

ANTHROPOLOGICAL PAPERS
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY

VOLUME XXXV, PART IV

EXCAVATIONS IN BOLIVIA

BY W. C. BENNETT



BY ORDER OF THE TRUSTEES
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY
NEW YORK CITY
1936

EXCAVATIONS IN BOLIVIA

BY W. C. BENNETT

PREFACE

From December, 1933, until September, 1934, the American Museum of Natural History conducted an archaeological expedition in Bolivia, financed by the Voss Fund. This expedition was led by the author who was accompanied by Junius Bird, as assistant, for the first five months. The 1934 trip represented a continuation of the Bolivian archaeological survey begun in 1932, the report of which is published under the title *Excavations at Tiahuanaco*.¹

Due to the Bolivian-Paraguayan conflict the expedition was naturally delayed in obtaining permits for excavation and travel in the country. Furthermore, complications resulting from the times delayed the shipping of the study collections accumulated from the excavations, so that only the analysis of materials which was completed in the field is included in this report. In spite of such difficulties, however, the expedition found it possible to complete excavations at a number of important new sites, the description and analysis of which are here included.

The month of January was devoted to excavations around the town of Cochabamba, east of the Andes Mountains, and geographically part of the Bolivian Lowlands. The test pits were made in a Decadent Tiahuanaco mound site at Tiquipaya. Pits were excavated in two mounds under the town of Colcapirhua, revealing a painted pottery with Incaic affinities superimposed on deep, double urn burials, perhaps of Guaraní origin. A series of twelve trenches was excavated in a cemetery hill near the town of Arani. This resulted in the discovery of many graves of Tiahuanaco type. The analysis of grave material suggested a three period division into Arani I, II, and III. Minor excavations in this Arani region produced meager results, and a trip to the town of Vacas to examine reported sites was profitless.

Returning to the Highlands, two days were devoted to excavating Llogheta, a Tiahuanaco mound site within the limits of the La Paz township. Then followed a trip to the southern Lake Titicaca region. On this survey trip the Islands of Pariti, Paco, Quehuaya, Cumana, Inkja, and Siquiya were visited. Sites and ruins were noted and photographed on these islands and some were selected for more thorough investigation.

Several days were devoted to making a plan of the temple of Pajchiri on the Island of Cumana. This was of particular interest as the type of stonework was definitely of Tiahuanaco style. Later, two weeks were

¹*This Series*, vol. 34, part 3, 1934.

spent in excavating eighteen test pits around this site, with disappointing results. The only pottery discovered was Incaic. However, Inca houses and sites in the region were clearly of a more recent period than the temple. We were forced to discontinue work at this site without confirming the Tiahuanaco origin of the temple by the discovery of Tiahuanaco artifacts.

Three days were spent in examining the extensive Incaic village on the Island of Quehuaya and the Incaic bridge which connects Cumana Island with the mainland. No excavating was done at these sites.

We spent five weeks at the artificial mound at Chiripa, on the edge of Lake Titicaca, near the Peninsula of Taraco. Our excavations consisted in cutting a trench from the edge to the center of this large mound and in making many supplementary pits in the vicinity. We also cleared off the foundations of two houses, the corners of which we encountered in digging the trench. This work resulted in the identification of a new house type, associated with a new culture which we named "Chiripa." By an elaborate cross-section analysis of our trench cut we were able to demonstrate that this Chiripa culture was stratigraphically below a Decadent Tiahuanaco culture. The latter was represented by intrusive graves with Decadent Tiahuanaco ceramics, a semi-subterranean, stone-faced temple on top of the mound and a stone facing around the mound. The association of this temple with Decadent Tiahuanaco, as well as the stratification represented in the mound, was important.

Two weeks of excavating on the Island of Pariti revealed a further distribution of the new Chiripa type culture. Furthermore, one refuse layer of Chiripa type overlay a Classic Tiahuanaco grave, thus placing Chiripa in the Highland Bolivian sequence as post-Classic, pre-Decadent Tiahuanaco. Further evidence of the distribution of Classic and Decadent Tiahuanaco material was revealed by the Pariti excavations.

The temple of Chocupercas, on the shore of Lake Titicaca, at the southern border of Copacabana Peninsula was visited and photographed, but no excavations were carried on.

Finally, six weeks were spent in excavating a temple site at a hill called Lucurmata, on the edge of Lake Titicaca. This was another temple site of Classic Tiahuanaco type, confirmed by associated ceramics and artifacts. A small temple of semi-subterranean type and a long stone facing wall were the principal features revealed by excavation.

Many pits were made around this region in addition to the extensive temple excavation.

The variety of the sites examined necessitated several types of excavation technique. The Arani site was explored with long trenches, enlarged to uncover graves as they were encountered. The material is analyzed by graves. At all other sites, whether test pits, trenches or house or temple areas were being excavated, sherd material was segregated by half meter depth levels. Grave material was treated separately at all sites. At the Chiripa mound particular emphasis was placed on the cross-section and finds were related to the cross-section strata. Material is identified with the initials of the site and the number of the pit or trench. Grave material is indicated by capital letters added to site and trench designations. A list of sites and their designations follows:—

Site	Designation
Tiquipaya	CO-1, CO-2 (from Cochabamba)
Colecapirhua	CO-3, CO-4 (from Cochabamba)
Arani	AR-1 to AR-12, inclusive
Chiripa	CH-1 to CH-12, inclusive
Chiripa houses	CH-H1, CH-H2
Lucurmata	LU-A to LU-L, inclusive
Pariti	PA-1 to PA-6, inclusive
Pajehiri	CU-1 to CU-18, inclusive (from Cumana)
Llogheta	LP- (from La Paz)

As an example of the grave designation, AR-6B, would be the second grave (B) of Trench 6, at Arani; CH-H2G would be the seventh grave (G) of House 2, at Chiripa.

