	1.8	873
3	...	0.2	3.0	...	...	...	...	...	...	...	...	...	...	1.8	831
4	...	1.7	2.1	...	...	...	...	...	...	...	...	...	...	1.9	477
5	...	1.1	3.7	...	...	...	...	...	...	...	...	...	...	...	190
6	0.5	10.0	3.7	2.6	...	...	...	...	...	...	...	...	...	1.1	191
7	...	1.1	1.6	35.6	17.8	15.3	2.5	2.1	0.5	...	...	...	...	0.5	190
8	...	1.0	0.3	30.0	56.3	48.4	7.9	1.0	0.5	...	...	0.5	0.5	...	400
9	...	...	...	11.0	83.0†	...	...	...	1.5	...	4.7	...	...	...	64
10	...	...	...	3.5	83.5†	...	...	5.2	...	0.9	6.1	...	0.9	...	115
11	...	...	...	...	97.0†	...	...	...	...	...	...	...	...	3.0	33
12	...	...	...	...	93.0†	...	...	7.0	...	...	...	...	...	...	15
													Total	.....	4,290

* Percentages of Red Plain and Black Plain are proportions of total number of sherds in level, *not* of Guañape Plain sherds.

† Too few rim sherds to break into Red Plain and Black Plain.

TABLE 8.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL IN TRENCH V-167A

Level	Quencto Pol. Plain	Tomaval Plain	Estero Plain	Virú Plain	Rubia Plain	San Juan Molded	San Nicolas Molded	Corral Incised	Las Lomas Cream	Purpur Red	Bitín W/R	El Puente R/W
1	2.7	7.1	7.5	5.5	3.9	1.0	1.9	...	0.5	0.2	...	...
2	9.2	3.4	3.4	2.5	4.2	0.8	5.0	...	1.7	4.2	...	...
3	7.6	1.2	1.2	2.9	1.2	2.3	4.7	0.6	1.8	2.9	...	...
4	14.5	...	3.2	1.6	1.6	...	1.6	...	3.2	3.2	...	...
5	7.1	1.4	0.5	1.4	...	5.2	3.8	...	3.3	2.4	1.0	0.5
6	7.9	...	0.4	3.8	0.4	2.9	3.3	...	0.4	3.3	...	...
7	5.5	0.4	1.6	1.6	...	2.7	5.5	...	0.8	2.0	...	...
8	7.9	3.6	2.4	3.3	0.9	2.7	5.1	0.3	1.5	1.2	...	...
9	8.1	3.9	...	3.9	0.4	5.0	3.9	...	0.4	3.9	...	...
10	4.7	2.8	0.9	4.7	0.9	1.9	5.6	...	1.9	...	...	...
11	11.2	3.7	0.8	1.8	0.4	2.3	6.8	0.1	3.6	1.2	0.2	0.2
12	9.8	3.1	0.3	2.5	...	1.7	7.5	...	4.0	1.5	0.3	...
13	11.1	1.9	...	...	...	3.7	3.7	1.9	...	3.7	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...

Level	Sta. Elena W&B/R	Calunga R&B/W	Sausalito B/W	Carranza B/O	Tiahuanacoid	Castillo Plain	Gloria Pol. Plain	Valle Plain	Huacapongo Pol. Plain	Unclassified	No. of Sherds
1	0.3	...	0.2	...	0.3	54.4	1.3	13.1	...	0.3	603
2	...	...	...	...	...	47.9	...	17.6	...	...	119
3	...	...	...	...	0.6	52.0	1.8	19.3	...	...	171
4	...	...	...	...	...	45.2	4.8	22.6	...	...	62
5	0.5	...	...	...	0.5	51.4	3.8	12.4	...	4.8	210
6	...	...	...	...	0.4	51.7	5.0	20.4	...	...	240
7	...	...	...	...	0.4	54.3	11.7	12.5	...	1.2	256
8	0.3	...	...	...	...	50.2	5.4	13.3	...	1.8	331
9	0.4	...	...	...	...	53.7	6.6	13.1	...	0.4	259
10	...	...	...	...	...	52.4	9.3	14.0	...	0.9	107
11	0.5	0.4	...	...	0.2	41.7	9.0	15.1	...	0.6	778
12	0.8	0.3	...	0.3	0.3	43.9	3.0	19.1	...	1.3	398
13	...	...	...	...	...	44.4	7.4	22.2	...	...	54
14	...	...	...	...	...	81.3	...	...	18.7	...	16
									Total.....		3,604

TABLE 9.—PERCENTAGE COUNTS OF SHERDS AT V-310

	Queneto Pol. Plain	Tomaval Plain	Virú Plain	Rubia Plain	San Juan Molded	San Nicolas Molded	Las Lomas Cream	Purpur Red	Bitín W/R	Sta. Elena W&B/R	Sausalito B/W	Carranza B/O	Tiahuanacoid	Castillo Plain	Gloria Pol. Plain	Valle Plain	Huancaco Decorated	Unclassified	No. of Sherds
Surface	24.0	4.0	...	12.0	...	8.0	8.0	...	...	12.0	4.0	4.0	4.0	12.0	4.0	...	4.0	...	25
Cut A, Level 1	3.8	5.2	2.6	...	0.6	0.6	2.0	1.4	0.4	2.8	0.6	0.2	...	46.1	5.8	22.8	4.8	0.4	501
Cut A, Pit	7.7	...	...	...	...	7.7	...	...	...	15.4	7.7	7.7	15.4	...	...	...	...	38.5*	13

* Includes a torso fragment of a molded human figurine like the figurines found at Huaca de la Cruz by Strong and Evans (1952, pp. 181–182, fig. 32), and a red pottery spindle whorl with incised designs filled with white pigment, which falls in whorl type 14 (Mochica) of Strong and Evans (1952, fig. 33, type 14, fourth from left).

TABLE 10.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL IN TRENCH V-302A

Level	Tomaval Plain	Estero Plain	Virú Plain	Rubia Plain	San Juan Molded	Las Lomas Cream	Purpur Red	Bitín W/R	El Puente R/W	Sta. Elena W&B/R	Castillo Plain
1	4.3	1.9	2.8	1.9	...	1.4	0.5	...	0.9	0.9	56.4
2	0.3	0.3	...	...	0.3	2.0	...	...	...	...	31.7
3	0.6	0.6	...	2.7	...	1.9	...	0.6	...	...	57.1
4	...	...	...	...	...	0.8	...	...	...	...	57.0
5	...	...	...	...	...	...	...	..	...	...	48.2
6	...	...	...	...	...	...	...	..	...	...	55.9
7	...	...	...	...	...	...	...	..	...	...	57.1
8	...	...	...	...	...	...	...	...	...	..	4.3
9	...	...	...	...	...	...	...	..	...	..	...

Level	Gloria Pol. Plain	Valle Plain	Huacapongo Pol. Plain	Guañape Plain* Total	Guañape Plain* Red	Guañape Plain* Black	Guañape Pol. Red	Guañape Zoned Red	Guañape Modeled	Guañape White-on-Red	Unclassified	No. of Sherds
1	...	26.1	...	...	...	...	...	...	...	...	2.8	211
2	...	62.6	...	...	...	...	...	...	...	...	2.7	297
3	...	34.4	...	...	...	...	...	...	...	...	1.9	154
4	1.6	39.1	..	...	...	...	..	...	...	...	1.6	128
5	0.9	48.2	...	...	...	...	...	..	...	...	2.7	110
6	...	37.3	...	5.1†	...	...	...	...	1.7	...	...	59
7	14.3	16.3	...	2.1†	...	...	...	...	...	...	10.2	49
8	...	2.2	13.8	77.6	71.4	6.2	1.4	...	...	0.4	0.4	274
9	...	...	7.8	89.7	74.5	15.2	1.3	1.3	...	...	...	78
											Total.....	1,360

* Percentages for Red Plain and Black Plain are proportions of total number of sherds in level, *not* of Guañape Plain sherds.

† Too few rim sherds to break into Red Plain and Black Plain.

TABLE 11.—PERCENTAGE DISTRIBUTION OF SHERDS BY LEVEL IN TRENCHES V-272A, B, AND C

	Level	Castillo Plain	Valle Plain	Huacapongo Pol. Plain	Guañape Plain* Total	Guañape Plain* Red	Guañape Plain* Black	Guañape Pol. Red	Ancón Pol. Black	Guañape Zoned Red	Guañape Modeled	Guañape Incised Rib
272B	1	30.4	4.4	47.3	16.9†	...	...	...	...	...	...	...
	2	10.4	3.3	68.8	11.7†	...	...	...	...	...	...	...
	3	2.3	1.2	89.7	5.4†	...	..	...	1.5	..	...	...
272B & C	4	0.6	0.6	56.1	42.4	38.2	4.2	0.3	0.1	...	...	...
272A, B, & C	5	1.9	0.7	26.8	64.7	52.4	12.3	1.6	0.4	...	...	0.1
	6	0.6	0.2	8.7	84.7	61.0	23.7	1.4	1.7	0.2	...	...
	7	0.3	...	3.1	92.2	71.9	20.3	1.0	1.0	0.2	0.1	0.1
	8	...	...	0.9	95.1	69.4	25.7	1.8	1.1	0.2	0.3	...

	Level	Guañape Punctate	Guañape Zoned Punctate	Fabric Impressed	Ancón Zoned Punctate	Ancón Fine-line Incised	Ancón Broad-line Incised	Ancón Rocker Stamped	Ancón Engraved	Unclassified	No. of Sherds
272B	1	...	...	...	...	...	...	...	...	1.1	184
	2	...	...	...	...	...	...	...	...	5.8	154
	3	...	...	..	...	...	...	...	...	...	261
272B & C	4	...	...	...	...	...	...	...	...	...	699
272A, B, & C.	5	...	...	...	...	...	...	0.1	0.1	3.7	1,840
	6	0.1	0.4	0.1	...	0.5	0.1	...	...	1.6	1,958
	7	0.2	0.4	...	0.2	1.1	0.1	...	...	0.2	1,689
	8	0.2	...	...	0.1	0.4	...	...	...	...	1,211
									Total		7,996

* Percentages for Red Plain and Black Plain are proportions of total number of sherds in the level, *not* of Guañape Plain sherds.

† Too few rim sherds to break into Red Plain and Black Plain.

TABLE 12.—PERCENTAGE DISTRIBUTION OF SHERDS IN SURFACE COLLECTIONS FROM V-306 AND V-309

	Castillo Plain	Gloria Pol. Plain	Huancaco Decorated	Valle Plain	Huacapongo Pol. Plain	Guañape Plain*	Guañape Pol. Red	Ancón Pol. Black	Guañape Zoned Red	Unclassified	No. of Sherds
V-306....	14.5	2.3	4.4	2.3	30.9	45.2	0.2	...	0.2	...	434
V-309....	6.3	1.7	1.5	2.4	25.1	61.4	...	0.2	...	1.3	459

* Too few rim sherds to break into Red Plain and Black Plain.

Appendix II

Description of Pottery Types

A detailed description of the Virú pottery types of the Formative and Florescent epochs (Guañape through Huancaco) has been published by Strong and Evans (1952, Appendix I). The ceramics of the Gallinazo period have been covered in detail by Bennett (1950, pp. 20–100). And Ford (1949, Appendix I) has given a more condensed description of the total range of pottery types in Virú. I shall therefore omit a complete and formal description of every pottery type found in my excavated material. My purpose here is to give sufficient details to enable the reader to grasp the main features of each pottery type. I have included also detailed data on ceramic forms (shapes), since my ceramic collections come mostly from horizons (Late Guañape and post-Huancaco periods) not covered by the excavations of Strong and Evans. Finally, I have included descriptions of several pottery types not mentioned by Strong and Evans, Bennett, or Ford. These comprise four additional types for the Late Guañape period and eight new types for the Late Epoch (Tomaval through Estero). They are as follows:

Late Guañape period: Guañape Polished Red, Guañape Zoned Red, Ancón Rocker Stamped, Guañape White-on-Red.

Tomaval, La Plata, and Estero periods: Las Lomas Cream, Purpur Red, Bitín White-on-Red, El Puente Red-on-White, Santa Elena White and Black-on-Red, Calunga Red and Black-on-White, Sausalito Black-on-White, Carranza Black-on-Orange.

The earlier group is of use in distinguishing the Late Guañape ceramic complex from that of Middle Guañape, and is important in relating Guañape to Cupisnique in Chicama and to Early Ancón–Supe. The later group has resulted from my attempt to make finer chronological distinctions in the ceramic trends during the late occupations of the valley. The classification comes from the sherd material excavated from refuse, with clarification from burial vessels. It includes the Coast Tiahuanaco and Epigonal styles (Kroeber, 1925a, p. 208; Bennett, 1939, p. 138), a breakdown of the Black-White-Red Geometric style (Kroeber, 1930, pp. 100–101; Bennett, 1939, pp. 31–45, 139), and certain previously unrecognized types.

I have omitted entirely descriptions of the types Sarraque Cream, Gallinazo Negative and Carmelo Negative, which do not occur in my refuse collections but are present in my grave materials. Descriptions of these types have been published by Bennett (1950, p. 84 and fig. 25) and Strong and Evans (1952, pp. 301–309, figs. 57–61).

The pottery types are given here in the same order as they are listed in the frequency tables in Appendix I. This order is approximately chronological from late to early. The type descriptions include statements as to the chronological distribution of the types and of particular features, such as vessel forms. These statements are based on the seriation of ceramics from my strata cuts (figs. 46 and 47, and Appendix I). Reference to type occurrences during the Huancaco, Gallinazo, Puerto Moorin, and Early and Middle Guañape periods, which are unrepresented or poorly represented in my collections, stem from the stratigraphic analysis of Strong and Evans (1952, fig. 34 and Appendix I) and Ford's seriation of the pottery types and vessel forms in his surface collections (Ford, 1949, pp. 52–57, 61–70, and figs. 4–7).

INCA

This is a loose type that includes three categories of sherds: (1) those with painted decoration in Inca style; (2) sherds from aryballos vessels lacking typical Inca painted decoration; and (3) sherds from vessels not of typical Inca form and lacking Inca painting, but with characteristics of paste, slip, or form indicating Inca influence. Since the total number of sherds in the class is only 31 and the primary purpose here is to identify refuse levels of Inca horizon, it has not seemed feasible or useful to subdivide the types for seriation purposes. For this reason all three categories are tabulated under Inca in figure 47 and Appendix I. These 31 sherds come from the upper levels of the refuse at V-171A, V-171B–C, and from the room fill at V-124. With the exception of V-124A, where 3 per cent of the sherds were of Inca type, the frequency of Inca sherds in any level was 1 per cent or less. Eight additional sherds from the same levels may belong in this class (see discussion under "Unclassified Sherds," p. 212).

INCA PAINTED
(15 sherds)

Fine-grained gray to red paste. Surface polished, or finished with a polished slip in red, dark purple-red, or cream. Designs painted in dark red, or black and white, or black and red, or black. Design forms: two-color bands, concentric diamonds, step designs. diagonal checkerboard pattern, narrow parallel lines, and fern pattern.

Forms:

1. Shallow open bowls or deep plates with transverse black or alternating red and black bands on lip; Rowe's shape G (Rowe, 1944, fig. 8).
2. Tall cups (kero), Rowe's shape I (loc. cit.).
3. Deep bowl with incurving wall and flaring rim, Rowe's shape F (loc. cit.).
4. Aryballos jars, Rowe's shape A (loc. cit.).

INCA NON-PAINTED
(3 sherds)

A neck, a flaring lip, and a body handle from aryballos jars, red or red-brown paste, polished surface.

INCA-INFLUENCED OR INCA-ASSOCIATED
(13 sherds)

(a) Two aryballos necks with paste like Rubia Plain (sandier and coarser than typical Inca paste). One painted dark red with horizontal white stripe below rim, the other slightly polished.
(b) Small aryballos neck in black ware with polishing (paste and finish of Queneto Polished Plain).
(c) Red ware stirrup spout with strongly flaring lip, rectanguloid stirrup arc, and a node on either side at junction of stirrup and spout. The red paste is covered with a transparent white slip and is polished.
(d) Polished red or red-slipped sherds with hard, fine-textured paste (red to gray). These are like the red aryballos forms in paste and finish but are too small to indicate shape.

QUENETO POLISHED PLAIN

This is a reduced-fired ware tempered with a medium quantity of fine sand. The soft paste is gray and the well-polished surface is gray to black. This is the polished black ware so characteristic of the Late Epoch and typical of Chimu ceramics. Its common forms are bowls, jars, bottles, stirrup-spout vessels, and effigy vessels. A few examples may have been hand-modeled but the majority of these vessels from the Late Epoch were formed in one-piece molds (bowls) or two-piece molds with horizontal or vertical joints (jars, bottles and stirrup-spout vessels). Queneto Polished Plain is found in very small quantities throughout the Gallinazo and Huancaco periods, increases rapidly to about 10 per cent in the Tomaval period, and thereafter increases gradually to a maximum of 15 per cent in the Estero period.

Forms:

1. Open bowls with rounded bottoms and outslanting rims (fig. 48, A). Rim diameter 12.5–40 cm., mean 19. Made in external one-piece mold. The interior is well polished. The exterior is usually left rough as it came from the mold but is occasionally polished. This form was in use throughout the Late Epoch but was especially popular during the Tomaval period, during which time about half of the bowls had ring bases. The ring

FIG. 48. Rim profiles of Queneto Polished Plain; rim exteriors to the right. × 0.4.

base was not used on Queneto bowls during the La Plata and Estero periods. My only example of a tripod leg from a Queneto bowl came from refuse of the Tomaval period (V-171A, Level 7). It is a solid cone having a basal diameter of 3.5 cm. and a length of 6 cm.

2. Composite silhouette bowls with flattened bases and straight, outsloping upper walls (fig. 48, B). Only three examples of this were found, all from the Tomaval and La Plata periods.

3. Small, constricted-mouth jars or bowls with rounded bottoms, incurving, thickened (beaded) rims, and vertical strap handles at rims (fig. 48, C). Rim diameter 15 cm. The exterior is polished. There is no evidence that molds were used in manufacture. Three examples came from the Estero period.

4. Jars or bottles with straight or slightly flaring collar or neck (fig. 48, D). Lip diameter 6–12.5 cm., mean 8.8. This form was in use throughout the Late Epoch but was most popular during the Tomaval period.

5. Stirrup-spout jars with globular bodies and flat bases, or with carinated shoulders, flattened tops, and flat bases. A complete vessel from

V-304, Burial 2, has a carinated shoulder and a small, long-beaked bird lying head down at the junction of spout and stirrup (fig. 19, B). The stirrup is D-shaped in section, with the flat side on the inside of the stirrup. A nearly complete vessel from V-124A has a stirrup round in section (fig. 51, A). The spout is missing. Of four other stirrup spouts, all from the Estero period (V-124A and V-171B, Level 1), two have a small molded bird

Fig. 49. Fragments of Queneto Polished Plain stirrup-spout vessels from the Estero period; × 0.4.

at the junction of stirrup and spout, the third has a monkey in the same position and the fourth is plain (fig. 49). One of the stirrups with bird is rectangular in section, the others are round. The jar with monkey spout has a flattened top ornamented with concentric fluting. The three other examples of fluted-top, stirrup-spout jars are also from the Estero period (V-124A and V-171B, Level 1). In my collection the Queneto stirrup-spout jar occurs from the end of Tomaval onward but appears to be most frequent during late La Plata and Estero times.