The 1934 excavations in Bolivia cover two regions, namely, the Lowlands and the Highlands. Consequently, the report has been divided into two parts, devoted to Lowlands and Highlands, respectively. Since the Lowlands is but little known archaeologically, I have devoted the concluding section of the first part to a review of the literature and archaeological work in this region, including the work of this expedition. In the Highlands the contribution of this expedition lies in adding to the information published in the first report on Tiahuanaco. Thus, while further extensions of both Classic and Decadent Tiahuanaco periods are indicated and a new type culture which fits into the Highland sequence has been discovered, there seems no necessity for repeating all the distributions and conclusions to the Tiahuanaco report. Consequently, the concluding section of the Highland division of this report is a résumé of the new results in the Highland excavations.

It is not possible to list the names of everyone who has assisted this expedition in Bolivia. The late Honorable Daniel Salamanca, President of the Republic of Bolivia, offered the greatest assistance and friendship. The American Minister, Mr. Fay Allen Desportes, the legation secretary, Mr. Robert Fernald, and the American Consul, Mr. John Shillock, furnished council and aid. The directress of the National Museum, Sra. M. L. Sanchez y Bustamente de Urioste offered excellent cooperation. My thanks are due to the Señores Felix Salvatierra, Ambrocio Viganó, Pablo Pacheco, and Abel Iturralde for permission to work on their properties. The hospitality of Mr. Victor Wallin was deeply appreciated. Last, but not least, I wish to express my sincerest thanks to my devoted and capable Bolivian assistant, Sr. Moises Álvarez.

W. C. BENNETT.

November 25, 1935.

CONTENTS

	PAGE.
PREFACE	331
EXCAVATIONS IN THE BOLIVIAN LOWLANDS IN THE COCHA-	
BAMBA SECTION	341
ARANI	341
TRENCH 1	343
TRENCH 2	343
TRENCH 3	346
TRENCH 4	346
TRENCH 5	347
TRENCH 6	347
TRENCH 7	347
TRENCH 8	348
TRENCH 9	348
TRENCH 10	349
TRENCH 11	349
TRENCH 12	350
THE COLLECTION	350
ARANI I	353
The Typical Arani Group	353
Additions to the Typical Arani I	355
Burials with Large Ollas	356
ARANI II	358
ARANI III	360
Transition Group	361
Recent Graves	362
TIQUIPAYA	362
THE COLLECTION	365
CONCLUSION	366
COLCAPIRHUA	366
MOUND 1	366
MOUND 2	369
The Collection	373
LOWLAND BOLIVIA	375
COCHABAMBA SECTION	378
THE ARANI SITE	378
Arani I	378
Arani II	379
Arani III	379
COCHABAMBA	381
Tiquipaya	381
Colcapirhua	381
Illuri	385
Sipsisipi	386
MIZQUE SECTION	387
MIZQUE-TIAHUANACO	387

	PAGE.
Mizque Plain Incised Ware	388
Inca Fortresses	389
CHUQUISACA SECTION	389
PARAPITI AND PILCOMAYO RIVERS	390
CULPINA	390
INCA FORTRESSES	390
TARIJA SECTION	391
TARUPAYU	391
TOLOMOSA	391
SANTA CRUZ SECTION (SARÁ)	392
RIO PALACIOS	393
GUAYABAS	393
INCA CONSTRUCTIONS	394
MOJOS SECTION	394
MOUND VELARDE, LOWER	395
MOUND VELARDE, UPPER	396
MOUND HERNMARCK	397
MOUND MASICITO	398
BENI SECTION	399
COVENDO	399
CHIMAY	399
BUTURO	400
RURRENABAQUE	401
LOWLAND BOLIVIAN PERIODS	401
EARLY PERIODS	402
Derived Tiahuanaco	402
Mizque-Tiahuanaco	403
Early Arawak	404
MIDDLE PERIODS	404
Decadent Tiahuanaco	405
Late Arawak	405
Incised Wares	406
Guaraní	407
LATE PERIODS	408
La Paya-Inca	408
Inca	410
RÉSUMÉ	411
EXCAVATIONS IN THE BOLIVIAN HIGHLANDS IN THE SOUTHERN LAKE TITICACA SECTION	413
CHIRIPA	413
THE MOUND	413
THE TEMPLE	415
THE FACING WALL	418
THE HOUSES	420
CROSS-SECTION ANALYSIS	426
BURIALS	431
THE COLLECTIONS	436