6. Corn popper(?) with acute angle at shoulder. One example from the Estero period.

7. The base of a conical-bottomed vessel slightly flattened in the vertical plane was found on the surface at V-310, and probably dates from the Tomaval period. It was made in a 2-piece external mold with vertical joint. The vessel joint is thickened and roughly smoothed on the interior. One vertical half of vessel exterior is polished in a plane at right angles to the joint plane (i.e., the polishing covers the joint on one side but not on the other).

TOMAVAL PLAIN

This type, which has a moderate quantity of sand temper, is fired in a reducing atmosphere. The soft paste is gray, occasionally tinged with red, and the smoothed but unpolished surface is gray to dull black. Vessel walls are from 2 to 7 mm. thick. The forms are open bowls, composite silhouette bowls, small, constricted-mouth bowls or jars with direct rims, larger jars with flaring or cambered rims, and bottles with flaring-lip necks. Figure-and-spout whistling jars are an uncommon form. Loop and strap handles, usually placed vertically at the necks of jars and bottles, are common. Some of the jars were hand-modeled, but during the Late Epoch most of them were made in two-piece molds with horizontal joints. Bowls of the Late Epoch were made in one-piece molds. The figure-and-spout jars were made in two-piece molds with horizontal or vertical joints. The figures were molded separately and attached to the vessels.

Tomaval Plain is found in very small quantities throughout the Gallinazo period, begins to increase in frequency at the end of Gallinazo, increases rapidly at the beginning of the Tomaval period, reaches a maximum of about 53 per cent during the La Plata period, and decreases slightly during the Estero period. Jars with flaring rims occur throughout the life of the type but bowls do not appear until middle Gallinazo. Composite silhouette bowls and cambered jar rims first appear toward the end of the Huancaco period. The cambered rim is the preferred form in the Late Epoch, and during the La Plata and Estero periods it outnumbers plain, flaring rims on jars by a ratio of 15 to 1. Bottles occur throughout the

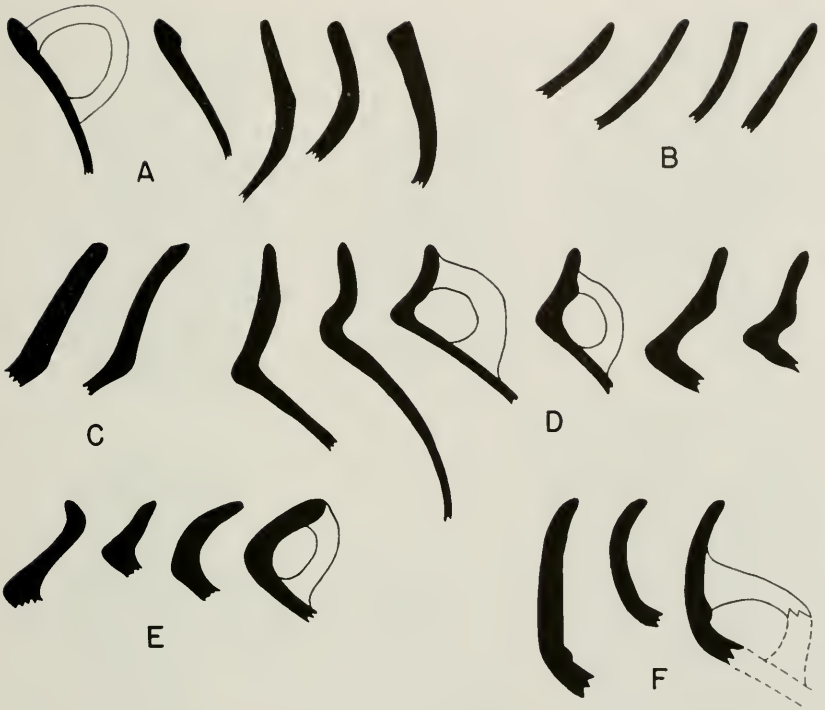

FIG. 50. Rim profiles of Tomaval Plain; rim exteriors to the right. × 0.4.

Late Epoch, but small, constricted-mouth jars with direct rims are confined to the La Plata and Estero periods. Figure-and-spout whistling jars seem to be limited to the Estero period.

Forms:

1. Small, constricted-mouth bowls or jars with round bottoms and incurving, direct or externally thickened rims (fig. 50, A). Mouth diameter 11–27 cm., mean 18. Confined to the La Plata and Estero periods.

2. Open bowls with outsloping walls and rounded bottoms (fig. 50, B). Diameter 12–22.5 cm., mean 16.3. I found only one example with a ring base. This is not surprising, since most of my examples of Tomaval Plain bowls came from the La Plata and Estero periods, when the ring base bowl so typical of the preceding Tomaval period was little used (see sections on Queneto Polished Plain and Rubia Plain). These were made in one-piece molds. I found four examples of solid, conical tripod legs from these bowls. One was from the La Plata period and the others were from Estero. They were probably attached after the bowls were removed from the mold.

FIG. 51. Vessels and sherds. A, Queneto Polished Plain: B and C, Tomaval Plain; D, Estero Plain.

3. Composite silhouette bowls with flattened bottoms and outsloping walls (fig. 50, C). Diameter 15–20 cm., mean 18. This infrequent shape is found in the La Plata and Estero periods.

4. Jars with cambered rims (fig. 50, D). Rim diameter 11–15 cm., mean 12.4. Vertical loop or strap handles running from rim to shoulder are common. During the Late Epoch this is the most popular form and it outnumbers all other forms of Tomaval Plain combined.

5. Jars with flaring rims (fig. 50, E). Rim diameter 7.5–20 cm., mean 15.3. Vertical loop or strap handles, sometimes placed at rim. This is an infrequent form in the Late Epoch.

6. Bottles with straight or slightly outcurving necks and flaring lips (fig. 50, F). Lip diameter 5–10.5 cm., mean 7. Often these bottles have a single loop or strap handle extending from the middle of the neck to the shoulder, and a small collar at the base of the neck. One unusually large example from Level 2 at V-171B has a neck diameter of 8.5 cm. and a lip diameter of 10.5 (fig. 51, C). A loop bridge connecting the middle of the

FIG. 52. Figures, spouts, and whistles from Tomaval Plain whistling jars, V-124A; × 0.5.

neck with a figure perched on the vessel shoulder serves as a handle. Bottle forms occur throughout the Late Epoch.

7. Figure-and-spout whistling jars (figs. 51, B, and 52). These jars have a straight, slightly tapering, cylindrical spout connected by a flat, arcked bridge to the back of the head of a hollow figure. The whistling mechanism, which falls in Digby's type B (Digby, 1951, p. 255), is a spherical chamber with circular orifice embedded in the thickened end of the bridge opposite the breathing hole in the back of the head. A whistling noise is produced when air is sucked into the breathing hole (as when pouring water from the vessel out of the spout) or ejected from it. If the vessel is tipped sharply when pouring, the liquid comes out of the spout in a gurgling stream because the capacity of the spout is much greater than that of the breathing hole. There results a gurgling whistle suggesting the trilled call of a bird. A rocking motion will also sound the whistle. The bodies of these jars are globular or slightly shouldered and have a flat base.

The method of construction of this type of vessel is quite clear. The body was made first in a two-piece mold with horizontal or vertical joint (two examples of horizontal joints at shoulder, one of vertical joint in plane at right angles to that of the figure and spout). The figure was made in a two-piece mold with a vertical joint running up the sides of the figure. Often arms were appliquéd over the joint. There is no evidence that the spouts were made in a piece mold. The interiors of the spouts are even and regular but not smoothed. It is probable that they were molded over a slightly tapered, cylindrical form, which was withdrawn large end first when the clay was partially dry. Both the figure and the spout were furnished at the base with a collar of reduced external diameter for insertion into the holes left for this purpose in the top of the vessel. The spherical whistling chamber probably was modeled by hand and was allowed to dry before it was set into the hand-modeled bridge. Finally, the bridge was attached to the spout and figure.

Tomaval Plain whistling jars occur only in the Estero period and have a limited distribution in that period. My examples (2 complete jars, fragments of 3 jar bodies, 8 figures, 22 spouts, and 10 bridges with whistling mechanism) all came from the fill at V-124A.

ESTERO PLAIN

This reduced-fired ware has a distinctive, well-mixed blue-gray paste tempered with a small amount of fine sand. It is noticeably harder than the accompanying types, Tomaval Plain and Queneto Polished Plain. The gray surface is well smoothed but unpolished. The necks of bottles are horizontally wiped inside and out. The common form is the wide-mouth

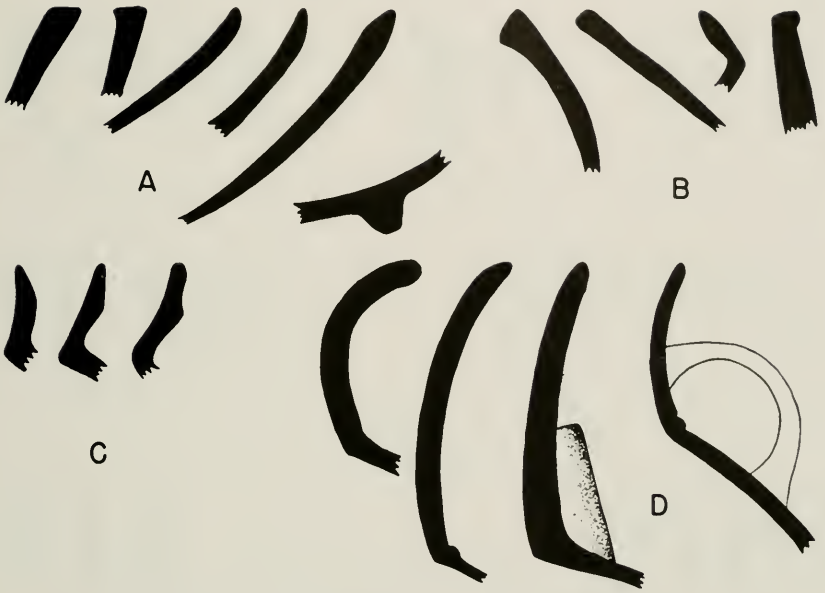

FIG. 53. Rim profiles of Estero Plain; rim exteriors to the right. × 0.4.

bottle with globular body, often with a molded human face or a lug and ear on the neck. Less common are open bowls, constricted-mouth jars with direct rims, and jars with cambered rims. The bowls were made in one-piece molds and the bottles were made in two-piece molds with vertical joints (see description, p. 77).

Estero Plain first appeared at the beginning of the Tomaval period, increased slowly to a maximum of 7 to 8 per cent by the beginning of the La Plata period, and decreased slightly thereafter.

Forms:

1. Large open bowls with round bottoms and outsloping walls (fig. 53, A). Diameter 15–37.5 cm., mean 21.6. These bowls are made in a one-piece exterior mold. The interiors are well smoothed but the exteriors are left rough, as they came from the mold. Most of these bowls from the Tomaval period have ring bases but all of the examples from the La Plata and Estero periods have plain bases.

2. Large jars with constricted mouth and direct, insloping rim (fig. 53, B). Rim diameter 16–30 cm., mean 21. The few examples of this form (4 per cent of all Estero vessels) were from the La Plata and Estero periods.

3. Globular jars with cambered rims (fig. 53, C). Rim diameter 12.5–17.5 cm. The four examples were 4 per cent of the total count of Estero vessels.

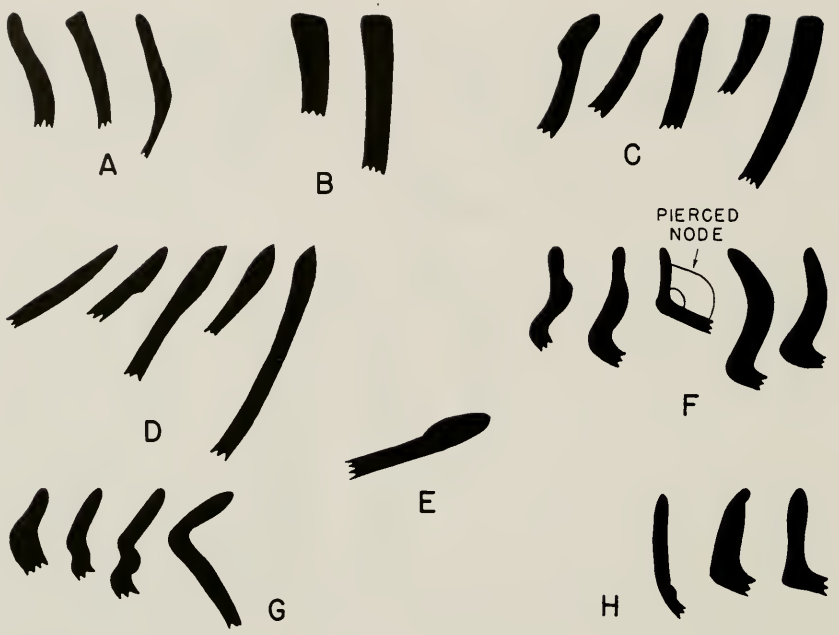

Fig. 54. Rim profiles of Rubia Plain; rim exteriors to the right. × 0.4.

4. Large, globular bottles with tall, slightly flaring necks (figs. 51, D, and 53, D). Rim diameter 6–17.5 cm., mean 12.4. A few of the bodies are flattened-globular or melon-shaped. The necks are horizontally wiped inside and out, and the majority have a raised collar at the base. Many of the necks are ornamented with a molded human face with appliquéd ears, or a vertical bar on one side and an ear on the opposite side. There is one example of a smaller bottle with a plain neck and a vertical strap handle running from the middle of the neck to the shoulder. Most of these bottles were made in two-piece molds with vertical joints. This form is distributed throughout the Late Epoch and comprises 72 per cent of my Estero vessels. This figure differs from that obtained by Ford from his surface collections, in which 98 per cent of Estero vessels were bottles (Ford, 1949, p. 72). The only other form noted by Ford was the bowl.

RUBIA PLAIN

This type was set up in order to study the oxidized plain ware of the Late Epoch, which differs from the oxidized plain ware, Castillo Plain, of the earlier periods. Although the type proved useful, it was difficult to handle in classification because it merges into Castillo Plain, out of which it may have developed.

Rubia is a relatively thin ware (4 to 9 mm.) tempered with a small amount of fine sand. Incomplete oxidation during firing has produced surface colors ranging through shades of grayish-red, brownish-red, and muddy purple. Sherd cores are brown or brownish-red streaked with gray. The surface is smoothed but unpolished, and horizontal wiping on jar rims is characteristic. Rubia is distinguished from Castillo Plain by its color, which contrasts with the red or pink that is characteristic of the late forms of the latter, and by the texture of the paste, which is tempered with a smaller amount of finer sand than is the paste of Castillo. Bowls, jars with flaring or cambered rims, and jars with short, vertical collars are common. The type first appears at the beginning of the Tomaval period, reaches a maximum of about 10 per cent in the La Plata period, and decreases slightly in the Estero period. In contrast, Castillo Plain, which is the dominant type at the end of the Huancaco period and early in Tomaval, has virtually disappeared before the end of the Tomaval.

Forms:

1. Bowls with incurving rims (fig. 54, A). Rim diameter 15–25 cm., mean 17. This form occurs only in the late La Plata and Estero periods.

2. Large bowls with vertical rims and square lips (fig. 54, B). Rim diameter 18–25 cm., mean 22. This shape is even less common than Form 1 and has the same time range.

3. Open bowls with round bottoms, slightly outslanting rims, and square to rounded lips (fig. 54, C). Diameter 15–27.5 cm., mean 18.3. These bowls seem to have been made in a one-piece mold. The exterior and interior of rims and sometimes the entire interior surface are horizontally wiped. This shape has twice the frequency of Forms 4 and 6, which are the next most common. It has a fairly constant distribution from early Tomaval through Estero, with a popularity peak in the Estero period.

4. Open bowls with outslanting walls, rounded bottoms, and sharp lips (fig. 54, D). Diameter 12.5–25 cm., mean 18.7. These bowls were made in a one-piece mold. The interior and exterior of the rims and often the entire interior surface are horizontally wiped as a part of the finishing process after removal from the mold. This form was in use from early Tomaval through Estero. Two examples, one from Tomaval and one from Estero, have molded ring bases. Two conical tripod legs from this form of bowl both came from the Estero period. They are hollow, 3 to 4 cm. in basal diameter and 6 to 7 cm. long, and have a hole on the inner surface 2 cm. from the top (basal end of the cone). They appear to have been attached to the bowl after it was withdrawn from the mold.

5. Plate with thickened, rounded lip (fig. 54, E). Diameter 21 cm. A single example came from early Estero refuse. It is mold-made. The rim

is hand-finished and horizontally wiped inside and out for a distance of 2 cm. below the lip. The rest of the interior is poorly smoothed and the exterior is unsmoothed.

6. Small, globular jars with cambered rims (fig. 54, F). Rim diameter 5–10 cm., mean 8.9. The majority were made in two-piece molds with horizontal joints. The two halves of the body were joined at the shoulder. The rim was applied separately and finished by means of horizontal wiping. This shape was in use from early Tomaval through Estero.

7. Globular jars with flaring rims (fig. 54, G). Rim diameter 5–15 cm., mean 10.8. The method of construction and the rim wiping are similar to those of Form 6. The Rubia flaring jar rim has the same temporal distribution as the cambered rim but is less popular.

8. Jars or bottles with short, straight, vertical rim or collar (fig. 54, H). Only a few examples of this form, all from the Estero period, were found.

9. Flat, thick bases of cylindrical vessels, poorly smoothed and unpolished. Diameter 6–7.5 cm., mean 7.1. Three examples came from early Tomaval refuse. These probably were from the tall, cylindrical or slightly flaring goblets so characteristic of the Tiahuanaco-influenced periods on the coast of Peru. If these had painted decoration on the upper walls, they undoubtedly belonged to the Black-White-Red Geometric group rather than to Tiahuanacoid.

VIRÚ PLAIN

This is a thick, coarse, reduced-fired ware heavily tempered with large particles of gravel. The paste is friable and tends to break in cleavage planes parallel to the vessel surface. As a result of poor control of the reducing atmosphere the color varies from dark gray to grayish red (the central tendency is closer to red than in the companion type, Tomaval Plain). The exterior surface is smoothed and rims are often wiped. Vessel walls are 10–30 mm. thick and rims are usually much thickened (20–40 mm.). Lips are round or rounded-triangular in section and only rarely square. Like Valle Plain, this ware is found most frequently in very large storage jars up to 1.5 meters high, and large bowls as much as 45 cm. in diameter. Virú Plain first appears in small quantities at the beginning of the Huancaco period, gradually increases in frequency to a maximum of about 18 per cent in the La Plata period, and decreases slightly in popularity in the Estero period.

Forms (Ford, 1949, fig. 6: Strong and Evans, 1952, fig. 42):

1. Large, globular jars with slightly constricted mouths and direct rims. Some of these have a greatly thickened lip. One has incised cross-hatching on the exterior of the rim.

2. Large, globular jars with slightly constricted mouths and short, flaring rims.

3. Large, globular jars with cambered rims.

4. Large, open bowls with outsloping walls, rounded bottom, and rounded and sometimes thickened lip. One rim sherd has incised cross-hatching on the rim exterior.

5. Graters. These are large, open bowls with coarse, incised cross-hatching on the interior surface. The incisions, which have jagged edges, are 1–2.5 mm. deep.

LA PLATA MOLDED

This is a type set up by Ford to distinguish a style of molded decoration on vessels with the paste of Tomaval Plain. The distinguishing characteristic is the placing of small, molded, half-round fruits (usually ears of corn), or animals, or human heads on the upper shoulders of vessels. Many of the corn ears appear to be casts of ears of corn, which were pressed into the still soft mold in which the vessel was later cast. Our excavations produced only six black or gray sherds with this type of decoration. We found an equal number of red-brown sherds (Rubia Plain paste) with the La Plata type of decoration (four had corn ears). Since the molded decoration rather than the paste characteristics is the feature of interest in this type, I decided to place the red sherds in La Plata, and they have been tabulated thus (fig. 47 and Appendix I). My La Plata Molded is therefore not strictly comparable to the type defined by Ford. However, my red and black La Plata sherds have the same temporal distribution, occurring about equally in La Plata and Estero. But two red sherds from late Tomaval, one with corn ears and the other with small half-round human figures, suggest that the La Plata decoration was applied somewhat earlier to red than to black vessels. In any event, La Plata decoration appears too infrequently in refuse material to be very useful as a time marker.

SAN JUAN MOLDED

This ware has the paste and firing characteristics of Tomaval Plain. The black or gray exterior surfaces of vessels are ornamented with molded designs in relief. The designs consist of rectilinear and curvilinear geometric figures, and, less frequently, of animal or human figures (fig. 55). Often the areas between figures are filled with raised dots. The only forms found in this type are bowls, small jars, and bottles. The three types of molds employed in making this pottery are described below. Many of the bowls have polished interiors and some of the jars and bottles have varying amounts of polishing on the raised areas separating and surrounding the molded designs. San Juan Molded first appears at the beginning of the Tomaval period and increases to a maximum of about 5 per cent in the

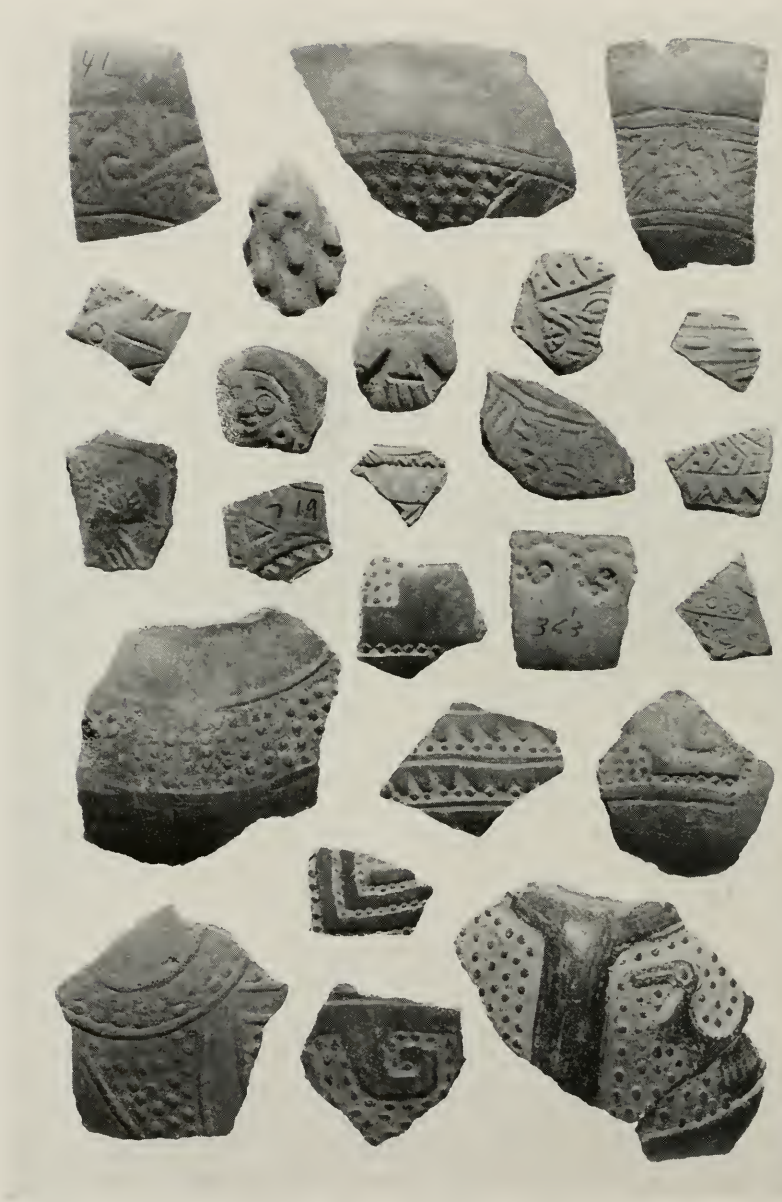

Fig. 55. San Juan Molded sherds from bowls and jars; rims toward the top. × 0.4.

Estero period. Bowls are most frequent in the Tomaval period and jars and bottles predominate in the La Plata and Estero periods.

Forms:

1. Open bowls with rounded bottoms and outslanting walls (fig. 56, A). Rim diameter 15–25 cm., mean 17.5. Made in a one-piece, exterior mold. Ring bases are infrequent. Interiors are often polished. The design molded on the exterior runs in a horizontal band about 4 cm. wide, the

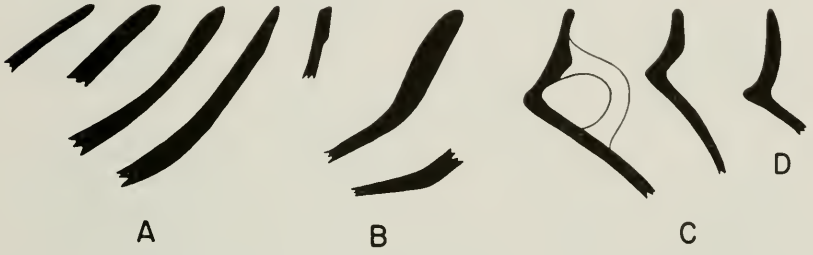

Fig. 56. Rim profiles of San Juan Molded; rim exteriors to the right. × 0.4.

top of which is 1–3 cm. below the lip. These bowls are the predominant form during the Tomaval period.

2. Composite silhouette bowls with flattened bottoms (fig. 56, B). Tend to be somewhat larger than the simple bowls. The interiors are polished and the designs are molded in horizontal bands either between shoulder and rim or just below the shoulder. This is a rare form occurring in the Tomaval and La Plata periods.

3. Globular jars with cambered rims (fig. 56, C). Rim diameter 9–14 cm., mean 10. Vertical strap handles at the rim are common. The molded designs are in horizontal bands or panels between shoulder and neck, or in opposing square panels running from near the neck well down toward the base. Two types of molds were used in making jars and bottles (Form 4): (a) Vessels with design bands between neck and shoulder were cast in two-piece molds with horizontal joints along the shoulder line. The hand-made rim or neck was applied separately. (b) Vessels with opposing design panels across the shoulder were cast in two-piece molds with vertical joints along the broad, raised welts separating the design panels. Hand-made rims or necks were applied to these vessels also. The first type of mold seems to have been used more frequently in making jars and the second in making bottles, although both types are associated with each shape. In my collection jars and bottles occur in about the same proportions during the La Plata and Estero periods. Ford recognized only bottles

in his surface collections. This discrepancy may be due in part to a difference in our definitions of shape.

4. Bottles with short, cambered necks (fig. 56, D). Neck diameter 4–4.5 cm. Bodies are globular or flattened from opposite sides (canteen-shaped). Some of these have a vertical strap handle at the neck. Molded designs are similar to those on Form 3. Methods of molding are described under Form 3.

5. More elaborate forms of San Juan Molded vessels, such as double vessels, figure-and-spout and double-spout vessels, whistling jars, and plant effigies, which are well known from graves, probably occur in refuse but are unrecognizable in my material.

SAN NICOLAS MOLDED

This is an oxidized-fired ware ranging in color from red to brown. The paste falls into Castillo Plain or Rubia Plain. There is a shift in this type from predominantly Castillo paste in early Tomaval to Rubia paste in later periods. Surfaces are smoothed but unpolished except for the interiors of about half the bowls. The molded designs on the exteriors of bowls and jars (fig. 57) are rather similar to those of San Juan Molded. Both horizontal panels or bands between shoulder and neck and opposing vertical panels running across the shoulder are used, although the former arrangement is much more predominant than in San Juan Molded. Ford (1949, p. 72) believes that only the one-piece mold was used in making San Nicolas pottery, but a careful examination of my pottery has convinced me that all three types of mold employed in the manufacture of San Juan Molded were applied also to San Nicolas. The evidence of horizontal shoulder joints and vertical joints between design panels, as well as the similar arrangement of design bands and panels, is conclusive. But the two-piece mold with vertical joint was less commonly used for San Nicolas than for San Juan. The only shapes found in San Nicolas Molded are simple and composite silhouette bowls, often with ring bases and occasionally with tripod supports, and small jars. This type first appeared in Virú toward the end of the Huancaco period shortly before San Juan Molded. It reached a maximum of about 6 per cent early in the Tomaval period and decreased gradually thereafter to a frequency of 1 per cent at the end of Estero.

Forms:

1. Bowls with rounded bottoms and outslanting walls (fig. 58, A). Diameter 15–22.5 cm., mean 17.4. These bowls have bands of molded designs on the outside below the rim. This is the predominant form during the Tomaval period, but it occurs very rarely in later periods. About half

FIG. 57. San Nicolas Molded sherds from bowls and jars; rims toward top except for large rim sherd above center and rim sherd in center second from bottom. × 0.4.

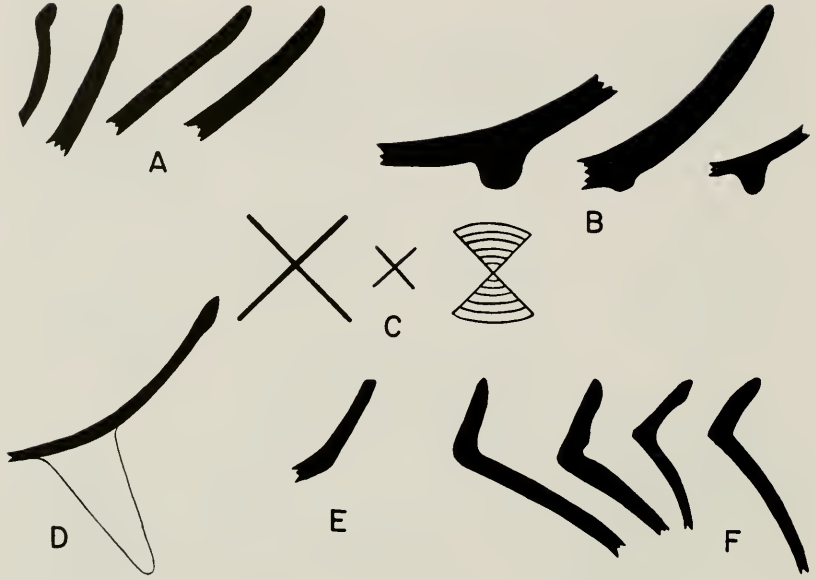

FIG. 58. Rim profiles of San Nicolas Molded; rim exteriors to the right. C, ornaments or marks on exterior of bowl bases. × 0.4.

of the bowls have polished interiors, and more than 75 per cent have ring bases (fig. 58, B). A few have solid, conical, tripod supports (fig. 58, D). There are four examples of ring base bowls with a special ornament or mark on the outside of the base (fig. 58, C). One has a large, raised (molded) cross centered within the ring base. Another has a small, depressed cross in the same position, and a third has depressed, crossed lines with parallel, depressed lines in two of the quadrants. These latter are not incised but are formed in the mold or pressed with a stamp. A fourth bowl has incised crosshatching on the bottom. Kroeber (1930, p. 101) has suggested that incised marks on the bases of two red ware bowls from Tiatacantin, a Tomaval period cemetery in Virú, may have been property marks or makers' marks. Similar marks were found on the sides of several of Uhle's Tiahuanaco period vessels from Moche A (Kroeber, 1925a, p. 209). Strong (Strong and Evans, 1952, p. 162) found two identical Mochica effigy jars, undoubtedly from the same mold, in a grave at Huaca de la Cruz in Virú. Each vessel had an identical pressed cross on the exterior of the flat base. These also may be manufacturers' marks. We found no examples of San Nicolas Molded bowls with molded stipple-and-cross design on the base like that of the specimen from Moche A illustrated by Kroeber (1925a, pl. 65, *i*).

Within the general class of San Nicolas Molded bowls there are two sub-classes of bowls with additional decorative features that set them apart from the common bowls. They could be treated as special types (they are actually hybrids between San Nicolas and other types mentioned below) but I have made their possession of molded designs of San Nicolas type the deciding factor in classification.

(a) Thirteen bowls from V-167 (early Tomaval period) have in addition to the usual molded designs a thin white wash on the exterior surface covering the designs and the base. A complete bowl from V-302, Burial 11 (p. 75 and fig. 36, D), belongs to this sub-class. A few examples have the white slip applied also to the interior surface, which is polished. Without the molded designs this sub-class would have been placed in Las Lomas Cream.

(b) Seven fragments of bowls with molded designs, all from V-167, have painted designs on the interior. These fall into three groups. (1) One sherd has broad, white painted bands on the interior, pendent from the lip. A complete bowl from V-302, Burial 3 (p. 72 and fig. 34, D), has white festoons pendent from the lip on the inside. Another has a horizontal white band (unpolished) at the rim extending below the lip 1 cm. on the outside and 2 cm. on the inside. The rest of the interior is covered with a thin white slip and polished. Save for the molded designs these sherds would fall in Bitín White-on-Red. (2) Three bowl fragments have broad, vertical white lines bordered with black painted on the inside pendent from the lip. The whole interior is polished. Without the molded designs these belong to Santa Elena White and Black-on-Red. (3) Two bowl rims from V-167, Levels 11 and 12, have thin-lined black triangles pendent from the lip interior. One has a polished interior, the other is unpolished. If these did not have molded designs they would be placed in Carranza Black-on-Orange.

2. A single composite silhouette bowl 14.5 cm. in diameter, from the Estero period (fig. 58, E). The inside is polished.

3. Small, globular jars with simple or cambered flaring rims (fig. 58, F). Rim diameter 8.5–12.5 cm., mean 10.5. In contrast to San Juan jars and bottles, these are never polished. This form has a small but fairly constant occurrence throughout the Late Epoch. In the Tomaval period it is in the minority but it becomes dominant in La Plata and Estero, when San Nicolas bowls are no longer made.

NIÑO STAMPED

This type includes Tomaval Plain jars with check-stamped decoration on the bodies. Ford believes the type is confined to the Tomaval period, but it occurred in a surface collection from a site which he classified as La Plata (Ford, 1949, p. 68 and fig. 5). My refuse collections contain only one sherd of this type, from V-171C, Level 2 (Estero period). It is a jar shoulder with stamped decoration. The type of rim is not evident. Whole vessels of this type have come from late Tomaval period graves at Huaca de la Cruz (Bennett, 1939, fig. 4), two came from graves at Pata de Burro, Chicama (op. cit., p. 88), and one came from a burial of Chimu-Inca date at Moche, Site B (Kroeber, 1925a, pl. 61, *l*).

CORRAL INCISED

This rare type includes Tomaval Plain jars with simple incised decoration. The design consists of diagonal crosshatching on vessel shoulders just below the neck. Ford found bowls with the same type of incised design on the outside below the rim but none occur in my collection. I found Corral Incised sherds in very small quantities throughout the Late Epoch, from early Tomaval through Estero. Ford has stated that Corral Incised is confined to the Tomaval period. At the time, he did not have the data on its distribution in my refuse collections, but his surface collections show a distribution from late Tomaval through Estero. I have included in Corral Incised three variants (this inclusion does not affect the over-all temporal distribution). A sherd from V-171C, Level 5 (La Plata period), has open vertical hatching superimposed over close diagonal crosshatching. A sherd from V-167, Level 5 (early Tomaval), has curved parallel lines and alternating cross lines made by incision, suggesting the sketch of a curved brick wall. Three sherds from the Estero period (V-171A and V-171C) are from small jars with vertical bands of punctations bordered by incised lines on the shoulder.

LAS LOMAS CREAM

This is a loose type that includes the variety of white-slipped plain sherds found in refuse deposits of the Late Epoch. It is an oxidized-fired ware with the paste of Castillo Plain or Rubia Plain. The type centers in Tomaval, with greatest concentration in the first half of the period, but occurs sporadically as late as Estero. The commonest form is the open, round-bottom bowl, often with ring base and occasionally with tripod supports. The only other forms are collared jars and bottles. Vessel surfaces are generally unpolished, although a few sherds have traces of polishing. The typical slip is a thin white wash but a few sherds have an opaque white slip or paint. The type includes not only vessels whose only ornament is a

white slip but also body and neck sherds from the white-slipped but otherwise undecorated portions of the following decorated types: San Nicolas Molded with white wash, El Puente Red-on-White, Calunga Red and Black-on-White, and Sausalito Black-on-White. Varieties of Las Lomas Cream with Castillo paste are not easily confused with the earlier type, Sarraque Cream, because Las Lomas shapes are different. Las Lomas

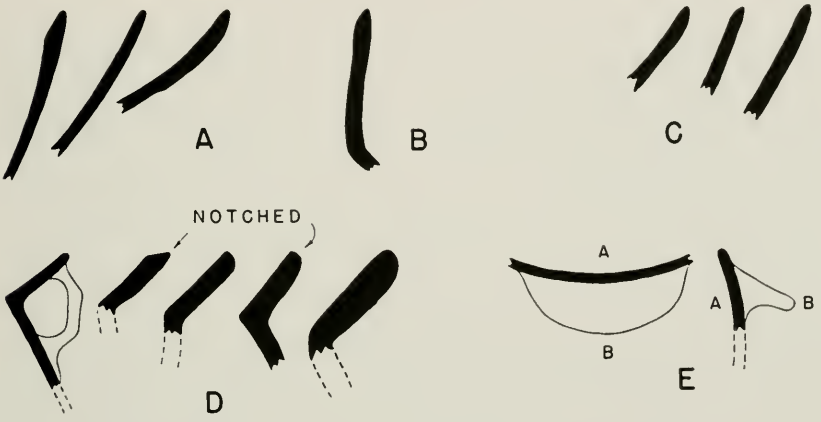

FIG. 59. Rim profiles; rim exteriors to the right. A and B, Las Lomas Cream; C and D, Purpur Red; E, top view and profile of rim sherd from Purpur Red bowl with flange handle. × 0.4.

sherds with Rubia paste are distinguishable from Sarraque regardless of shape. Ford (1949, fig. 5) lists Sarraque Cream sherds in the surface collection from V-65, which is of middle Tomaval age. Probably these sherds should have been classified as Las Lomas Cream.

The type, Las Lomas Cream, serves to measure the popularity and distribution during the Late Epoch of the practice of applying a white wash to red ware vessels. Las Lomas Cream is the successor to Sarraque Cream and no doubt stems from the Sarraque tradition, although influence from the north, as evidenced by the presence in Virú (and Chicama) during the Tomaval period of white-slipped vessels thought to be of Lambayeque type (frontispiece and Larco Hoyle, 1948, pp. 43–45), may have played a part in the development of this decorative practice.

Forms:

1. Open bowls with rounded bottoms and outsloping walls (fig. 59, A). Diameter 12.5–20 cm., mean 16.8. Most commonly these have a white wash on the outside only (over the entire exterior surface), occasionally they are slipped inside and out, and rarely only the inside is covered with

a slip. In a few cases there is interior polishing. About a fifth of these bowls have ring bases. Occasionally, solid tripod supports, conical or flattened-conical in shape, are attached to the bottoms of these bowls. All Las Lomas bowls appear to have been made in one-piece molds.

2. Jars or bottles with straight collars (fig. 59, B). Collar diameter 4.5–7.5 cm., mean 5.8. The three examples in my collection are from the Estero period. White slip is applied to the collar exteriors.