	PAGE.
Decadent Tiahuanaco	436
The Chiripa Culture	438
The Pottery	439
Non-Ceramic Artifacts	443
POSITION OF CHIRIPA TYPE	445
PARITI	446
THE COLLECTION	449
The Chiripa Material	449
The Classic Tiahuanaco	451
The Decadent Tiahuanaco	455
The Inca Material	456
SUMMARY	456
PAJCHIRI	456
LUCURMATA	467
SITE	467
THE HILL TOP	468
THE SMALL TEMPLE, SECTION A	471
TERRACE WALL, SECTION B	481
SECTION C	485
FURTHER EXCAVATION	487
SECTION D	488
SECTION E	489
SECTION F	489
SECTION G	489
SECTION H	490
SECTION I	490
SECTION J	490
SECTION K	491
SECTION L	492
THE COLLECTION	492
STATUES NEAR LUCURMATA	493
LLOGHETA	494
THE COLLECTION	495
CONCLUSIONS	497
CLASSIC TIAHUANACO	497
DERIVED TIAHUANACO.	501
CHIRIPA	502
DECADENT TIAHUANACO	503
CHRONOLOGICAL RÉSUMÉ	505
WORKS CONSULTED	506

LIST OF ILLUSTRATIONS

TEXT FIGURES

	PAGE.
1. Plan of Principal Trenches and Graves at Arani	342
2. Covering Stones for AR-2A, Arani	344
3. Large Bowl <i>in situ</i> from AR-2C, Arani	345

	PAGE.
4. View of Hollow Tomb, AR-7A, Arani	348
5. Groundplan of Tiquipaya Mound showing Location of Excavated Pits	363
6. U-shaped Urn from CO-3, Colcapirhua	367
7. Globular Urn and Small Bowl from CO-3C, Colcapirhua	367
8. Large U-shaped Urns, <i>in situ</i> , from CO-3D,E, Colcapirhua.	368
9. Outline of Colcapirhua Mound 2 showing Location of Excavated Pits	370
10. Plan and Cross-Section of Trench CO-4, Colcapirhua, with Location of Finds	372
11. Map of the Lowland Bolivian Regions showing Archaeological Sections	<i>opposite</i> 375
12. Inca-Influenced Ware from Lowland Bolivia	384
13. Map of the Southern Half of Lake Titicaca (<i>After Raimondi</i>)	414
14. Groundplan of Chiripa Mound showing Excavated Trenches, Houses, Temple, and Facing Wall	<i>opposite</i> 415
15. Upright Stone, West Wall of Temple, Chiripa	416
16. West Facing Wall of Chiripa Temple showing Large Upright Stones	417
17. Top and Side View of Trench along North Facing Wall of Chiripa Mound	419
18. View of Houses 2 and 1, Chiripa	421
19. Plan of House 1, Chiripa	422
20. Detail of Storage Bin and Window Niche, House 1, Chiripa	423
21. General View of House 2, Chiripa	425
22. Floor Plan of House 2, Chiripa.	427
23. Arrangement of Graves under the Floor of House 2, Chiripa	428
24. Cross-Section of the West Wall of the Long Trench at Chiripa Mound showing Relation of Temple, House, Facing Wall, and Lower Mound Strata	<i>opposite</i> 430
25. North Wall of House 1, Chiripa, showing Intrusive Graves	434
26. Decadent Tiahuanaco Ceramics from Chiripa	437
27. Painted Pottery of Chiripa Type	440
28. Painted and Modeled Ware, Chiripa Type	442
29. Chiripa Type Bone Work from Chiripa	444
30. Gold Objects and Incised Bone Tubes of Classic Tiahuanaco Type, from Pariti	450
31. Classic Tiahuanaco Gold Cup, Pacheco Collection, Pariti	451
32. Groundplan of Pajchiri Temple showing Actual Remains and Indications of Original Temple Plans and Excavated Trenches	<i>opposite</i> 457
33. Steps of Pajchiri Temple	459
34. Side View of Steps of Pajchiri Temple	459
35. Top, Side, and Perspective View of Steps, Unit A, Pajchiri Temple	460
36. Groundplan of Lucurmata Temple, showing Excavated Sections, Terrace Facing Wall, and Small Temple	<i>opposite</i> 469
37. Plan of Small Temple, Section A, Lucurmata	471
38. General View of Small Temple, Lucurmata	472
39. Top and Side View of the Canal on the Northeast Corner of the Small Temple, Lucurmata	473
40. Inside Gateway Stones, Small Temple, Lucurmata	474
41. Detail of South Gate Stone, Lucurmata	475

	PAGE.
42. Detail of Four Sides of the South Gateway Stone of the Small Temple, Lucurmata	476
43. Detail of South Wall, Small Temple, Lucurmata	479
44. Cornerstone with Decorative Niche, Small Temple, Lucurmata	479
45. View of Facing Wall, Section B, Lucurmata	482
46. Stones of Section C, Lucurmata	486
47. Rough Stone Wall, Section C, Lucurmata	486
48. Temple Wall at Chocupercas, Copacabana	499

EXCAVATIONS IN THE BOLIVIAN LOWLANDS IN THE COCHABAMBA SECTION

ARANI

About four kilometers west of the pueblo of Arani is a hill called *chullpa-orco* and noted for its burials. The hill is separated from the higher mountains behind and is surrounded by cultivated land. The Cochabamba River valley spreads out to the north. To the east and south is some badland wash country, but the greater part of the surrounding country is under cultivation. In shape, the hill is elongated, with a higher and a lower knoll. The higher part once served as a fortress and Inca style double-faced stone defense walls are still traceable. Foundations of house sites are still observable around the upper knoll and along the saddle-shaped ridge to the lower knoll. Most of the burials are on and around the lower knoll, as the innumerable pits of the treasure seekers demonstrate. Because of surface boulders this section has not been used for agriculture. Fragments of many types of pottery cover the ground here, but they cannot be properly classed as surface sherds because of the extent of previous excavation.