3. Special features.

(a) Fragment of a molded face, from a face-collar jar (probably a Bitín White-on-Red or Santa Elena White and Black-on-Red face-collar jar); Estero period.

(b) A pierced node handle with white slip, from a jar shoulder; Tomaval period.

(c) A flat bridge covered with white slip, from a double-spout or figure-and-spout vessel; Tomaval period.

PURPUR RED

This is an oxidized-fired ware having the paste of Castillo Plain (17 per cent) or Rubia Plain (83 per cent). The surface color is red-brown, brown, or gray-brown. The distinguishing characteristic is a purplish-red, polished slip on the exterior of jars and the interior of bowls. The rest of the surface is unpolished. The type is found only in the first half of the Tomaval.

Forms:

1. Open, round-bottomed bowls with polished slip on the interior (fig. 59, C). Diameter 12.5–15 cm., mean 14.2. This form is not very common.

2. Shallow, open bowls with slightly constricted mouths and sharply flaring rims (fig. 59, D). This form is similar to Ford's Shape 34 for Tomaval Plain (1949, fig. 6) but has a taller and more sharply flaring rim than the latter. Rim diameter 15–25 cm., mean 19.3; body diameter 11–20 cm., mean 15.2. The polished red slip is usually applied only to the rim interiors but occasionally to the lips also. Occasional features are broad, vertical strap handles running from lip to shoulder, and vertically notched lips. Half of the Purpur vessels are of this form.

3. Bottles with vertical or slightly flaring necks. Neck diameter 5–10 cm., mean 6. The polished red slip is applied to neck exteriors and in one case a short way down from the lip on the inside. In another case the slip is carried part way down the inside of the neck but is left unpolished. About 20 per cent of vessels are of this form.

4. Three rim sherds appear to be from jars with flaring rims rather than Form 2 bowls. The polished red slip is applied to the exterior of the shoulder.

5. One sherd with polished red slip on the outside appears to be from the body of a kero-shaped goblet.

6. Rim sherd of a small, constricted-mouth bowl, with direct rim, rounded bottom, and flange handle below rim (fig. 59, E). The rim diameter is 15 cm. The interior, the outside of the rim, and the upper surface of the flange are slipped red and carelessly polished.

BITÍN WHITE-ON-RED

This infrequent type is an oxidized red ware with the paste of Castillo Plain or Rubia Plain. The red to brown surface is unpolished (with one exception) and is decorated with white painted designs (bands, circles, dots, and discs). Rarely, the white designs are painted on a dull red slip. These sherds come from the Tomaval period. Most of them are from flask-shaped face-collar jars with white decoration (p. 72 and fig. 34, C), but there are three other shapes represented. One is a small, constricted-mouth jar with direct rim. The exterior is covered with a polished red slip and the shoulder is ornamented with a broad, flattened, white circle enclosing a white, oval dot. Another sherd is the lower portion of a deep bowl or goblet with flat base and indistinct white designs on the wall exterior. A third sherd is the lower portion of a flat-bottomed bowl. A white disc is painted on the inner, flattened portion of the bottom.

EL PUENTE RED-ON-WHITE

This rare type is an oxidized red ware with the paste of Rubia Plain. The unpolished brown or gray-brown surface is covered with a dull white slip on which are painted red designs consisting of straight, curved, and wavy bands, open diamonds, and step designs. Occasionally the red bands are polished. This type is most frequent in the Tomaval period but is found sporadically in La Plata and Tomaval. The refuse material contains only one rim sherd. A restorable bowl came from V-171C, Level 5 (Tomaval period). It is 24 cm. in diameter and has a round bottom. The inner and outer surfaces are slipped white from the lip downward, a distance of 6 cm. The inner white band is ornamented with two horizontal rows of red step designs and the outer one with a zigzag red band bordered above and below with red bands. A fragment of a bowl with tripod support, from early Tomaval, has a white-slipped exterior painted with a red horizontal band near the base. The inside is polished. Also from the Tomaval period is a fragmentary molded face from a jar collar. The face is slipped white and the chin is painted red. The white-slipped bottle with horizontal red bands from V-302, Burial 8, adds another shape to the El Puente pottery of the Tomaval period (p. 74 and fig. 36, A). Three sherds, from the Estero

period, having red bands and open diamonds on a white slip appear to be from the bodies of cylindrical goblets. The remainder of the sherds, from Tomaval and later, are from jar bodies with exterior slip and red painted bands.

SANTA ELENA WHITE AND BLACK-ON-RED

This is an oxidized red ware with Castillo Plain or Rubia Plain paste; white and black designs are painted on the red paste or on a red slip. The majority of vessels are unpolished but occasionally the unslipped vessel surfaces or the slipped areas are polished. The designs consist of straight, curved, or wavy white bands bordered with black, solid or hollow white triangles and squares bordered with black, black and white checker designs, white V-shaped and S-shaped figures with a black line down the center, and white discs or dots with black centers. The only forms are bowls, a few of which have ring bases or tripod supports, jars or bottles with straight or slightly flaring necks, and possibly cylindrical goblets. The bowls are made in one-piece molds and some, at least, of the jars and bottles in two-piece molds. The type is found only in the first half of the Tomaval period (at V-167 and V-310).

Forms:

1. Bowls with vertical or outslanting walls and rounded bottoms (fig. 60, A and B). Diameter 12.5–15 cm., mean 14.6. Some have polished interiors. There are two examples with solid, conical or flattened-conical, tripod supports; one has a tall ring base.

(a) Restored bowl with tall ring base from V-310, surface (fig. 60, B, right). Polished inside and out. Red painted band 2 cm. wide on interior below lip, extending over lip and 1 cm. down outside. A row of white discs with black centers is painted on the interior red band.

(b) Fragment of a tripod bowl with slight polish inside and out, from V-310, pit (fig. 60, B, left). A broad white V and a diagonal band, both bordered with black, are painted on the inside, pendent from the rim.

(c) Fragment of a small, deep bowl from V-167, Level 12. The exterior has a polished red slip on which is painted, pendent from the lip, an inverted white triangle bordered with black.

(d) Rim sherd from an open bowl with interior polish (from V-167). A broad, curving white band bordered with black is painted on the inside, pendent from the lip. This band may be part of a festoon hanging from the lip.

(e) Fragmentary tripod bowl with flattened-conical tripod supports, from V-310, pit (figs. 60, B, center, and 61, B). The outside is

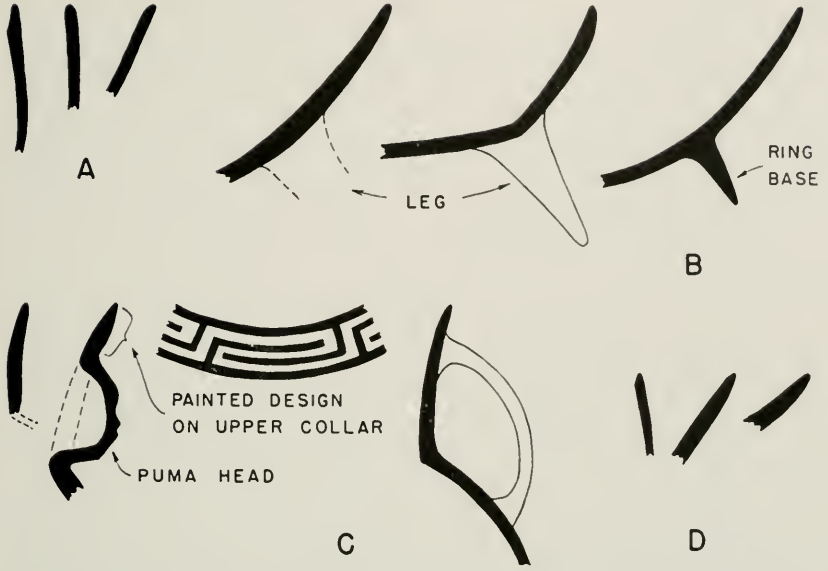

FIG. 60. Rim profiles; rim exteriors to the right. A–C, Santa Elena White and Black-on-Red; D, Calunga Red and Black-on-White. × 0.4.

polished and the inside is covered with a polished red slip. The outside is covered from lip to base by a broad white band bordered with black bands at top and bottom. This white area is divided into black-outlined rectangles containing alternating black crescents surrounded by red dots. The conical supports are outlined in black bordered with white, and a white disc with black center is placed in each of the open triangles thus formed. This vessel, so typical of Santa Elena in other respects, is unusual in having the red dots painted over the white of the black-outlined rectangles.

2. Jars and bottles with straight or slightly flaring collars (fig. 60, C). Some have molded face collars (human or animal) or vertical strap handles running from rim to shoulder. Rarely, the body is polished. The black and white decorations are on the body and/or the collar. A broken face-collar jar came from V-302, Burial 6 (p. 72 and fig. 35, B), and an intact example from Burial 1 (p. 72 and fig. 34, B). All Santa Elena jars and bottles appear to have been made in two-piece molds with vertical joints.

(a) Collar and portion of shoulder of jar with large, vertical strap handle (fig. 60, C, right) from V-310, surface. Molded in two-piece vertical mold with joint in plane of handle. The opposing halves of the body in a zone beginning 2.5 cm. below the neck are molded

in the form of a warty squash. The appearance is so realistic that a squash was probably pressed into the soft surface of the mold or the mold was formed around the squash. The top of the collar is bordered with a black band. A white band 2.5 cm. wide bordered with white runs around the upper shoulder between the neck and the squash relief. This band is broken where it passes under the handle. The handle is painted with white strips bordered and split by narrow black lines.

(b) Fragment of a jar with wide, slightly flaring collar, on which is a molded puma head in high relief (fig. 60, C, center) from V-310, Level 1. The head, which is hollow from the inside, was formed by pressing the soft collar wall into the deeply depressed negative impression in the mold. The animal's mouth is in typical Tiahuanaco style, with divided incisors and overlapping canines. (Kroeber, 1930, pl. XXVI, illustrates a similar molded puma head on an Estero Plain jar collar. It is from Taitacantin, a Tomaval period cemetery.) The collar and the puma face are covered with a thin white wash, which may have extended over the body of the vessel also. A narrow black band bordered with white paint encircles the base of the collar. A white painted band 2.5 cm. wide and bordered with black lines at top and bottom encircles the top of the collar. Within these borders are pairs of interlocking black lines.

3. Three sherds, which have broad white bands with black borders painted on the polished red slip of the exterior, appear to come from the walls of cylindrical goblets. They are from V-167A.

CALUNGA RED AND BLACK-ON-WHITE

This rare type (total of 6 sherds and 3 burial vessels) is an oxidized-fired ware with the paste of Castillo Plain or Rubia Plain. It appears to be confined to the Tomaval period. The red and black decoration, which is placed on the bodies and necks of jars and the insides of bowls, is painted on a white slip. Generally the slip is unpolished and the red painted bands are well polished. The designs are as follows: (a) black-bordered red bands (straight or curved), triangles, and diamonds; (b) fine-line black figures (wavy lines, geometric figures) painted on the white slip, the red painted area, or over both; (c) black dots and concave-sided triangles on the white slip; (d) black stripes on lips.

Forms:

1. Bowls (fig. 60, D). Diameter 15–17.5 cm. Designs painted on exterior, interior, or both. This is the most frequent shape in refuse collections. Made in one-piece molds.

2. One sherd from V-167, Level 11, appears to be from the body of a cylindrical goblet.

3. Two globular bottles with pierced node handles came from Burial 13 (p. 76 and fig. 36, E) and Burial 15 (p. 76 and fig. 36, F) at V-302. I purchased a melon-shaped jar having a flaring neck with pierced node handles (fig. 36, G). It came from a grave near Hacienda Santa Elena. These bottles and jar were made in two-piece molds with vertical joints.

4. A figure-and-spout whistling jar came from Burial 8 at V-302 (p. 74 and frontispiece).

SAUSALITO BLACK-ON-WHITE

This rare type is oxidized-fired and has a Castillo Plain or Rubia Plain paste. Vessels have an over-all white slip on which are painted in cursive, narrow, black lines the following: triangles, chevrons, stripes, dots, and eccentric geometric figures. The type is found only in the Tomaval period.

Forms:

1. Open bowls with tripod supports. The legs are conical and hollow; each has a small hole on the inner side near the large (upper) end. One example is white-slipped inside and out, and two on the inside only. One has a slight amount of polish. The lips are painted black and the cursive black designs are on the bowl interiors.

2. Collared jars or bottles. Slipped white, with cursive black lines on collars.

3. A miniature, double, fruit-effigy vessel with spout and handle came from Burial 11 at V-302 (p. 75 and fig. 36, H). It is white-slipped and has wavy black lines on spout and handle.

CARRANZA BLACK-ON-ORANGE

This is the rarest type in my refuse collections. It seems to be confined to the early Tomaval period. I found only four sherds and there are no examples from my Tomaval burials. Ford found a few sherds of the type in his surface collections, and Kroeber (1930, pl. XXIII, fig. 6) found one sherd at Taitacantin. This oxidized-fired ware has the paste of Castillo Plain. Simple geometric figures (stripes, solid triangles, open triangles filled with dots, and circles) are painted with narrow black lines on the orange to brownish-orange vessel surface. Two examples of San Nicolas Molded bowls with this type of decoration came from the bottom levels of V-167A (p. 175).

Forms:

1. Three examples are open bowls. One from V-167, Level 12, has a black painted lip, interior black stripes pendent from the lip, and a slight

amount of polish on the inside. A ring base bowl with some interior polish and black stripes at the rim came from V-310, surface. A nearly complete tripod bowl came from V-310, pit (fig. 61, A). The legs are hollow cones with a large opening on the inner side midway between base and tip. The polished interior is painted with black vertical stripes and circles. Inverted triangles, alternately solid and open and filled with dots, are pendent from the lip.

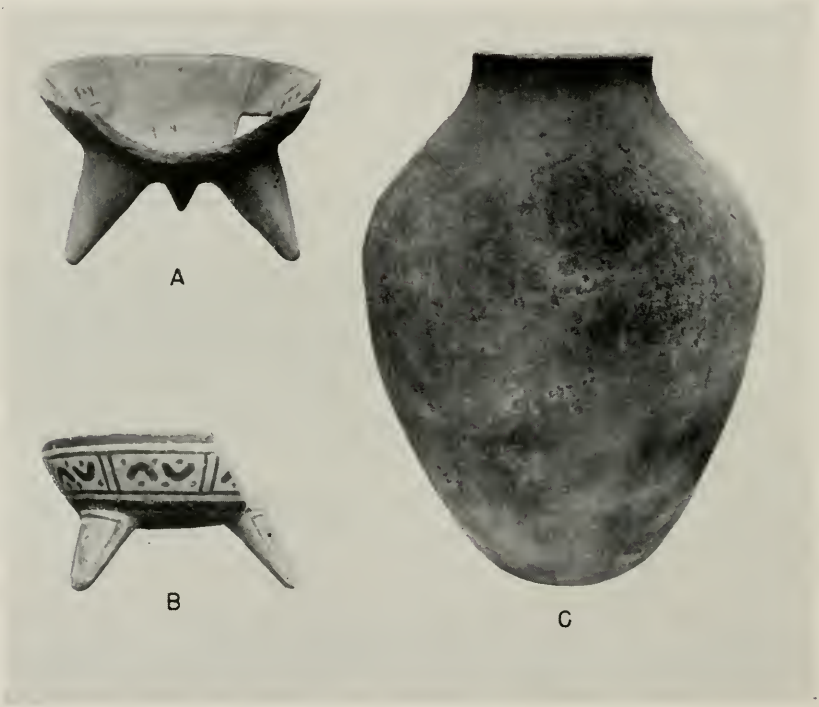

FIG. 61. Tripod bowls and storage jar. A, Carranza Black-on-Orange; B, Santa Elena White and Black-on-Red; C, Huacapongo Polished Plain jar from near Sausalito.

2. A small, short spout with a black lip and vertical black stripes below the lip came from V-310, Level 1.

TIAHUANACOID

This type includes the styles referred to as Epigonal and Tiahuanaco (Kroeber, 1925a, p. 208) or Coast Tiahuanaco A (Bennett, 1939, p. 138). It is a thin (2.5–5 mm.), oxidized-fired ware with Castillo Plain or Rubia

Plain paste. It has well-polished surfaces and polychrome painted designs. I have placed 14 sherds in this type. Eleven are from V-167 and the other three from V-310. They have a fairly even distribution through the levels of V-167. Only one sherd (from V-167, Level 5) has a recognizable design typical of the highland Tiahuanaco style, but I have placed the others in the type because of similarities of colors and polished finish. Thus, only one sherd is strictly in Coast Tiahuanaco style, and the others would more

FIG. 62. Tiahuanacoid sherds. Top row, bowls; middle row, jars; bottom row, goblets. × 0.5.

properly be called Epigonal (Kroeber, 1925b, p. 241; 1944, p. 65). It seems appropriate to class them together here because they contrast as a group with all of the other painted types of the Tomaval period described in the preceding pages.

The following color combinations occur on these sherds (red means red paint): white, black, and red; white, black, gray, and red; white, orange, black, and red; gray, orange, black, and red; black, gray, and red. The designs are as follows: black-bordered geometric figures; straight or curved bands in white, red, orange, or gray, usually bordered with black; white discs with black centers (fig. 62). The typical Tiahuanaco design, painted on the outside of an open bowl (fig. 62, upper left), is a wing and tail design painted on a highly polished, painted red background. One section has gray bands bordered with black, which terminate in white squares con-

taining black dots. In the other section the gray and white are reversed. Eight of the fourteen sherds are from tall goblets with vertical or slightly flaring sides, three appear to be from jar shoulders, and the remaining three are from open bowls, two of which have decoration on the inside and one on the outside.

CASTILLO PLAIN

This is an oxidized plain ware with sand-tempered paste. The surface, which ranges in color from reddish-brown through red to pink, is smooth but unpolished. The type is broadly defined to include the basic red plain ware that was dominant in Virú ceramics for a long period of time. Its total time range is from late Puerto Moorin to late Tomaval but it is most frequent during Gallinazo, when it reaches a maximum of 70 per cent of all ceramics in refuse deposits. During this long span of time the type did not remain unchanged. In its earlier phases it tended to have a larger quantity of sand temper and thicker walls, and the dominant shapes were constricted-mouth jars with direct rims, jars with tall, flaring collars, and jars with short, flaring rims. In its last phases (Huancaco and Tomaval periods) the quantity of sand temper was reduced, walls became thinner, and the color shifted away from the red-brown range to the red-pink range. Shapes also changed. The open bowl increased in popularity during Huancaco and became the dominant shape during the Tomaval period, when the ring base became common and the one-piece mold was used in manufacture. A new shape, the globular jar with cambered rim, was added in Huancaco, and similar jars with cambered necks and flaring rims appeared in Tomaval.

The paste and shape characteristics of Castillo Plain during the Gallinazo and Huancaco periods have been analyzed in detail by Ford, Strong and Evans, and Bennett. My collection of Castillo sherds comes largely from refuse dating from the two ends of the time range of the type (Puerto Moorin and Tomaval periods), and the majority are from the time of its dying popularity. The bulk of my sherds come from the Tomaval period levels at V-171, V-167, and V-301. Huancaco period material is completely lacking. The small amount of Castillo material from V-302 dates from the latter half of Gallinazo. The Gallinazo period refuse from V-171 is too thin and too mixed with earlier and later materials to add any knowledge of the type history. Finally, the Castillo material from the upper levels of V-272 dates from Puerto Moorin. Unfortunately, the Castillo sample from this site is not very satisfactory (see pp. 88–89).