In spite of the number of graves in this hill there is considerable evidence indicating that it was once a residential section. Aside from the house foundations on the surface, excavation reveals thick ash beds in many places twenty to thirty centimeters below the ground surface. Stone walls are found too. Grindstones, stone axes, and bone tools, as well as many sherds of broken cooking vessels, are found in the ground surrounding the graves. A meter to a meter and half of disturbed material is found almost anywhere around the lower knoll and in one pit the undisturbed area was at 1.80 meters below the present surface. Excavation also reveals partially stone-lined circular pits, which contain ash, bones, and sherds, but no burials. These may be classed as refuse, cooking, or storage pits (or even rain traps), but in any case they have habitation rather than burial significance.

We excavated twelve trenches in this hill site (Fig. 1). Eight of them, and by far the most extensive trenches, were on the upper part of the lower knoll (AR-1, 2, 3, 6, 7, 9, 10, 11). Two trenches were half way between the knolls, near some Inca house foundations (AR-4, 5). Finally, two were dug on the higher knoll (AR-8, 12). Since we were trying primarily to locate graves, our technique consisted of digging long narrow trenches and expanding these wherever any indication of a grave

appeared. The pottery found has been numbered according to trench and grave or find, trenches being numbers and graves or finds capital letters. Thus AR-2E, means Arani site, Trench 2, Grave or Find E. A description of the graves, without detailed reference to classification of materials, follows.

TRENCH 1

This trench (AR-1) was started in the highest part of the lower knoll. During our preliminary visit to the site two Indians dug out three graves in a pit roughly 2 by 1 meter. Our Trench 1 continued from this, 4 by 2 meters, north to south. For convenience, we have included with this trench the material from the first three graves discovered. The undisturbed layer was something over 1.50 meters at this point.

AR-1A. A rough stone-covered, bark-lined grave, 0.80 by 1.00 meter in size, running east to west, and 1 to 1.50 meters deep. It contained two skeletons in bad condition and four bowls.

AR-1B. A bark-lined burial with some ash, 30 to 50 centimeters deep and partially over grave AR-1A. The grave contained one flexed skeleton with head to the south, and two bowls, one with a wooden spoon.

AR-1C. A stone-covered grave at 1.10 meters deep, with one skeleton and three bowls.

AR-1D. (non-burial). Under a 50 by 30 centimeter flat stone 60 centimeters below the surface was found a cooking olla, upside down and with broken base, beside which were a broken kero-shaped vessel and a broken flaring cup.

AR-1E (non-burial). Two broken kero-shaped vessels were found at 1.10 meter depth.

AR-1F (non-burial). An upright, two horizontal, and another upright stone started a wall which continued to the southwest, utilizing small rocks and then four more larger ones laid in a line. On the west side of this wall at 1.25 meters depth we found two bowls without burial association.

AR-1G (non-burial). A base of a cooking olla and a broken kero-shaped cup were found at 1.20 meters depth under a large flat stone 25 by 50 centimeters.

TRENCH 2

Trench 2 was an extension of Trench 1 for 7.50 meters to the south, but at a width of only 1.20 meters. At the south end a section two meters long was cut one meter into the east wall to uncover a grave.

AR-2A. A hollow stone cyst, bark-lined tomb was 1.00 meter long and 70 centimeters wide and deep, with the floor 1.85 meters from the ground surface. The tomb extended north to south and was stone-lined and covered (Fig. 2). Across the grave, from east to west, was laid one large stone. Then small stones were laid from the sides of the hole onto this long one and still smaller stones were used to fill cracks.

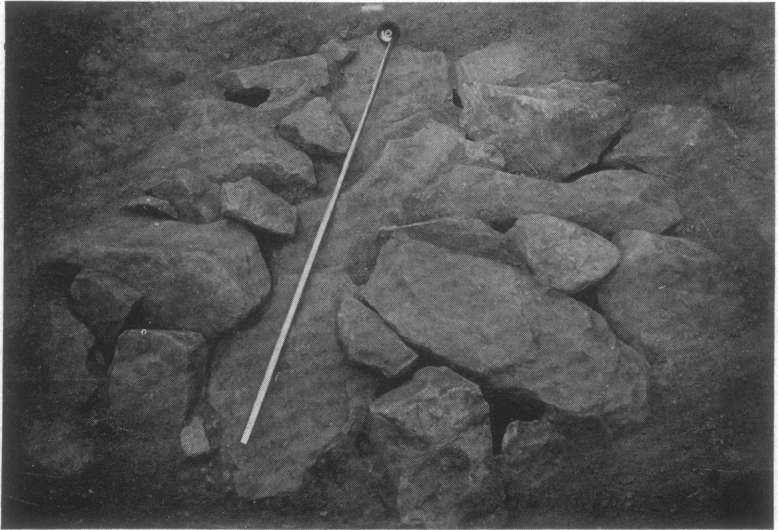


Fig. 2. Covering Stones for AR-2A, Arani.

The stone covering extended in a rough circle 1.30 meters long and 1.10 meters wide; the top of the covering was 95 centimeters from the ground surface. The whole was covered with a yellow earth like the undisturbed soil. The tomb contained one flexed adult skeleton lying with head north. A niche in the north corner contained three bowls, while two others were on the east side.

AR-2B (non-burial). A cooking olla with broken rim was found at 1.30 meters depth and in a pocket under it, at 1.80 meters, was a grooved stone ax.

AR-2C. A partially hollow stone cyst, bark-lined tomb was 45 centimeters in diameter and 97 centimeters below the ground surface. Two long stones covered the grave opening and a fill of smaller stones formed a covering area 50 by 60 centimeters. Within the cyst was a

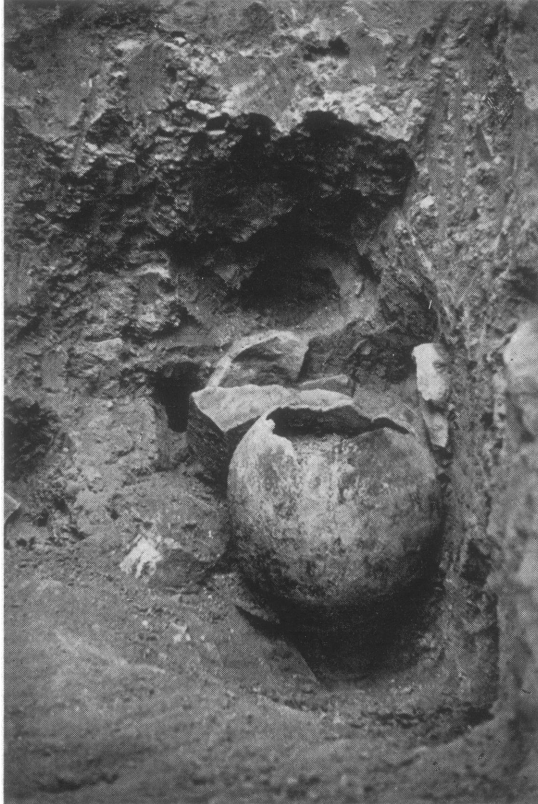


Fig. 3. Large Bowl *in situ* from AR-2C, Arani.

large olla (42 centimeters high, 35 centimeters in diameter) containing the remains of food (Fig. 3). Two bowls lay on the west side of the olla. On the south side was a flat stone, under which was the twisted skeleton of a young child. Only the bark grave lining separated this burial from the finds in the next unit, AR-2D. The skeleton was at a depth of 1.30 meters below the surface.

AR-2D (non-burial?). Just south of AR-2C, on the same level, was a large cooking olla, mouth down. A big stone which extended into the trench had caved in one side of the olla. It is possible that AR-2C and AR-2D formed one burial as only the child's skeleton was found and that between the two finds. One small vase was inside the olla and five others were outside, although the position may have been disturbed.

AR-2E. A grave about 1.00 meter in diameter was uncovered under two long stones, at 1.40 to 1.60 meters depth. A cross-section at this point showed a 15 centimeter layer of ash, 20 centimeters below the surface, then clay to 1.25 meters, stones to 1.40 meters, the grave to 1.60 meters surrounded by a white and yellow clay and some ash. An adult, flexed skeleton was in each half of the grave, the one to the north had the head west and the one to the south had the head east. Each skeleton was wrapped with bark and accompanied by five bowls.

AR-2F (non-burial?). Two bowls were found under three stones at 1.50 meters depth. This may have been part of AR-2G.

AR-2G. Under a stone, a bark-lined grave was found, 1.00 by 1.30 meters in size and 1.60 to 2 meters deep. The bark lining is the only thing that separates this grave from AR-2F. Three adult skulls, one child's jaw, and many bones, indicated flexed skeletons, lying east to west. A total of sixteen bowls was found.

AR-2H. A stone-covered bark-lined grave was 95 by 70 centimeters in size and 1.80 to 1.95 meters deep. No traces of bones were found, but there were four bowls.

TRENCH 3

Trench 3 was cut at right angles to Trench 2, to the west. It was 5 by 1.20 meters. Considerable ash and some sherds were found and a bone point (antler tip) was discovered at 80 centimeters depth. The undisturbed layer was reached at 1.60 meters.

AR-3A. A stone-covered bark-lined grave 1.60 to 2.00 meters deep contained a skeleton and four bowls.

TRENCH 4

Trench 4 was made near some house sites along the ridge, halfway

up the hill to the higher knoll, and definitely out of the lower cemetery area. A section about 1.20 meters square was cut for a test.

AR-4A. In the west half, at 80 centimeters depth, a burial with two bowls was found under several large stones. Undisturbed earth was found generally at 85 centimeters.

TRENCH 5

A trench north of Trench 4 was in the same area. A hollow tomb-like structure, covered and lined with stones, was found at the west end of a 1.20 meter square cut. The hollow cyst was 70 by 40 centimeters and 50 centimeters deep, the top part being 30 centimeters below the ground surface. Two small bowls were found, but no evidence of burial.

TRENCH 6

Trench 6 in the lower knoll cemetery section measured 5.50 by 1.20 meters and was a continuation of Trench 2 to the south.

AR-6A. Under two long stones at 1.45 meters depth was a grave, 60 centimeters wide and 2.00 meters long, and about 1.60 to 1.80 meters below the ground surface. The grave was bark-lined and contained at least one skeleton, in decayed condition, and ten bowls.

AR-6B. A stone-covered bark-lined grave at 1.20 meters depth contained a barely discernible skeleton and six bowls.

AR-6C. A bark-lined grave, one meter in diameter, 1.60 to 1.70 meters deep, contained one rotted skeleton and four bowls.

AR-6D. A grave under an intrusive rubbish heap of ash, at 1.50 meters depth, contained a skeleton, one bowl, and an antler tip point.