Forms:

1. Open bowls with rounded bottoms, outsloping walls, and rounded to sharpened lips (fig. 63, A). Diameter 10–22.5 cm., mean 17.5; wall

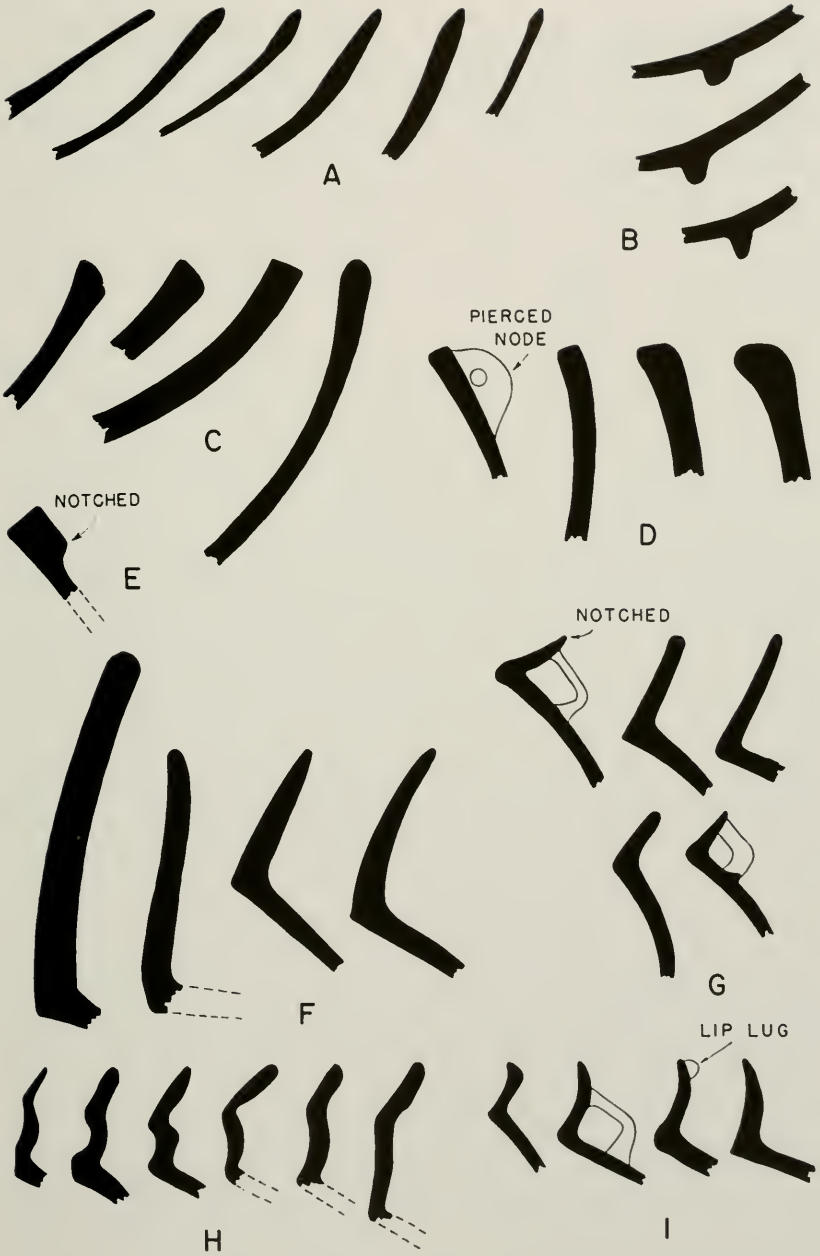

FIG. 63. Rim profiles of Castillo Plain; rim exteriors to the right. × 0.4.

thickness 3–9 mm., mean 5.5. Three-fourths of the Castillo Plain sherds from the early Tomaval period (site V-167) are from bowls, of which about two-thirds had ring bases (fig. 63, B). I found no examples of Castillo bowls with ring bases from any other period. Apparently what happened in early Tomaval was that ollas were largely Tomaval Plain and Rubia Plain, whereas Castillo was most popular for bowls. But in late Tomaval only about a fourth of Castillo vessels were bowls. A scattering of bowl sherds comes from the La Plata and Estero periods, three are from the later Gallinazo refuse at V-302, and one comes from Puerto Moorin refuse at V-272.

2. Bowls with thick, outsloping walls, round bottoms, and square or rounded lips (fig. 63, C). Diameter 25–32 cm., mean 28.1; wall thickness 8–11 mm., mean 9.7. This form occurs in only 1 per cent of Castillo sherds in early Tomaval but increases to 20 per cent in late Tomaval. It is found sporadically in La Plata and Estero but is absent from the pre-Tomaval refuse sampled by my excavations.

3. Large, constricted-mouth jars with direct rims, rounded bottoms, and square or rounded, sometimes thickened lips (fig. 63, D). Rim diameter 15–40 cm., mean 27.3; wall thickness 7–11 mm., mean 8.9. This is a typical form of minor frequency during the Gallinazo and Huancaco periods, but my sherds from this shape come only from the Tomaval period (4 per cent of Castillo rim sherds) and Puerto Moorin (two sherds from V-272).

4. Large, constricted-mouth jar with rim strap on direct rim, rounded bottom and square lip (fig. 63, E). Rim diameter 43 cm., body thickness 6.5 mm., rim thickness 15 mm. A single sherd from a jar of this shape came from a Gallinazo level (Level 6) at V-171C. It has vertical notching on the lower corner of the rim strap. This type of rim decoration is placed in the type Castillo Incised by Strong and Evans (1952, fig. 66).

5. Large jars with tall, slightly flaring collars (fig. 63, F). Collar height 4.5–11 cm., mean 7.5; lip diameter 12.5–30 cm., mean 19.3. This is the most popular Castillo shape during the Gallinazo and Huancaco periods. My sherds come from late Gallinazo (V-302) and Tomaval; three sherds came from Estero period refuse at V-171. During Tomaval 3 per cent of Castillo sherds are from jars of this shape.

6. Small to medium-sized, globular jars with flaring rims (fig. 63, G). Rim height 1.5–4 cm., mean 2.7; rim diameter 10–25 cm., mean 15.8; body thickness 5–8 mm., mean 6.7. This is the second most popular Castillo shape during the Gallinazo and Huancaco periods. My sherds come from Tomaval and late Gallinazo (V-302), with a few from Puerto Moorin (V-272) and a scattering in La Plata and Estero. During Tomaval, Form 6 is the second most popular Castillo shape (8 per cent of Castillo sherds).

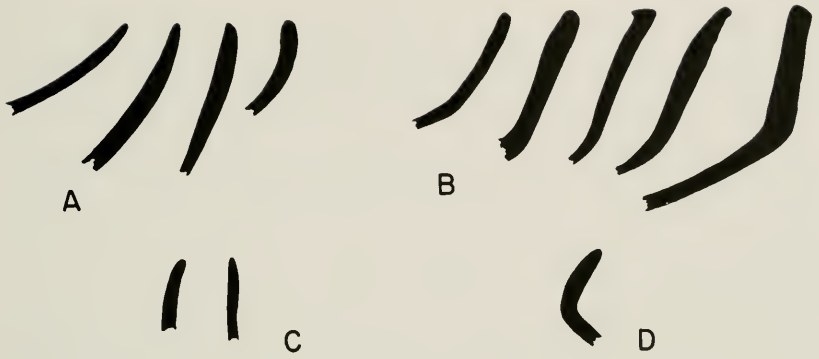

FIG. 64. Rim profiles of Gloria Polished Plain; rim exteriors to the right. × 0.4.

The Castillo jar of this shape from Burial 1 at V-302 (p. 71 and fig. 34, E) has a lip lug with two reed punctates on its upper surface.

7. Small, globular jars with cambered neck and flaring rim (fig. 63, H). Rim diameter 11–15 cm., mean 13.6; body thickness 5–8 mm., mean 5.9. With the exception of two sherds from the Estero period, this shape is confined to Tomaval, during which it runs 5 per cent of Castillo sherds. It is unknown in earlier periods.

8. Small to medium-sized, globular jars with cambered rims (fig. 63, I). Rim diameter 9–30 cm., mean 14.6; body thickness 4–9 mm., mean 6.3. This shape first appears in the Huancaco period, achieves a minor peak of popularity in early Tomaval (5 per cent of Castillo sherds) and fades out thereafter. My sherds from this shape all come from the Tomaval period with the exception of a few scattered occurrences in La Plata and Estero refuse.

GLORIA POLISHED PLAIN

This ware has a paste and color similar to Castillo Plain, but vessels tend to be smaller than those of Castillo. The exterior surface of jars and both interior and exterior surfaces of bowls are evenly polished. This polished red ware is found from the early Gallinazo period through the Tomaval. The statement concerning the distribution of the Castillo sherds (p. 186) applies also to the Gloria sherds. There is some doubt that the scattering of polished red sherds that I found in La Plata and Estero refuse should be classed with Gloria, but they are so few and nondescript that it has not seemed profitable to establish another type for them.

Forms:

1. Open bowls with rounded bottoms (fig. 64, A). Rim diameter 12.5–25 cm., mean 18. The interiors and exteriors are polished. In my collection

these bowls are confined largely to the Tomaval period, although one sherd comes from La Plata (V-108A) and three are from Estero. A third of the Tomaval bowls have ring bases. They were probably made in one-piece molds, but the polishing has obliterated any evidence of this.

2. Composite silhouette bowls with flattened bottoms (fig. 64, B). Rim diameter 15–24 cm., mean 18.4. These are polished inside and outside. They were probably made in one-piece molds but the exterior polishing makes this impossible to determine. This is an infrequent form during the Tomaval, La Plata, and Estero periods.

3. Fragments of two vertical-wall collars 8 cm. in diameter (fig. 64, C), probably from small jars (possibly they are rims of small, cylindrical cups), came from the early Tomaval period (V-167). They are polished inside and outside.

4. Small, globular jars with flaring rims (fig. 64, D). Rim diameter 7.5–10 cm., mean 8. The inside of the rims and the outsides of the rims and bodies are polished. Three examples came from early Tomaval (V-167).

HUANCACO DECORATED

This class includes the various painted types of the Huancaco period in Virú. Strong and Evans (1952, pp. 327–344) have made a detailed analysis of the Huancaco decorated pottery present in refuse material and burials, and have set up three painted types (Huancaco Red and White, Huancaco Red-White-Black, and Huancaco White and Black). My collection of Huancaco decorated sherds, which comes from only three sites, is so limited in quantity and variety that it would be unprofitable to describe it in detail. A brief inventory follows:

1. V-306. A surface collection from this site contained fragments of Huancaco Red and White vessels, probably from looted graves.

2. V-309. A surface collection from this site contained fragments of Huancaco Red and White vessels, a portion of a Red and White rectangular vessel, and a polished red stirrup spout. These were probably from looted burials.

3. V-310. There were Huancaco Red and White sherds on the surface. Level 1 contained a few Huancaco Red and White sherds (including the fragment of a rectangular vessel) and a polished white stirrup spout. A disturbed pit, probably a looted burial, contained a portion of a molded human figurine of Huancaco type with white painted necklace, and a red pottery spindle whorl with incised designs filled with white pigment, also of Huancaco type (Strong and Evans, 1952, figs. 32 and 33, type 14). These were associated with sherds of early Tomaval type (see Table 9).

VALLE PLAIN

This is a heavy, hand-made, oxidized-fired ware heavily tempered with sand. Surface color ranges from brick red to orange. Vessel walls are 12–30 mm. thick. Rims are somewhat thickened but much less markedly than in the later type, Virú Plain. Lips are square or rectangular in section, but tend to be more rounded (like Virú Plain lips) in the Huancaco period and later. Valle vessels, which range up to 150 cm. high, are essentially larger, thicker, coarser versions of Castillo Plain vessels. The type has a time range from the beginning of Gallinazo (or slightly earlier) through Tomaval, and occurs occasionally as late as Estero. It has a maximum popularity of about 25 per cent in late Gallinazo and declines during Huancaco and Tomaval, during which time it is being replaced by Virú Plain.

The statement on page 186 concerning the distribution of the Castillo sherds applies also to the collection of Valle Plain. Most of the Valle sherds come from refuse dating from Tomaval or later, a few come from late Gallinazo (V-302), and a small number from late Puerto Moorin (V-272).

Forms (Ford, 1949, fig. 6; Strong and Evans, 1952, fig. 41):

1. Large, constricted-mouth jars with direct rims and round or slightly conical bottoms. The slightly thickened lips are square in section (often rounded in the Huancaco period and later). These jars are most frequent in my early Valle material but are nearly equaled in frequency by bowls in the Tomaval period.

2. Large, constricted-mouth jars with exterior rim strap. This form, which was second in popularity only to Form 1 during the Gallinazo period (Strong and Evans, 1952, p. 269 and fig. 41), is absent from my collection. From this I infer that Form 2 began to be made slightly later than Form 1, and that it was no longer made after the Huancaco period.

3. Globular jars with vertical or slightly flaring collars and rounded, unthickened lips. This is an infrequent form in the collection.

4. Large bowls (up to 50 cm. in diameter) with rounded bottoms and round or square lips. This form is not found in the early material but is only slightly less popular than Form 1 in the Tomaval period.

5. A large plate, 45 cm. in diameter and 15 mm. thick, came from V-302A, Level 2 (late Gallinazo). It has a square lip.

6. Graters. Large, open bowls with coarse, crosshatched incising on the interior. Four sherds came from the Tomaval period and five from Estero.

HUACAPONGO POLISHED PLAIN

The paste of this ware is well mixed and contains a small amount of sand temper. It was fired in an oxidizing atmosphere, which produced

brick red paste and surfaces. The exterior frequently has gray or black firing clouds. The interior tends to be browner than the exterior, and frequently the paste has a prominent gray core. The walls are relatively thin (3–6 mm.) and harder than the other Virú types (when knocked together the sherds give a clear ring). The vessels are hand-made (probably coiled) and have a scraped interior and a polished exterior. The tracks of the polishing tool are parallel and separated in such a manner as to suggest a deliberate decorative practice. The polishing tracks are generally diagonal on the walls and shoulders of jars and horizontal or vertical on the outside of bowls. The typical Huacapongo shapes are large, direct-rim jars with rounded-conical bottoms, smaller, globular jars with flaring rims, and bowls (including graters). The type has a chronological range from Late Guañape through early Gallinazo. It reaches a maximum of about 90 per cent of all sherds in the Puerto Moorin period. My collection of Huacapongo sherds comes principally from the Late Guañape and Puerto Moorin refuse at V-272; a smaller proportion comes from the Late Guañape–Puerto Moorin refuse at V-171B–C. At the latter site, because of the thinness of the deposits and consequent telescoping effect, there is an overlapping of Late Guañape with Puerto Moorin, and of the latter with Gallinazo. Despite the uncertainty involved, it is clear that my collection is drawn primarily from the first half of the life span of Huacapongo, which covers its beginnings in Late Guañape and its rise to maximum popularity during the first half of Puerto Moorin.

Forms (Ford, 1949, fig. 6; Strong and Evans, 1952, fig. 37):

1. Egg-shaped, constricted-mouth jars with direct rims and rounded-conical bottoms (fig. 65, A). The lips are usually slightly thickened, and are sharp, round, or square in section. Mouth diameter 12–17.5 cm., mean 14.9.

2. Egg-shaped, constricted-mouth jars with slightly thickened upturned rims (fig. 65, B). Lips are square in section. Mouth diameter 12–55 cm., majority 15–22. I found a large Huacapongo storage jar of this shape in the house yard of a *colono* near Hacienda Santa Elena (figs. 61, C, and 65, C). He dug it up in a cemetery near Sausalito (about 1.5 km. southeast of the river and 1 km. west of Huancaco). He was using it for water storage and said it would be fine for brewing *chicha*. It was 75 cm. high and had a rim diameter of 25 cm. and a shoulder diameter of 55 cm.

3. Large, deep jars with slightly constricted mouths, upsloping or vertical rims, and rounded bottoms (fig. 65, D). Rim diameter 17–45 cm., mean 31.8. They have an external rim strap that produces a lip which is rectangular in section. Eight out of a total of 23 rim sherds have rim straps ornamented with broad, diagonal hatching on the outer surface or either

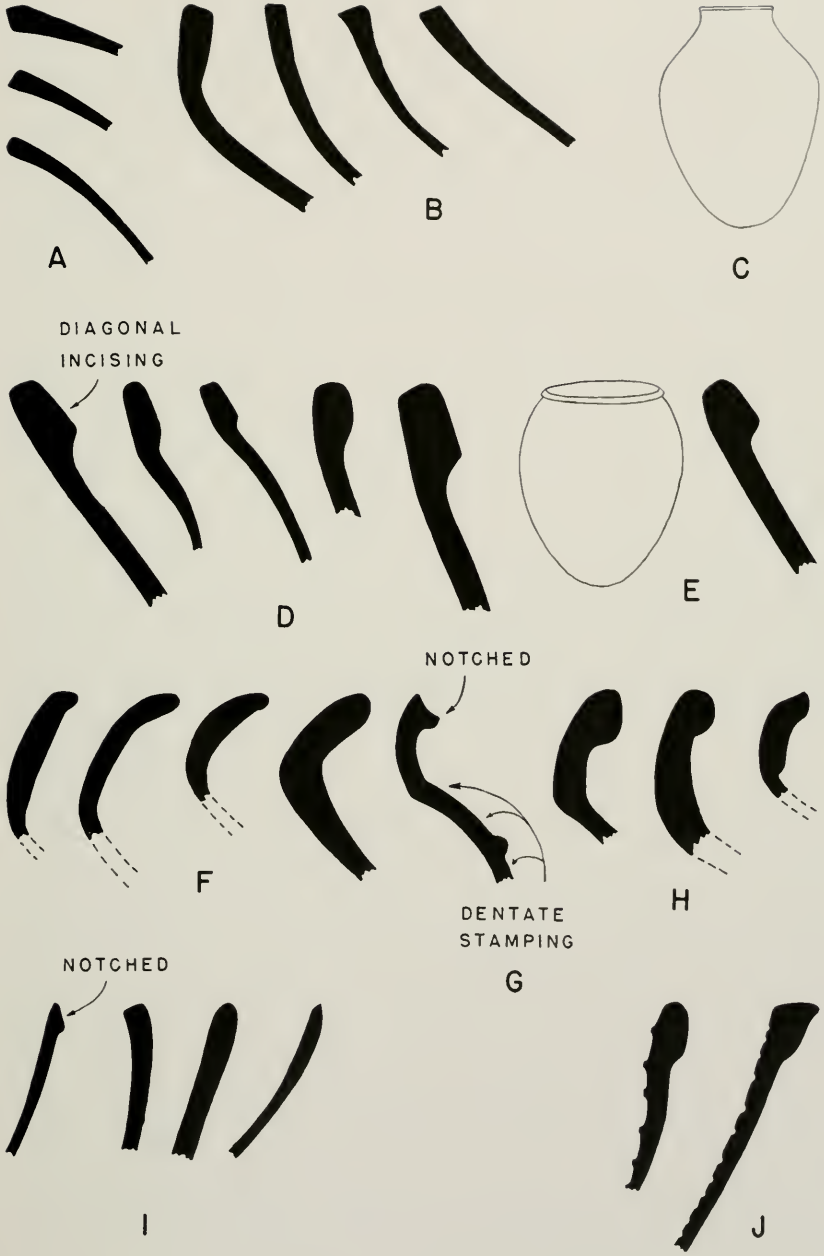

FIG. 65. Rim profiles and jar outlines of Huacapongo Polished Plain; rim exteriors to the right. × 0.4, except for C and E, left.

notching or conical punctations on the lower edge. A ninth sherd has a combination of incision and punctation on the rim strap. Strong and Evans (1952, p. 316 and fig. 66) have included such Huacapongo decorated rims in the type Castillo Incised, along with incised sherds having a variety of plain ware pastes and finishes (Castillo Plain, Sarraque Cream, Gloria Polished Plain, and Queneto Polished Plain). Their grouping, which emphasized incised decoration alone, thus classed together sherds coming from different periods (Puerto Moorin, Gallinazo, and Huancaco). Strong and Evans were concerned primarily with the total range of an incised tradition rather than the details of its history as it was applied to different pottery wares. I have preferred to handle the incised sherds described here as a special decorative feature of Huacapongo strap rims.