AR-6E. At the south end of the trench was an ash pit, about one meter in diameter, which extended to 2.50 meters depth. A ring stone was found at 1.50 meters depth in this.

TRENCH 7

A trench 6.5 by 1.20 meters, north and south, was 3.50 meters west of Trench 6 and parallel to it. At its south end undisturbed earth was reached at 1.20 meters.

AR-7A. A stone-covered hollow cyst (Fig. 4). The tomb was 55 centimeters by 1.05 meters in size and 50 centimeters in depth, the top stone being 70 centimeters below the ground surface. The tomb was bark-lined, covered with seven large stones, but not faced with stones. The

grave contained at least one skeleton, flexed, lying on its side. Two large broken ollas were found, one containing fragments of plain loose weave cloth. Four smaller bowls were around the tomb.

AR-7B (non-burial?). A cluster of four bowls and a long rocking grindstone were uncovered at 1.10 meters depth, but without any trace of a skeleton.

AR-7C. An ash bed or pit, about one meter in diameter, extended from 1.65 to 1.95 meters depth. A hand grindstone and several fragments of pottery came from this pit.



Fig. 4. View of Hollow Tomb, AR-7A, Arani.

TRENCH 8

A trench at the top of the upper knoll was discontinued after a small stone-covered tomb, containing bones and two vases, was encountered at one meter depth.

TRENCH 9

A trench, 13 by 1.00 meters, was excavated east to west outward from the south corner of Trench 2. In general, undisturbed soil was encountered about one meter below the surface.

AR-9A. A hollow stone cyst. The tomb was 1.00 meter by 60 centimeters and 80 centimeters in depth. The top stones were 45 centimeters below the surface, the base of the grave was 1.42 meters below

the surface. Three upright stones were at the eastern end of the tomb, but otherwise it was not stone-lined. Three well split stones covered the grave. The tomb contained two flexed skeletons, facing each other, with heads to west. No bowls were in the cyst. However, outside the cyst, and perpendicular to it, was a grave 1.10 meters long and 50 to 60 centimeters wide, containing a skeleton, a copper breast piece, and six bowls. The floor of this section was 1.30 meters below the ground surface. It is doubtful whether the two graves are related, especially since it appears that the cyst cut through the other grave, breaking some of the bowls.

AR-9B. Under two long stones resting on a third was a rectangular bark-lined grave 98 by 50 centimeters, running north to south, and in total 1.50 meters below the ground surface. The grave contained one skeleton, with head to the south, and another with the skull to the north. Five bowls accompanied the burials.

AR-9C. Under a large stone was a grave at a depth of 90 centimeters containing bones and three bowls.

AR-9D. A pit about 1.10 meters in diameter extended to a depth of 1.60 meters, cutting into the undisturbed clay. The cross-section shows that the pit had not at first been used for fire, as all the ash beds are in the top section. The lower part of the pit may have been used at one time to catch rain water, as the undisturbed clay around it would have made a good reservoir. Parts of a kero-shaped goblet and a flaring-sided cup were found in the upper refuse.

TRENCH 10

A trench 1.00 by 8.00 meters, running north to south, was dug roughly west of and parallel to Trench 2. The pit was not completely excavated because of an invasion of local enthusiasts on the one Sunday we did not work. These invaders completed the trench for us, but without our knowledge.

AR-10A. A refuse pit, about 1.00 meter in diameter and from 1.10 to 1.80 meters deep was covered with a large flat stone and partially lined with small stones. It contained heavy blue ash, several potsherds, but no burial. Above this pit and its covering stone were found pieces of a kero-shaped cup with a projecting handle.

TRENCH 11

A trench 9.00 by 1.10 meters, east to west, was excavated perpendi-

cular to and east of Trench 2. The undisturbed area was reached generally at 1.10 meters.

AR-11A (non-burial?). A stone-covered bark-lined grave, 90 by 40 centimeters and 1.10 meters below the surface, contained a large cooking olla, with one jug inside and three bowls around it on the east side, but no trace of bones.

AR-11B. A stone-covered bark-lined grave was uncovered at 90 centimeters below the surface. At one end was a plain olla, surrounded and covered with stone, containing two small bowls. Four bowls accompanied the child's skeleton in the grave.

AR-11C. A stone-covered bark-lined grave, 1.00 by .70 meters in size and 1.30 to 1.60 meters deep, contained a skeleton and four bowls.

AR-11D (non-burial). An inverted olla, at 90 centimeters depth, was unaccompanied by burial or artifacts.

AR-11E. A stone-covered bark-lined burial, at 1.30 meters depth, contained a skeleton and five bowls. It is possible that the olla found in AR-11D may be associated with this.

AR-11F. A stone-covered bark-lined grave, 1.10 by .90 meters wide and 1.60 meters to the base, contained an adult and a child's skeleton, both flexed, with heads to south. Three bowls were found around the head.

TRENCH 12

A trench was excavated on the very top of the upper knoll, not far from Trench 8. One shallow grave, neither stone-covered nor bark-lined, was encountered, with one small bowl and a skeleton. The undisturbed stone is at 15 centimeters depth in most parts.

THE COLLECTION

Although the Arani hill had remains of dwelling sites and ash beds, very few stone, bone, or metal tools were found in the cemetery section. Graves and pits were encountered in the same trenches and layers of ash were everywhere, so that it is difficult to explain the absence of such artifacts.