A complete vessel of this shape was excavated at V-272 (figs. 40, H, and 65, E). It was 80.5 cm. high and had a rim diameter of 46 cm. and a shoulder diameter of 65 cm. A fragmentary jar of this shape in the same trench was between 110 and 120 cm. high and had a maximum diameter of 100 cm.

4. Medium-sized, egg-shaped jars with slightly constricted mouths and flaring rims (fig. 65, F). Rim diameter 17–27.5 cm., mean 22. The lower edge of one lip is notched (see discussion of rim incising under Form 3).

5. Medium-sized to large, globular jars with constricted mouths, short, vertical necks, and thickened, everted lips (fig. 65, H). Rim diameter 12.5–45 cm., mean 22. Four rim sherds out of 26 have diagonal notching on the lower edges of the everted lips. These notched Huacapongo rims were classed by Strong and Evans as Castillo Incised (see discussion of this point under Form 3). One of these four sherds with notched rims, from V-272B, Level 5, has on the upper shoulder additional ornamentation consisting of a small hemispherical node surrounded by diagonal rows of dentate stamping (fig. 65, G). The stamping was done with a tool having a slightly rounded end (cross section 1 by 5 mm.) bearing seven fine tooth-like projections, which made tiny depressions in the stamped impression formed by pressing the tool into the vessel's surface when the clay was still soft. The technique, which does not involve rocking the tool, is distinct from that used in producing Ancón Rocker Stamped (see p. 209). This example of dentate stamping, which dates from the transition between Late Guañape and Puerto Moorin, is the only one of its kind as yet reported from Peru.

6. Open bowls with rounded bottoms (fig. 65, I). Diameter 20–30 cm., mean 25. Two out of seven rim sherds have diagonal notching on the lower edges of the lips (see discussion under Form 3).

7. Graters. Large, thick, open bowls with rounded bottoms and rim thickening approaching a rim strap (fig. 65, J). Diameter 27.5–40 cm.,

mean 33.5. These bowls have incised corrugations on the inside, which served as a grating surface. There are two types of grating surface: (a) Seven sherds are from bowls with coarse, parallel, horizontal incisions with rows of punctates or cross-shaped incisions between the parallel incisions. The incisions, which have raised, jagged edges, were made when the clay was very wet. (b) Four sherds are from bowls with coarse, horizontal finger-wiping done when the clay was very wet so as to produce a series of sharp-edged ridges.

Strong and Evans classified grater bowls with Huacapongo, Castillo, or Valle paste as a component of Castillo Incised (1952, p. 319, fig. 67). Ford (1949, pp. 56–57) treated grater sherds as a separate feature, which began in Puerto Moorin (scant evidence) and appeared in all subsequent periods, with greatest frequency in Tomaval. During Gallinazo and Huancaco the typical paste was that of Valle Plain, which was partially replaced by Virú Plain in Tomaval. Apparently Ford found only one grater from the Puerto Moorin period (Huacapongo paste). Presumably the graters with Huacapongo paste found by Strong and Evans were from late Puerto Moorin or very early Gallinazo. Mine came from early Puerto Moorin. Neither Ford nor Strong and Evans found examples of the finger-wiped grater. Presumably it was confined to the earlier part of Puerto Moorin. Possibly it was the earliest type of grater made in Virú, although the present meager evidence is insufficient to prove this. My graters from later periods with Valle Plain and Virú Plain paste are discussed under those pottery types.

Form Frequencies:

In the entire collection of Huacapongo rim sherds the various forms occur in the following order of frequency: Form 2 (33 per cent), Form 5 (16 per cent), Form 3 (14 per cent), Form 1 (12.4 per cent), Form 4 (11.6 per cent), Form 7 (7 per cent), and Form 6 (4 per cent). The collection from V-272B, which probably averages somewhat earlier in time than the collection as a whole, has a similar order of frequency but with minor differences: Form 2 (31 per cent), Form 5 (22 per cent), Form 1 (13 per cent), Form 3 (12 per cent), Form 7 (10 per cent), Form 4 (7 per cent), Form 6 (5 per cent). Some of these differences are so small as to be statistically insignificant. Probably the following differences between the V-272B collection and the collection as a whole represent actual popularity trends in Huacapongo: the shift of Form 1 from rank 3 to rank 4 (becoming less popular); the shift of Form 4 from rank 6 to rank 5 (becoming more popular). The order of rank of forms in Ford's Huacapongo collection, which consists of surface collections covering the life span of the type, is in substantial agreement with the order of rank of forms in my total collection.

It is difficult to make a comparison with the Huacapongo collection of Strong and Evans, which dates from late Puerto Moorin and early Gallinazo, because they have split my Form 3 (Ford's Form 11) into two shapes and have merged my Forms 4 and 5 (Ford's Forms 13 and 18) into one form (1952, fig. 37). However, some significant similarities and differences can be noted. My Form 1, which is in rank 3 during the early phases of Huacapongo, drops to rank 5 in Strong's collection; my Form 3 (Strong's 3 and 4) climbs from rank 4 (early) to rank 1 (late); my Form 5 (merged in Strong's Form 5) maintains rank 2 throughout the span of the type. The following conclusions emerge from this analysis and comparison. The egg-shaped jar with constricted mouth and upturned rim (Form 3), a shape carried over from Guañape Plain, was most popular in the early range of Huacapongo but dropped to third place in the late phase, when the deep jar with rim strap (Form 3) was the most popular. The jar with rim strap was a popular form in the succeeding type, Castillo Plain. The jar with short, vertical neck and everted lip (Form 5) maintained the second position in popularity throughout the life of the type, whereas the bowl was consistently the least popular.

GUAÑAPE RED PLAIN AND BLACK PLAIN

These are the plain wares of the Guañape period. They are identical in paste, surface finish, and vessel forms. They differ only in color (red to brown in one case and gray to black in the other), which was controlled by the amount of oxygen permitted to reach the pots during firing. Firing control was apparently haphazard, particularly during Early and Middle Guañape, and there resulted a complete range from red to black with a clustering at the two ends of the range. The color division between the two types is an arbitrary one. Even though firing control was poor, the firing methods applied to Guañape plain pottery are seen to have definite trends when viewed over their entire time range. During Early and Middle Guañape, sherds in the black range outnumber sherds in the red range by a relatively constant ratio of 5 to 2. At the beginning of Late Guañape there is a reversal of this ratio and red sherds become about three times as frequent as black sherds. This shift and the appearance of a polished red ware in Late Guañape are the forerunners of the complete shift to oxidized firing that occurs at the beginning of the Puerto Moorin period.

When making the primary classification of the Guañape sherds in the field, I failed to distinguish in the sherd counts between red and black sherds. I did note that red sherds were three times as numerous as black sherds in the collections, which came from the Late Guañape horizon. Upon learning that the proportion of red and black was markedly different in the Guañape collection of Strong and Evans, I became convinced

that the distinction between red and black was important as a time indicator and in tracing the changing firing methods of the Guañape potters. My collection of body sherds had been left in Peru, but a reanalysis of the 390 rim sherds, which had been shipped to Chicago, furnished a reasonably accurate measure of red and black frequencies in the various refuse levels. The percentages of Guañape Red Plain and Black Plain shown in figure 46 and Appendix I are based on the rim sherd frequencies. A few refuse levels contained so few Guañape Plain rims that percentages could not be derived from them.

Guañape Plain vessels are hand-modeled (coiled). The paste is tempered with a moderate amount of sand containing large grains of angular quartz. The quartz grains are quite noticeable and help to separate Guañape sherds from those of the succeeding type, Huacapongo Polished Plain. This relatively soft ware has vessel walls 3–8 mm. thick. The interior surfaces are often roughly scraped and show finger marks. The exterior surfaces are smoothed and sometimes have smoothing marks made by a hard instrument. These smoothing marks lack the luster and the patterned regularity of the polishing tracks on Huacapongo vessels. Red Plain sherds range in color from red to brown, often with darker fire clouds. Incomplete oxidation is indicated by the dark cores of many sherds. Black Plain sherds range in color from gray-brown to black; cores have the same color range.

Guañape Red Plain appears to be the forerunner of Huacapongo Polished Plain. In the period of transition between Guañape and Puerto Moorin the two occur together in refuse deposits, and some sherds appear to be transitional between the two types. Color and vessel form may be identical but the majority of Guañape sherds can be separated out on the basis of paste characteristics (particularly the presence of quartz temper) and the cruder polishing when it is present. In a few cases placement in one or the other type is necessarily arbitrary. In order to check the consistency of my type concepts, I reclassified my Guañape and Huacapongo rim sherds two years after I had made the primary classification in the field. The shift in the sherd counts for these transitional refuse levels did not exceed 2 per cent of the total sherds in any level.

Forms:

With the exception of Forms 6 and 7, Red Plain and Black Plain share the same forms and in the same proportions.

1. Large, egg-shaped jars with constricted mouths, direct rims, and rounded-conical bottoms. Mouth diameter 10–22.5 cm., mean 16. In Late Guañape 76 per cent of vessels are this shape. Four different lip types are found on this jar.

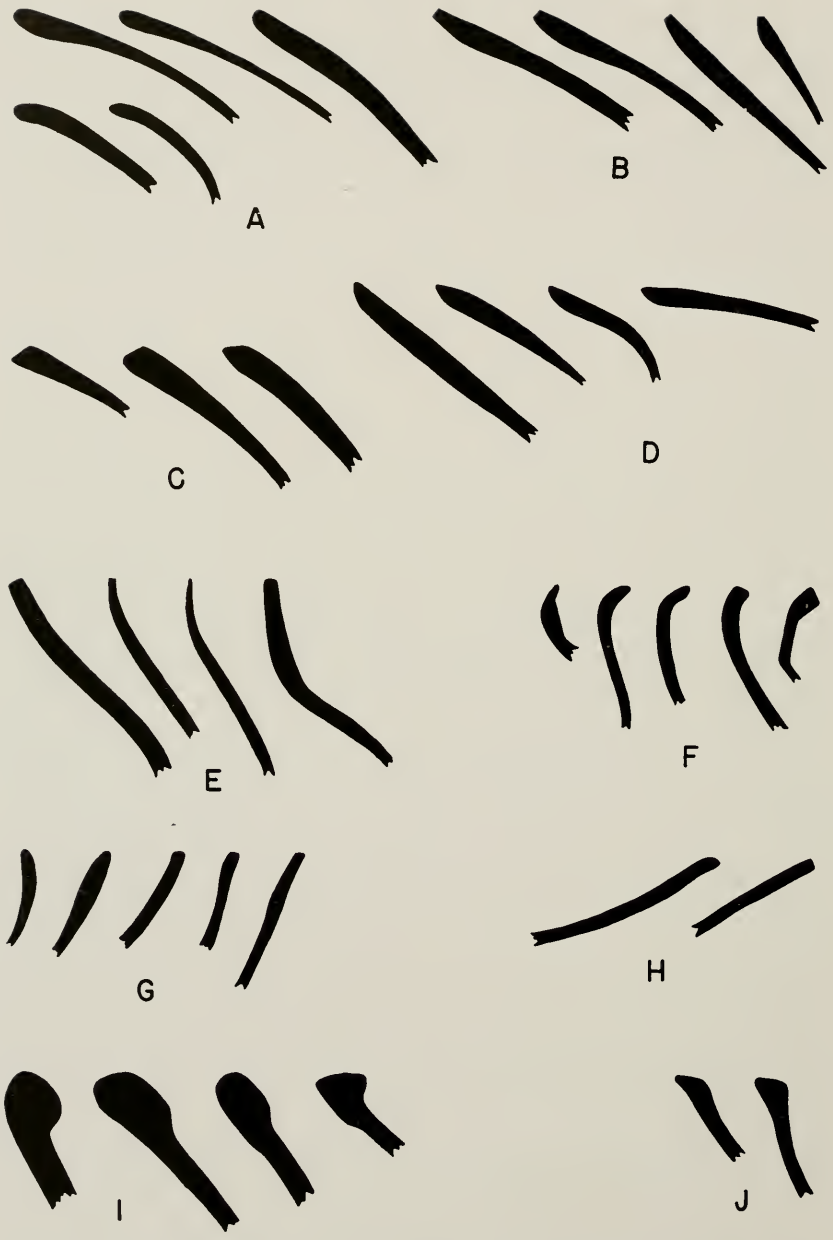

Fig. 66. Rim profiles of Guañape Red Plain and Black Plain; rim exteriors to the right. × 0.4.

(a) Rounded lips (fig. 66, A) occur on 58 per cent.

(b) Squared lips (fig. 66, B) occur on 5 per cent.

(c) Lips with exterior bevel (fig. 66, C) occur on 25 per cent.

(d) Lips with interior bevel (fig. 66, D) occur on 12 per cent.

2. Medium-sized, constricted-mouth jars with upturned rims and square, often tapered lips (fig. 66, E). These are egg-shaped, like those of Form 1, or more globular. Mouth diameter 10–22.5 cm., mean 16.2. Frequency, 12 per cent.

3. Small, round-bottomed jars with slightly constricted mouths, upsloping or vertical rims and everted lips. The lips are square or rounded-tapered (fig. 66, F). Mouth diameter 10–15 cm., mean 13.2. Frequency, 4 per cent. I have included in this form a rim sherd with a nearly vertical neck and an everted lip (fig. 66, F, extreme right). It is from V-272B, Level 6. Its color and shape make it look like a Form 5 Huacapongo jar, but it lacks polishing marks and has quartz temper.

4. Open bowls with outslanting walls (fig. 66, G). Included are bowls with straight walls and flat bottoms and bowls with curved walls and rounded bottoms. Lips are round or square. Diameter 15–25 cm., mean 21. Frequency, 4 per cent.

5. Deep plates with round or square lips (fig. 66, H). I found only two examples of this shape, from V-272A, Level 7, and V-272C, Level 5. Their diameters are 22 and 25 cm. Frequency, less than 1 per cent.

6. This form is found only in Guañape Red Plain. Large, deep jars with constricted mouths and externally thickened rims (fig. 66, I). The lip is rounded-rectangular in section. Mouth diameter 15–42 cm., mean 28.7. Nine rim sherds of this type came from Levels 4 to 8 at V-272 and two from the surface of V-306 and V-309. Frequency in total Guañape Plain rim sherds, 3 per cent. Six of these sherds have diagonal incising or notching on the outer surface of the rim below the lip. A few show traces of light polishing. These rims are similar to the strap rims of Form 3 Huacapongo jars and would have been classed as Huacapongo save for their red-brown surface, brown core, and quartz temper. Although there is some polishing, it is not typical of Huacapongo polishing. These seem to be the forerunners of Huacapongo jars with rim straps, and they carry back to Late Guañape the beginning of the tradition of rim incising. (See discussion under Form 3, Huacapongo jars, p. 192.)

7. This form is found only in Guañape Red Plain. Small, egg-shaped, constricted-mouth jars with thickened, upturned rims (fig. 66, J). Two examples came from V-272A, Level 6, and V-272B, Level 2. Their mouth diameters are 15 and 22.5 cm. Frequency in total Guañape Plain rim sherds is less than 1 per cent. These jars resemble Form 2 Huacapongo jars

more closely than they do Form 2 of Guañape Plain, but their color and paste characteristics place them in Guañape Red Plain.

GUAÑAPE POLISHED RED

This ware has a paste similar to that of Guañape Red Plain but harder, finer in texture, and with a smaller amount of sand tempering (quartz grains present but in smaller quantity). It is also somewhat thinner than Red Plain (2–6 mm., commonly 3–5 mm.). It was fired in a poorly controlled oxidizing atmosphere. Surface color ranges from brown to bright red. Many of the sherds have gray to black cores. About a fourth (24 per cent) of the sherds appear to have a red slip, generally on the exterior surface. Vessel lips and exterior surfaces are well polished, sometimes to a high luster. Bowl interiors are polished also. The marks of the polishing tool are visible, even on the most highly polished sherds, but there is no patterned burnishing.

There was a total of 118 sherds of this type (V-272, Levels 4–8; V-171B, Level 10; V-171C, Levels 7–12; V-302A, Levels 8–9). The type is confined to the Late Guañape period. Since both a polished red ware and a red slipped ware occur in Early Ancón (Willey and Corbett, 1954), I have considered the desirability of breaking my polished red into two types. The division does not appear to be profitable because of the small number of sherds and because the proportions between the two varieties are relatively constant and their popularity trends are parallel. The majority of body sherds are polished on the outside only and appear to be from jars or bottles. Only eight sherds furnish reliable indications of shape.

Forms:

1. Globular bowls with slightly constricted mouths and direct rims (fig. 67, A). There were two examples of this shape (V-272C, Levels 5 and 6). They were rim sherds, polished inside and out, with rim diameters of 15 and 30 cm.

2. Open bowls with flattened bottom (fig. 67, B). Two rim sherds were found, one from V-272A, Level 5, and one from V-272C, Level 4. One has a diameter of 19 cm. and a height of about 5 cm., the other a diameter of 17.5 cm. and a height of 5.5 cm. They are polished inside and out.

3. A small, constricted-mouth jar with direct rim and sharp-angled shoulder (composite silhouette). A single rim sherd comes from V-272C, Level 5 (fig. 67, C). It is polished on the outside and the lip only and has a mouth diameter of 8 cm. This jar is similar to the composite silhouette seed jars with rounded or rounded-conical bottoms illustrated by Larco

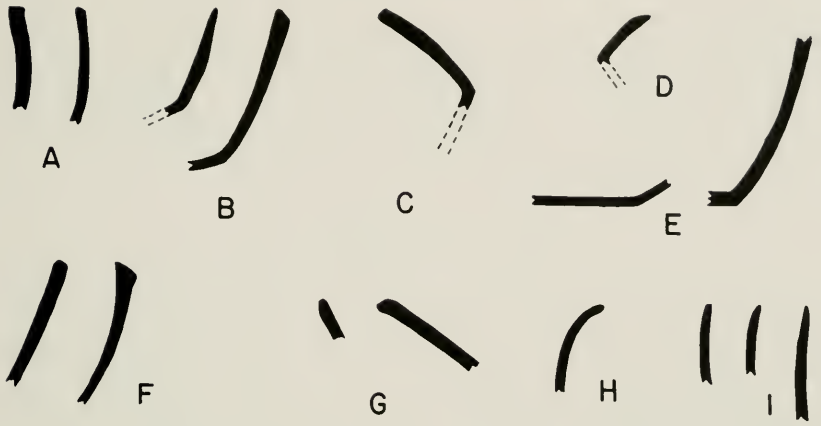

Fig. 67. Rim profiles; rim exteriors to the right. A–E, Guañape Polished Red; F–I, Ancón Polished Black. × 0.4.

Hoyle (1941, figs. 77, B, and 78, A) as typical of Cupisnique and Cupisnique Transitorio.

4. Small jars with flaring rims and rounded bottoms. A rim sherd (fig. 67, D), with lip diameter of 15 cm., came from V-171C, Level 10, and a shoulder sherd from V-171C, Level 8. Exterior surfaces and lips are polished.

5. Globular bottles with flat bases, probably with cylindrical neck or spout (rims and necks not found). A body sherd with a portion of the base came from V-272A, Level 6, and a base sherd (different vessel) from Level 5 (fig. 67, E). Exterior walls and bases are polished.

Relationships of Type:

1. Guañape Polished Red is related to Guañape Red Plain, but the paste is finer, vessel walls are thinner, and the oxidizing atmosphere was more carefully controlled during firing. It shares bowl forms with Red Plain, but otherwise its shapes are different.

2. It shares polishing and bowl shapes with Huacapongo Polished Plain but does not have other shapes in common; the polishing is better and lacks the patterned polishing tracks of Huacapongo. It has no continuity with Gloria Polished Plain, which does not appear until the end of the Puerto Moorin period.

3. It shares shapes, color, and polishing with Cupisnique Transitorio vessels in Chicama (Larco Hoyle, 1941 and 1945b).

4. It is related to Ancón Polished Red (and possibly to Ancón Red Slipped) of the Early Ancón period (Willey and Corbett, 1954, pp. 53–54).

The color range is close and bowl forms are similar. The paste of the Ancón red ware is somewhat finer, quartz grains are less common in the temper, the paste is harder, and firing control seems to have been better. In short, the polished red wares of Guañape and Early Ancón seem to belong to the same tradition, but the Ancón potters were more skillful.

ANCÓN POLISHED BLACK

This is a reduced-fired ware very similar to Guañape Polished Red, but its color range is from gray through brownish black to black. The paste is similar to that of Guañape Black Plain but harder and with finer texture and smaller quantity of grit temper (the quartz grains are smaller). Vessel walls are 2–6 mm. thick (majority 3–5 mm.). The exterior of jars and bottles and all surfaces of bowls are well polished. The marks of the polishing tool are visible but there is no patterned burnishing. About half of the polished surfaces have a dull gloss and the remainder a high luster. In general, the polishing is better than on Guañape Polished Red. A total of 70 sherds of this type came from V-272, V-171, and V-302A. The majority of the body sherds are polished on the outside only and probably come from jars and bottles. Only 15 sherds give reliable indications of shapes.

Forms:

1. Open bowls, probably with rounded bottoms (no sherds suggesting flattened bottoms or composite silhouettes were found). Two rim sherds came from V-171C, Level 9, and V-272B, Level 7 (fig. 67, F). They both have a diameter of 17.5 cm. Polished inside and out.

2. Small, constricted-mouth jars with direct rims, probably with rounded or rounded-conical bottoms(?). Two rim sherds came from V-272A, Level 6, and V-272B, Level 3 (fig. 67, G). They have mouth diameters of 12 and 15 cm. Polished on the outside only.

3. Small jars with flaring rims or goblets with flaring rims. The small rim sherd with lip diameter of 8 cm. (fig. 67, H), from V-272A, Level 7, and the neck sherd from V-272B, Level 3, furnish no evidence on the shape of the bottoms. Polished on the outside only.

4. Bottles with flat bases and cylindrical necks or spouts (fig. 67, I). There was no evidence of stirrup spouts.

   (a) Six spout fragments, diameter 2.5–3.5 cm., from V-272B, Level 8, and V-272C, Levels 5 and 6. Polished on outside only.

   (b) Fragment of upper shoulder with section of spout insertion, from V-272B, Level 7. Polished on outside only.

   (c) Two base fragments from V-272A, Level 5, and V-272B, Level 7. Polished on outside only.

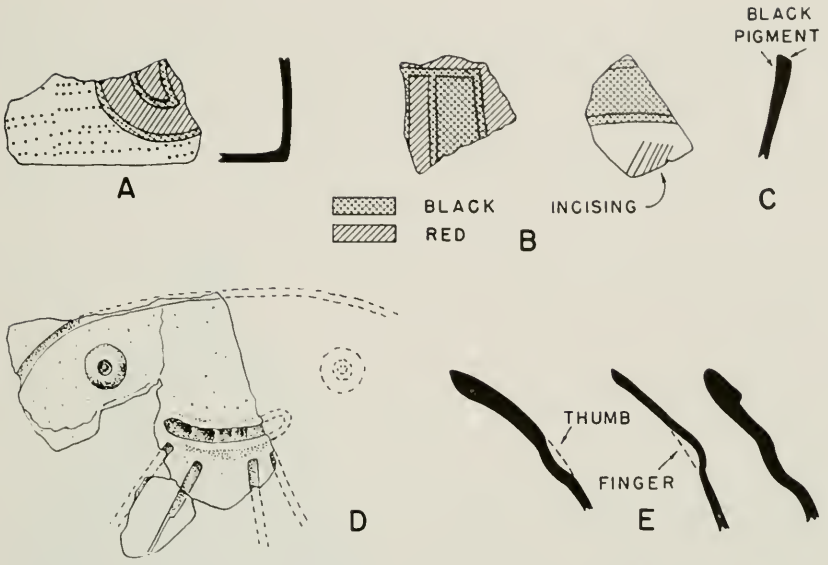

FIG. 68. Sherds and sherd profiles. A–C, Guañape Zoned Red; D and E, Guañape Modeled. × 0.4.

Relationships of Type:

This type is so similar to the polished black ware from Early Ancón (Willey and Corbett, 1954, p. 53) that it has been designated by the same name. It is similar also to the polished black pottery of Cupisnique (Larco Hoyle, 1941).

GUAÑAPE ZONED RED

The collection contained only 10 sherds of this type, which might properly be called Zoned Red and Black. The paste is that of Guañape Polished Red. The surface (exterior of bottles, exterior and interior of bowls) has an over-all red slip or zoned areas of red slip. The red-slipped areas are highly polished. Broad-line incising sets off design areas, and often the broad incisions are covered with a black, metallic, graphite-like pigment. Occasionally bands or panels of this same black pigment are bordered by broad incisions also containing the black pigment. The following combinations are present:

(a) Over-all polished red slip with small areas or bands of black pigment; for example, a rim sherd from a bowl has black on the lip and in a disc-shaped area on the rim interior (fig. 68, C).

(b) Over-all polished red slip with larger black areas set off by broad incisions containing black pigment (fig. 68, B, left) or fine incisions without black pigment.

(c) Zoned areas of polished red slip and black pigment set off by broad incisions containing black pigment. The surrounding unslipped and unpolished areas may be filled with punctations or incisions. The unslipped area on a fragment of a flat-bottomed vessel, probably a tall-necked bottle, is filled with fine, dentate punctations in horizontal rows (fig. 68, A). Another sherd has fine, parallel, incised lines in the unslipped area (fig. 68, B, right).

The only shapes recognizable in this small collection of sherds are the flat-bottomed bottle and two open bowls. Three of the sherds could be from the globular bodies of stirrup-spout jars but there are no spout or arc fragments.

Well-polished, zoned red vessels, often with black, metallic pigment, are characteristic of the Cupisnique Transitorio style in Chicama (Larco Hoyle, 1948, pp. 18–19). The black pigment occurs also on a zoned red, fruit-effigy jar with stirrup spout, said to come from Chimbote, which Chicago Natural History Museum purchased in 1904 (no. 100121). The spout and the upper part of the stirrup arc, which are shown restored (fig. 69), were missing when the vessel was acquired. The body of this jar, which is 15.8 cm. in diameter, is modeled in the form of four unidentified fruits (chili peppers?). The whole surface is covered with a red slip and is highly polished with the exception of the stem-like projection centered among the tops of the fruits and the four vertical bands, decorated with ovoid punctations, that radiate downward from the stem and separate the fruits. The two fruits supporting the stirrup are covered with black pigment placed on top of the red slip, and the alternating fruits have two black stripes set off by incised lines.

This addition of black pigment does not occur on the Zoned Red pottery of Early Ancón (Willey and Corbett, 1954, p. 43) and has not been reported from anywhere else south of Chimbote. Evidently this decorative device of the terminal phase of Coast Chavín was confined to the North Coast.

GUAÑAPE MODELED

The collection contained only eight sherds of this type. Seven have the paste and finish of Guañape Red Plain and one of Guañape Black Plain. Three are from small, constricted-mouth jars with direct rims (rim diameters 12.5–15 cm.). Two of these have been decorated by pressing out nodes 4.5 and 3.5 cm., respectively, below the rim when the clay was still wet (fig. 68, E, left and middle). The first two fingers were pressed from the inside and the thumb was pressed between them from the outside, producing on the outside two nodes with a depression between them. The thumb prints were blurred by the sliding motion produced by pinching the

thumb toward the index finger. This operation was repeated to obtain a horizontal row of alternating nodes and depressions running around the vessel below the rim. The third rim sherd, the paste of which is dark gray, has an externally thickened rim. A horizontal depressed zone bordered by raised areas encircles the vessel 2.5 cm. below the lower edge of the rim thickening (fig. 68, E, right; Strong and Evans, 1952, fig. 47, A). Three

Fig. 69. Guañape Zoned Red stirrup-spout vessel, said to come from Chimbote; spout restored. Chicago Natural History Museum no. 100121. × 0.3.

other sherds have evidence of raised or depressed areas but are too small to show patterns.

There are two examples of modeled animal faces on jar shoulders. One of these has a snout formed by the application of a lump of clay to the vessel wall. The mouth is a horizontal incision, the nostrils are deep punctations, and the close-set eyes are applied pellets with punctated pupils. Two horizontal incised lines radiate from each side of the upper face. These may represent whiskers and the face may be that of a feline. Three fragments of the other example fit together to form an incomplete face (fig. 68, D). The upward-curving mouth is formed by a fillet of clay into which the teeth were punched by means of a curved instrument, which may have been the split section of a reed. Pendent from the lower lip are four broad, deeply incised lines, of which the left pair curves to the left and the right pair to the right. The left eye (the other is missing) is a circular, flattened pellet with a reed-punctate pupil. The upper part of the face is bordered by a curving, deeply incised line. The animal depicted here is obscure.

GUAÑAPE INCISED RIB

Nine sherds of this type were collected. All have the paste of Guañape Red Plain, the exterior surfaces are smoothed, and three have a slight amount of polishing (polishing tracks visible). The decoration consists of horizontal appliquéd ribs, rounded or triangular in section, 2–4 mm. thick and 6–10 mm. wide at the base. Incisions or punctations made with a sharp tool are placed on the upper slope of the rib (five examples) or on the lower slope (two examples). All of the sherds in my sample fall into Strong's rib type I (Strong and Evans, 1952, p. 279). They come from the shoulders of small to medium-sized jars. No rim sherds were found.

GUAÑAPE PUNCTATE

Eight sherds of this type were found. Four have the paste of Guañape Red Plain and four the paste of Guañape Black Plain. The surface is smoothed but unpolished. No rim sherds are included. The decoration is placed on jar shoulders and, in a single example, on the outside of the wall of an open bowl (the inside is slightly polished). The designs consist of fine to coarse punctations widely and randomly spaced, or closely spaced to produce a stippled effect, or in roughly parallel rows. The punctations were made with a sharp instrument pressed into the wet clay vertically or at an angle; in the former case rectangular or rounded impressions were produced, in the latter, triangles or ellipsoids deeper at one end than the other.

GUAÑAPE ZONED PUNCTATE

Twelve sherds of this type were found, six with the paste of Guañape Red Plain and six with that of Guañape Black Plain. Surfaces are smoothed but unpolished. The designs consist of areas of punctation enclosed by straight or curved incised lines. The punctations and incisions were made when the clay was quite soft, with a sharp instrument held vertically or at various angles. The resulting punctations vary from a fine stipple to widely spaced, deep conical holes to streamlined gouges. Three design patterns are present: (a) a series of connected inverted triangles pendent from the rims of constricted-mouth jars; (b) a similar pattern but with curved lines, giving a concave scalloped effect; and (c) stippled areas below jar rims surrounding unstippled areas delineated by an incised line.

Forms:

1. Open bowl with rounded bottom and scalloped design on the exterior below the rim (fig. 70, A). Rim diameter 12.5 cm.

2. Small, constricted-mouth jars with direct rims. Zoned stippled or punctated area below rims (fig. 70, B). Rim diameters 10 and 11 cm.

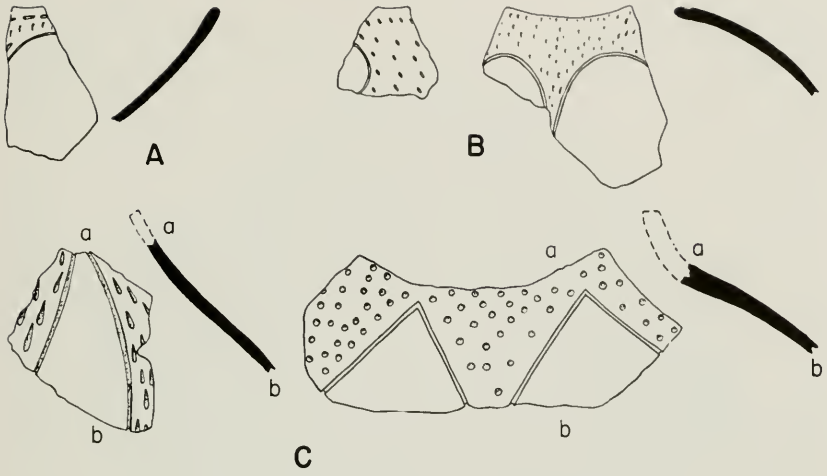

FIG. 70. Sherds and sherd profiles of Guañape Zoned Punctate; × 0.4.

3. Jars with constricted mouths and short, upturned necks (fig. 70, C). Mouth diameters about 12–14 cm. Zoned punctated areas on shoulder.

FABRIC IMPRESSED SHERD

A single sherd with fabric impression was found at V-272C, Level 6. It has a Guañape Black Plain paste. The fragment appears to be from a jar shoulder. The outer surface is ornamented with parallel rows of impressions. Junius Bird kindly examined a plasticine impression of this sherd, which he compared with casts of twined baskets of *junco*, a kind of sedge (*Scripus* sp.) found at Huaca Prieta in Chicama at the lowest level of Cupisnique sherds and in Preceramic levels (Bird, 1948, fig. 9). He has no doubt that one of these twined baskets was pressed into the wet clay of the vessel from which this sherd came.

ANCÓN ZONED PUNCTATE

Four sherds of this type were collected, three with the paste of Guañape Black Plain and one with that of Guañape Red Plain. The exterior surfaces are polished, a characteristic that serves to distinguish this type from Guañape Zoned Punctate. The only designs present in this small sample are areas of circular or linear punctates bordered by incised lines. In two cases these areas are triangles. The single rim sherd is from a small, black, constricted-mouth jar with direct rim (fig. 71, A). The mouth diameter is 12.5 cm. An inverted, incised triangle filled with linear punctations is pendent from the rim.

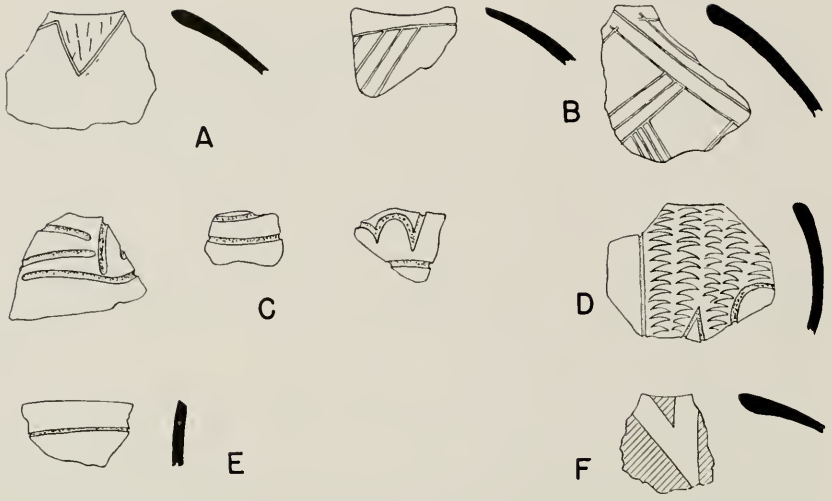

FIG. 71. Sherds and sherd profiles. A, Ancón Zoned Punctate; B, Ancón Fine-line Incised; C, Ancón Broad-line Incised; D, Ancón Rocker Stamped; E, Ancón Engraved; F, Guañape White-on-Red. × 0.4.

ANCÓN FINE-LINE INCISED

We found 36 sherds of this type, of which 21 have the paste of Guañape Red Plain and 15 that of Guañape Black Plain. The exterior surfaces are smoothed but unpolished, with the exception of four sherds with slight polishing. The fine incised lines forming geometric patterns were made with a sharp instrument when the clay was wet. The designs seem to be confined to the area between shoulder and rim on small to medium-sized constricted-mouth jars with direct rim (two rim sherds, mouth diameters 15 cm.; fig. 71, B) or short, upturned rim (one rim sherd, lip missing). The following patterns are found in my sample: parallel lines; converging lines; parallel zigzag lines forming contiguous chevrons or herringbone; cross-hatching; and single straight lines, some of which may have formed part of more complex patterns. Two red sherds have, in addition to incising, a rough brushed surface, which might be classed as Ancón Brushed. They have a slight amount of polish.

ANCÓN BROAD-LINE INCISED

This type is similar in paste texture, hardness, and polishing to Ancón Polished Black. Color ranges from black to red-brown. The decoration consists of broad, round-bottomed incisions made when the clay was partially hardened (leather hard). After incising, the surface was polished to a high gloss. The polish was applied to the outside of jars and all sur-

FIG. 72. Rim sherd from Ancón Rocker Stamped bowl (see fig. 71, D); × 1.5.

faces of bowls. Of the three sherds in the sample (fig. 71, C) two are body sherds from jars or bottles and one is from the wall of a small, open bowl.

ANCÓN ROCKER STAMPED

This type, which is represented by only one sherd in the collection, is Ancón Broad-line Incised with the addition of rocker stamping. The example, from V-272C, Level 5, is the rim sherd from an open bowl with a mouth diameter of 15 cm. (figs. 71, D, and 72). The black surface is polished to a high gloss inside and out. The design, which is on the outside, consists of broad-line incising, which sets off areas of plain polish from an area of fine dentate, rocker stamping. The stamped area forms the background of the design. The nature of the design is not clear but the fragmentary plain polished areas that constitute the design form a circular figure, a triangle, and a vertical panel. The rocker stamping is in vertical bands about 1 cm. wide running from the rim downward. Each impression of the

rocker tool is arcked sharply downward. The fine dentate impressions run about 16 per centimeter. Experimentation on hard plasticine with several improvised tools, including toothed wheels of various diameters and shells, has convinced me that this rocker stamping was made with a toothed implement having curvature in two planes. Such a tool might have been manufactured out of shell or bone. More likely, the stamping was performed with the edge of the small, ribbed shell of a bivalve, such as a cockle, a scallop (pecten), or an arc, all of which occur on the coast of Peru. The cockle shell is most likely, as its ribs are smaller and closer together. The shell must have come from an immature specimen because the mature shells of these species are too large to serve for this particular example of rocker stamping. The incising and stamping were carried out when the clay was partially dry (leather hard) but the polishing was not done until the pot was thoroughly dry (none of the fine dentate impressions is obscured by the polishing).

Relationships of Type:

Dentate rocker stamping, used generally as a background treatment, is found on Chavín period ceramics from the following localities:

1. Chicama; Cupisnique and Cupisnique Transitorio (Larco Hoyle, 1941, figs. 113, 209, and heading on p. 175; 1945b, p. 9, lower right).
2. Ancón and Supe; Early Ancón and Early Supe (Willey and Corbett, 1954, pp. 43–44; Carrión, 1948, pl. XXV).
3. Chavín de Huántar; Chavín period (Carrión, 1948, fig. 6).
4. Pallka, Casma Valley; Chavín period (Tello, 1943, pl. XV, *b*).