The stone work is limited to a few specimens. A long rocking grindstone, of the type still used in Bolivia, was found at 1.10 meters with Find AR-7B. In the ash bed or pit, AR-7C, a hand grindstone was found at 1.65 meters. At 1.00 meter in Trench 6 was a grooved bola stone and in Pit AR-6E at 1.00 meter was a small whetstone, and a circular ring stone at 1.50 meters. A notched ax of the T-variety was found at a depth of 1.80 meters under Find AR-2B.

Three slightly polished antler tip points were found, one in association with Grave AR-3A, another near Grave AR-6D, and the third in Trench 1, at 1.50 meters depth. A deer metatarsal spatula was found on the surface. Grave AR-1B, a more recent one, had a short wooden spoon with one of the bowls.

The only piece of metal found was in association with Burial AR-9A. It is a thin piece of copper used as a breast ornament, 8 centimeters long, 4 centimeters wide, drilled near the top, and curved on the base edge like a knife.

Pottery was found in good quantities and furnishes the basis for the analysis of this site. Although already mentioned in the description of the individual graves, a quantitative summary of the pottery distribution is given in Table 1.

The Arani pottery, when viewed as a whole, forms a rather definite unit. Although certain pieces are of finer quality in shape, finish, variety of colors and design, they are associated with cruder pieces in the same grave. The Arani site is certainly related directly to the Tiahuanaco culture, as the subsequent detailed analysis of the pottery shows. In general, a lower and upper limit can be suggested for the Arani site. First, it has no Classic Tiahuanaco pottery. The one exception was a well-finished kero-shaped cup with a double row of running human figures, but this was found in the same grave with a common, S-design flaring cup (Shape E).¹ The typical bowl shapes of the Classic Tiahuanaco, such as the hollow base libation bowl (Shape B), the open flaring bowl (Shape C), or the flaring rim vase (Shape D), are not found. Shape A, the kero-type goblet, is common, but in variations not typical of Classic Tiahuanaco. The Classic Tiahuanaco designs, the full condor, puma, and human figure, are also absent. Thus, while certain suggestions of the Classic are seen in the finish and colors of some of the Arani pieces, it is still possible to state that the Classic Tiahuanaco does not occur as a distinct phase.

At the other extremity there is no material that is definitely Incaic; that is to say, the aryballoid, the animal-handled dish, the loop handles, and the geometric design pattern so characteristic of the Cuzco Incaic style do not occur in this collection. On the upper knoll of the hill are the remains of a fortress which seem to follow the Inca pattern of successive concentric encircling walls. However, it is not possible to associate the graves with the house and fortress remains. Some of the pottery is probably contemporaneous with the Inca period of the Cochabamba region, but the typical style is absent.

¹See *This Series*, vol. 34, 407, for shape designations at Tiahuanaco.

TABLE 1

POTTERY IN ARANI GRAVES

Grave	Bowls	Ollas	Broken	Site	Bowls	Broken
AR-1A	4			AR-s	6	1
1B	2			AR-6E		1
1C	3			AR-7C		1
1D		1	2	AR-9(A)		1
1E			2	AR-9D		2
1F	2			AR-10A	1	1
1G		1	1	Totals	7	7
AR-2A	5					
2B		1				
2C	2	1				
2D	6	1				
2E	10			Total number of graves and sites		41
2F	2			Total number of bowls		139
2G	16			Total number of cooking ollas		10
2H	4			Total number broken, incomplete bowls		12
AR-3A	4					
AR-4A	2					
AR-5A	2					
AR-6A	10					
6B	6					
6C	4					
6D	1					
AR-7A	4	2				
7B	4					
AR-8A	2					
AR-9A	6					
9B	5					
9C	3					
AR-11A	4	1				
11B	6	1				
11C	4					
11D		1				
11E	5					
11F	3					
AR-12A	1					
Totals	132	10	5			

In general again, the bulk of the collection might be considered contemporaneous or comparable to the Decadent Tiahuanaco phase. However, there are new shapes, designs, and applications on some of the Arani ware that distinguish it from the Highland Tiahuanaco Decadent period. The collection presents a variety of styles which modify the Decadent Tiahuanaco pattern and at the same time has samples of entirely new styles.

The collection has been treated on the basis of grave association, since there are forty-one graves or sites and about 151 vessels. The graves were divided into groups through the method of association and isolation of styles. This technique allotted the graves into three major groups, designated as Arani I, II, III, with transitional or sub-groups between divisions. In describing these groups here the most typical material is treated first and then the graves with related material. While this classification, with its implication of sequence, is not absolute, it seems to present the picture of developments within the Arani unit. The sporadic direct and indirect stratigraphy is utilized for what it is worth.

ARANI I

The Typical Arani Group. Examination of the grave contents permits a primary grouping of ten graves which have a number of characteristics in common. This group includes AR-2A, 2E, 2H, 6A, 6C, 7A, 9B, 11C, 11E, 11F. The distinguishing characteristics can best be summarized numerically:—

1. All are burials from 1 to 2 meters below the surface.
2. All are stone-covered graves. Four are made with well-laid stones and two are hollow tombs.
3. All are definitely associated with skeletal remains (with the exception of Find AR-2H) and four have multiple burials.
4. All graves are bark-lined.
5. All contain four or more bowls associated with the burial (excepting Grave AR-11F which has only three).
6. All contain three typical bowls, a kero-shaped goblet (Shape A)¹, an open flaring-sided cup (Shape E), and a small plain two-handled bowl. The remaining vessels may be other shapes or duplicates, but the three typical ones are always found.
7. All contain some pieces of well-made and painted pottery.
8. All vessels and designs are of recognizable Tiahuanaco style or variations of it, but no new styles are introduced in the associated finds.