ANCÓN ENGRAVED

A single sherd of this type was found at V-272C, Level 5. It is a rim sherd from a straight-sided bowl 15 cm. in diameter (fig. 71, E), with the paste, color, and polish (inside and out) of Guañape Polished Red. A fine, horizontal line has been engraved on the outside 1.5 cm. below the rim, after the bowl was fired. Strong's Ancón Engraved sherds fall in the brown-black color range. Since engraving on a polished surface is the diagnostic characteristic here, I believe it is preferable not to place my engraved sherd in a new type. It may be regarded as a later variant of the engraved black ware, made during Late Guañape when red pottery was becoming dominant.

GUAÑAPE WHITE-ON-RED

This new type is based on a single rim sherd from Level 8 at V-302A. A pottery type based on one sherd is of dubious validity, but I have decided to give this sherd a type name in order to emphasize its significance. The paste of the sherd in terms of color (brown with thin dark

core), texture, and temper (sand containing angular quartz grains) is typically Guañape in character. The dark red exterior appears to be slipped and is polished. If white-painted decoration had not been present, I should have classified the sherd as Guañape Polished Red. It comes from a small, constricted-mouth jar with direct rim, a mouth diameter of 10 cm., and rounded or rounded-conical bottom. This form is found also in Puerto Moorin White-on-Red (Strong's Form 7; Strong and Evans, 1952, pp. 297–298, fig. 55). A white chevron with point down is pendent from the rim (fig. 71, F). This sherd comes from a Late Guañape context and may be assigned to the transition between Guañape and Puerto Moorin. It is the earliest evidence of the use of white paint on ceramics in Virú, and may represent the first experimentation in Virú leading to the development of Puerto Moorin White-on-Red in the following period. The occasional use of white paint between incised lines during the Cupisnique Transitorio phase in Chicama is reported by Larco Hoyle (1948, p. 19), and a white-slipped pottery occurred in the latter part of the Early Ancón–Supe period on the Central Coast (Willey and Corbett, 1954, p. 51). These three occurrences foreshadow the white-painted ceramics of the succeeding White-on-Red horizon. It is improbable that white-on-red painting was invented in Virú. Whether this took place in Chicama, on the Central Coast, or even in the Highland, remains to be determined.

UNCLASSIFIED SHERDS

This category includes all sherds that could not be placed in any of the recognized pottery types of Virú or elsewhere. The number of sherds per level in this category generally runs less than 2 per cent. The higher percentages (2–6 per cent) shown for some of the levels in Appendix I reflect only in part actual classificatory difficulties. During the preliminary classification in the field all decorated sherds not readily recognizable were held unclassified. These included all of the Tomaval period decorated wares, which were not broken into types until later. The final classification of this lot did not take place until the collection reached Chicago, at which time some of the sherds were missing, in part as a result of breaking and grinding in transit; on others the field numbers had been obliterated. These mishaps resulted from bad packing after the collection had been inspected in Lima. These missing and numberless sherds, most of which could have been classified under other circumstances, were left in the unclassified lot in the final sherd counts.

A few of the unclassified sherds can be identified or associated with known types but have not been so designated in the sherd frequency tables.

1. Inca Associated.

(a) Two polished sherds with fine-textured white paste, from V-171C, Level 2 (Estero period). One is ear-shaped and may have been attached to the neck of a vessel. The other appears to be a portion of the flattened upper shoulder of a jar. It is painted with a breaking wave design in dark red (purplish-black) bordered by narrow light red and dark red (purplish-black) bands. Larco Hoyle (1948, p. 53) has found vessels with white paste (kaolin) dating from the Inca period in Chicama Valley also.

(b) Three thin-walled sherds with hard, fine-grained, grayish-red paste, from the fill at V-124A (Estero period). These have a thick, well-polished layer of white paint on the entire outer surface. Two of these are from tall cups with convex walls (rims not present) and flat bases, and the third is from the flattened base or flattened upper shoulder of a jar. The fine paste, thick white paint, and high polish of these sherds sets them apart from Las Lomas Cream.

(c) A sherd from V-171B, Level 2 (Estero period), is probably from a jar shoulder. It has a fine-textured, hard, grayish-red paste. The outer surface is covered with a dark red slip on which is painted a white design consisting of an angular figure and white discs. The surface has a dull, even polish. The paste of this sherd is similar to that of some of my Inca sherds, but I can make nothing of the design.

(d) A fragment from the flattened base of a thin-walled jar came from V-171B, Level 2 (Estero period). It has a paste similar to the sherds listed under Class *b* above, and a well-polished, light orange outer surface.

(e) A thick sherd with coarse, reddish paste from V-171C, Level 3, is the neck fragment of a large, flaring-neck jar. The outside has a dark red slip, and a white band encircles the base of the neck. This appears to be from a local imitation of an Inca aryballos.

2. Chancay Black-on-White.

Two sherds with white slip and reddish-black painted designs on the exterior are from V-124A and V-171C, Level 1. They are unlike any Virú type but fit perfectly into Chancay Black-on-White. I was able to compare them with a large series from Chancay in the collections of Chicago Natural History Museum. Their association with Inca sherds in the refuse places them in the Inca period in Virú, which falls at the late end of the time range of the type at Chancay. Apparently at least two Chancay pots reached Virú during the Inca occupation.

Appendix III

Animal Bones from Refuse of the Late Epoch

	V-108A	V-305B Levels				V-171A Levels			V-171B Levels				V-171C Levels			Total
		1	3	4	5	1	2	6	1	3	4	6	1	2	3	
Lama glama (llama)	7	..	..	3	..	..	..	3	2	2	..	..	4	2	..	23
Dog or fox	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Family Delphinidae (dolphin)	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	2
Spheniscus humboldti (Humboldt's penguin)	..	..	..	..	..	3	..	..	1	..	..	1	..	..	..	5
Sula sp. *S. variegata*(?) (booby)	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Phalacrocorax sp. *P. bougainvilii*(?) (cormorant)*	2	1	1	..	1	1	2	2	2	..	1	..	..	..	1	14
Nectomys squamipes (water rat)†	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1

Identifications by Philip Hershkovitz, Associate Curator, Division of Mammals, and Dorothy B. Foss, formerly Osteologist, Department of Zoology.

* Nine of these were femurs; evidently the people of the Late Epoch were addicted to cormorant drumsticks.

† Skull of the large, web-footed, riverine (river bank) rat, whose primary range is in the tropical forest. This constitutes the first record of this species from the Peruvian coast, but the skull may have been transported to Virú by man.

Appendix IV

Plant Remains of the La Plata Period

The following cultivated plants came from the refuse at V-108A. They were identified by Dr. Hugh C. Cutler, formerly Curator of Economic Botany.

3 small cobs of 10-rowed corn and 4 small cobs of 8-rowed corn; both of these are similar to the Andean corn race called Uchukilla.

1 small, very slender, long, flexible, 8-rowed cob, which had small, probably isodiametric grains; more similar to the types now grown on the eastern slopes of the Andes than western slope types.

2 seeds of soursop (*Anona muricata*).

3 pod fragments of sword bean (*Canavalia ensiformis*).

3 squash stems, probably *Cucurbita moschata*, but possibly *C. ficifolia*.

Appendix V

A Classification of Willey's Burial Pots from V-142

Willey (1947) did not classify by pottery type his collection of Tomaval grave vessels from V-142. I have based the following classification on his published descriptions and illustrations, and on his photographs. I have not examined the collection. I submitted the list to Willey and he agreed to my identifications with one exception (personal communication, 1952). He objected to placing the polished red stirrup-spout vessel in Chimu style from Grave 2 (no. 213-9; Willey, 1947, fig. 1,*f*) in the type Gloria Polished Plain, since this type was established to cover the plain, polished red pots of the Gallinazo and Huancaco periods. Application of the name to the rare red vessels in Chimu style from the late Tomaval, La Plata, and Estero periods leads to an emphasis on the survival of the polished red ware tradition but ignores the shift in style. I agree, and feel that the few polished red sherds in my refuse from the late Tomaval, La Plata, and Estero periods (fig. 47 and Appendix I) probably should not have been classed as Gloria Polished Plain.

	Field Cat. No.	Type Name
Grave 1	211-1	Tomaval Plain
Grave 2	213-1	San Juan Molded
	213-2, 213-3, 213-4	Queneto Polished Plain
	213-5, 213-6	Tomaval Plain
	213-7	Queneto Polished Plain
	213-8	Gloria Polished Plain(?)
Grave 3	428-1	Rubia Plain
	428-2, 429	Tomaval Plain
Grave 4	430	Corral Incised(?)
Grave 5	431	Tomaval Plain
Grave 6	217-1	Tomaval Plain
	217-2	Corral Incised
	217-3	Tomaval Plain
	217-4	Corral Incised
Grave 7	218-1	Queneto Polished Plain
	218-2	Tomaval Plain
	218-3	Rubia Plain

	Field Cat. No.	Type Name
Grave 8	219-1	Calunga Red and Black-on-White
	219-2	San Nicolas Molded
	219-3	Calunga Red and Black-on-White
Grave 9	220	Tomaval Plain
Grave 10	432	San Nicolas Molded
Grave 11	433	Estero Plain
Grave 12	437-1	San Nicolas Molded

SUMMARY

	Number	Percentage
Queneto Polished Plain	5	18
Tomaval Plain	10	36
Estero Plain	1	4
Rubia Plain	2	7
San Juan Molded	1	4
San Nicolas Molded	3	11
Corral Incised	3	11
Calunga R and B/W	2	7
Gloria Polished Plain(?)	1	4
Total	28	102

Bibliography

Bennett, Wendell C.

1939. Archaeology of the North Coast of Peru. An account of exploration and excavation in Virú and Lambayeque valleys. Anthropological Papers, American Museum of Natural History, vol. 37, pt. 1.

1944. The north highlands of Peru. Excavations in the Callejon de Huaylas and at Chavín de Huántar. Anthropological Papers, American Museum of Natural History, vol. 39, pt. 1.

1946. The archeology of the central Andes. Handbook of South American Indians, vol. 2, pp. 61–147. Bureau of American Ethnology, Bulletin 143.

1948. A reappraisal of Peruvian archaeology. W. C. Bennett, Editor. American Antiquity, vol. 13, no. 4, pt. 2 (Memoir no. 4).

1950. The Gallinazo group, Virú Valley, Peru. Yale University Publications in Anthropology, no. 43.

Bennett, Wendell C., and Bird, Junius B.

1949. Andean culture history. American Museum of Natural History, Handbook no. 15.

Bird, Junius B.

1948. Preceramic cultures in Chicama and Virú. American Antiquity, vol. 13, no. 4, pt. 2, pp. 21–28 (Memoir no. 4).

1951. South American radiocarbon dates. American Antiquity, vol. 17, no. 1, pt. 2, pp. 37–49.

Brew, John Otis

1946. Archaeology of Alkali Ridge, southeastern Utah. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, vol. 21.

Carrion Cachot, Rebeca

1948. La cultura Chavín. Dos nuevas colonias: Kuntur Wasi y Ancón. Revista del Museo Nacional de Antropología y Arqueología, vol. 2, no. 1, pp. 99–172. Lima.

Dibgy, Adrian

1948. Radiographic examination of Peruvian pottery techniques. Actes du XXVIII[e] Congrès International des Américanistes, pp. 605–608. Paris.

1951. The technical development of whistling vases in Peru. *In* The civilizations of ancient America (Selected Papers of the XXIXth International Congress of Americanists), pp. 252–257. Chicago.

Ford, James A.

1949. Cultural dating of prehistoric sites in Virú Valley, Peru. Anthropological Papers, American Museum of Natural History, vol. 43, pt. 1, pp. 29–87. (See Ford and Willey, 1949a.)

Ford, James A., and Willey, Gordon R.

1949a. Surface survey of the Virú Valley, Peru. Anthropological Papers, American Museum of Natural History, vol. 43, pt. 1.

1949b. Virú Valley: background and problems. Anthropological Papers, American Museum of Natural History, vol. 43, pt. 1, pp. 13–28. (See Ford and Willey, 1949a.)

Foster, George M.

1948. Some implications of modern Mexican mold-made pottery. Southwestern Journal of Anthropology, vol. 4, pp. 356–370.

Garcia, P.

1921. Observaciones Hidrológicas, 1911–1920. Cuerpo de Ingenieros de Minas del Peru, Boletín 102. Lima.

Gayton, A. H.

1927. The Uhle collections from Nievería. University of California Publications in American Archaeology and Ethnology, vol. 21, no. 8.

Holmberg, Allan R.

1950. Virú: remnant of an exalted people. *In* Patterns of modern living, pp. 367–416. The Delphian Society, Chicago.

1952. The wells that failed: an attempt to establish a stable water supply in the Virú Valley, Peru. *In* Human problems in technological change. E. H. Spicer, Editor. pp. 113–123. Russell Sage Foundation, New York.

Kosok, Paul

1942. The role of irrigation in ancient Peru. Proceedings of the Eighth American Scientific Congress, vol. 2, pp. 169–178. Washington, D.C.

Krieger, Alex D.

1944. The typological concept. American Antiquity, vol. 9, pp. 271–288.

Kroeber, A. L.

1925a. The Uhle pottery collections from Moche. University of California Publications in American Archaeology and Ethnology, vol. 21, no. 5.

1925b. The Uhle pottery collections from Supe. University of California Publications in American Archaeology and Ethnology, vol. 21, no. 6.

1926. Archaeological explorations in Peru. Part I: Ancient pottery from Trujillo. Field Museum of Natural History, Anthropological Memoirs, vol. 2, pt. 1.

1930. Archaeological explorations in Peru. Part II: The northern coast. Field Museum of Natural History, Anthropological Memoirs, vol. 2, pt. 2.

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

Kroeber, A. L., and Gayton, A. H.

1927. The Uhle pottery collections from Nazca. University of California Publications in American Archaeology and Ethnology, vol. 24, no. 1.

Kroeber, A. L., and Muelle, J. C.

1942. Cerámica paleteada de Lambayeque. Revista del Museo Nacional, vol. 11, pp. 1–24. Lima.

Kubler, George

1948. Towards absolute time: guano archaeology. American Antiquity, vol. 13, no. 4, pt. 2, pp. 29–52.

Kulp, J. Lawrence, Lansing, E. T., Eckelman, W. R., and Snell, W. A.

1952. Lamont natural radiocarbon measurements, II. Science, vol. 116, pp. 409–414.

Larco Hoyle, Rafael

1938–39. Los Mochicas. 2 vols. Lima.

1941. Los Cupisniques. Lima.

1944. Cultura Salinar. Buenos Aires.

1945a. La cultura Virú. Buenos Aires.

1945b. Los Cupisniques. Buenos Aires.

1945c. Los Mochicas. Buenos Aires.

1948. Cronología arqueológica del norte del Peru. Buenos Aires.

Libby, Willard F.

1952. Radiocarbon dating. Chicago.

Lothrop, S. K.

1948. Pariñas-Chira archaeology: a preliminary report. American Antiquity, vol. 13, no. 4, pt. 2, pp. 53–65 (Memoir no. 4).

Nuñez del Prado, Oscar

1950. Aspecto económico de Virú: una comunidad de la costa norte del Peru. Revista Universitaria, Universidad Nacional del Cuzco, vol. 39, pp. 76–150.

Phillips, Philip, Ford, James A., and Griffin, James B.

1951. An archaeological survey in the lower Mississippi alluvial valley, 1940–1947. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, vol. 25.

Rowe, John H.

1944. An introduction to the archaeology of Cuzco. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, vol. 27, no. 2.

1945. Absolute chronology in the Andean area. American Antiquity, vol. 10, no. 3, pp. 265–284.

1946. Inca culture at the time of the Spanish conquest. Handbook of South American Indians, vol. 2, pp. 183–330. Bureau of American Ethnology, Bulletin 143.

1948. The kingdom of Chimor. Acta Americana, vol. 6, pp. 26–59. Mexico, D.F.

Rowe, John H., Collier, Donald, and Willey, Gordon R.

1950. Reconnaissance notes on the site of Huari, near Ayacucho, Peru. American Antiquity, vol. 16, no. 2, pp. 120–137.

Schaedel, Richard P.

1951. Major ceremonial and population centers in northern Peru. *In* The civilizations of ancient America (Selected Papers of the XXIXth International Congress of Americanists), pp. 232–243. Chicago.

Schmidt, Max

1929. Kunst und Kultur von Peru. Berlin.

Strong, William Duncan

1947. Finding the tomb of a warrior god. National Geographic Magazine, vol. 91, pp. 453–482.

1948. Cultural epochs and refuse stratigraphy in Peruvian archaeology. American Antiquity, vol. 13, no. 4, pt. 2, pp. 93–102 (Memoir no. 4).

Strong, William Duncan, and Evans, Clifford, Jr.

1952. Cultural stratigraphy in the Virú Valley, northern Peru: the Formative and florescent epochs. Columbia Studies in Archeology and Ethnology, vol. 4. New York.

Taylor, Walter W.

1948. A study of archeology. American Anthropologist, vol. 50, no. 3, pt. 2 (Memoir no. 69).

Tello, Julio C.

1940. Origen y desarollo de las civilizaciones prehistóricas andinas. Proceedings of the XXVIIth International Congress of Americanists, vol. 1, pp. 589–720. Lima.

1943. Discovery of the Chavín culture in Peru. American Antiquity, vol. 9, pp. 135–160.

Tschopik, Harry, Jr.

1946. The Aymara. Handbook of South American Indians, vol. 2, pp. 501–573. Bureau of American Ethnology, Bulletin 143.

Uhle, Max

1902. Types of culture in Peru. American Anthropologist, vol. 4, pp. 95–117.

1913. Die Ruinen von Moche. Journal de la Société des Américanistes de Paris, vol. 10, pp. 95–117. Paris.

1924. Explorations at Chincha. University of California Publications in American Archaeology and Ethnology, vol. 21, no. 2.

1925. Report on explorations at Supe. *Appendix to* The Uhle pottery collections from Supe, by A. L. Kroeber. University of California Publications in American Archaeology and Ethnology, vol. 21, no. 6, pp. 257–263.

Vargas Ugarte, Ruben

1936. La fecha de la fundación de Trujillo. Revista Histórica, vol. 10, no. 2, pp. 229–239. Lima.

Willey, Gordon R.

1943. Excavations in the Chancay Valley. Columbia Studies in Archeology and Ethnology, vol. 1, no. 3. New York.

1946a. The Chiclín Conference for Peruvian archaeology. American Antiquity, vol. 12, pp. 132–134.

1946b. The Virú Valley program in northern Peru. Acta Americana, vol. 4, no. 4, pp. 224–238. Mexico, D.F.

1947. A Middle Period cemetery in the Virú Valley, northern Peru. Journal of the Washington Academy of Sciences, vol. 37, no. 2, pp. 41–47.

1948. A functional analysis of "horizon styles" in Peruvian archaeology. American Antiquity, vol. 13, no. 4, pt. 2, pp. 8–15 (Memoir no. 4).

1951a. The Chavín problem: a review and critique. Southwestern Journal of Anthropology, vol. 7, pp. 103–144.

1951b. Peruvian settlement and socio-economic patterns. *In* The civilizations of ancient America (Selected Papers of the XXIXth International Congress of Americanists), pp. 195–200. Chicago.

1953. Prehistoric settlement patterns in the Virú Valley, Peru. Bureau of American Ethnology, Bulletin. 155.

Willey, Gordon R., and Corbett, John M.

1954. Early Ancón and Early Supe culture: Chavín horizon sites of the central Peruvian coast. Columbia Studies in Archeology and Ethnology, vol. 3. New York.

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