¹*This Series*, vol. 34, 407.

The majority of the bowls in this group are painted ware, only fifteen out of fifty-four being plain orange bowls. The designs of the painted ware are, in part, similar to those of Decadent Tiahuanaco, but so many are carefully finished that the style in this case should be called Derived rather than Decadent. Well drawn puma and condor heads with a single wing extended from the back of the head are common designs. Human head designs are painted both in the Classic style and in the elongated Decadent style. As before stated, one complete, running human figure is found on one kero-shaped goblet. Of the thirty-nine painted vessels fourteen have zoomorphic or human designs, while the others have variations of geometric designs, of which the step and the single S are the commonest.

A summary of the color combinations used in this series of painted bowls shows a high percentage of polychrome ware, far above the figures for Decadent Tiahuanaco.

Color Combinations	Frequency	Percentage
Plain bowls	15	28
Painted bowls	39	72
One-color	3	8 of painted ware
Black-on-red, 2		
Black-on-orange, 1		
Two-color	16	41 of painted ware
Black, white-on-red, 6		
Black, white-on-orange, 7		
Black, white-on-brown, 1		
Black, yellow-on-red, 2		
Three-color	12	31 of painted ware
Black, white, yellow-on-red, 12		
Four-color	8	20 of painted ware
Black, white, yellow, gray-on-red, 4		
Black, white, yellow, gray-on-brown, 1		
Black, white, yellow, brown-on-red, 1		
Black, white, yellow, reddish brown-on-orange, 2		

There is really very little variation in shapes among the fifty-four bowls represented from these ten typical graves. Sixteen are variants of the kero-shape (A),¹ seventeen are flaring-sided cups (Shape E), fifteen are small plain bowls, and six are specials. Only one of the Shape A goblets is of the plain, flaring-sided type. In nine this plain side is modi-

¹*This Series*, vol. 34, 407.

fied by adding a bulging ridge around the vessel. Six have the bulging ridge about the middle of the vessel, two around the top, and one has a double bulging ridge around the middle. Four are of a new variety in which a profile of the sides presents a series of bulges from the rim to the base, thus losing the characteristic flare sides of the type vessel, but nevertheless still remaining in the goblet group. To my knowledge this variant does not occur at Tiahuanaco itself. All four examples at Arani are associated with this typical grave group. One kero-shaped variant has a low relief face at the base of the vessel, a style commonly found on Tiahuanaco vessels from the Island of Titicaca. Only one of the variants has the constricted base so typical of Cochabamba pottery. Even this is, in a way, more comparable to the bulging-sided substyle than it is to Cochabamba constricted base, as it bulges just above the cylindrical base, and ceases to look like a clay funnel. None of the variants associated with this group of graves are kero-like goblets with straight (non-flaring) sides, nor do any have a short handle projecting from the sides.

The Shape E¹ cups are of poorer quality and finish than the group just described. Twelve have the typical flaring sides (concave) and the remaining seven are of the straight-sided substyle. The small plain bowls are predominantly—thirteen out of fifteen—two-handled orange bowls. Two are variants with only one handle. Another small bowl of about the same shape is handleless, but painted with circles.

The five special shapes fall into two groups. Two of the bowls have hollow tube spouts projecting from the body of the vessel and connected to the rim by a short bridge. The remaining three are one-handled pitchers, with modeled birds adorning the handles.² These are well finished, polychrome pitchers, of the finest quality ware found at this site. One has a modeled human face opposite the handle. Only four such pitchers were found at Arani and the fourth should probably be included in this Arani I group, as it occurs in a closely related grave.

This group of ten graves, linked together by a series of common characteristics, forms a consistent picture in spite of the association of well-finished polychrome ware with much simpler styles and poorly finished vessels. Perhaps finer subdivisions are indicated, but the nature of the evidence does not permit too great elaboration.

Additions to the Typical Arani I. By analogy, five more graves may be classified with the select group of ten, although they do not have all the characteristics of the latter. These are Graves AR-7B, 3A, 6B, 2F,

¹*This Series*, vol. 34, 407.

²Cf. Tiahuanaco, Shape *r*, *This Series*, vol. 34, 407.

and 6D. All five are stone-covered graves from one to two meters deep and two are bark-lined. The first three have over four bowls, and the last two are disturbed burials, which may account for the absence of bowls. Four of these graves contain two out of the three characteristic pottery shapes. The association of well-made pieces of pottery and conformation to the derived Tiahuanaco style are additional reasons for their inclusion with the typical Arani I.

AR-7B has a kero-shaped goblet with a bulging ridge in the middle, an open flaring-sided cup, and a serpent handle pitcher; all three are decorated with step designs, the first two in black, white, yellow, gray-on-red, and the third in black, white, yellow-on-red. The typical small plain two-handled bowl is missing, but in its place is a large bowl, 30 centimeters high, of the same style. Grave AR-3A has all the characteristics, except that the ware is not as well finished as the typical group demands. The kero-shaped goblet with a central bulging ridge is decorated with a simple white band with a black outline. The flaring-sided cup has a double-S design and the other two vessels are plain. Grave AR-6B lacks the flaring-sided cup shape (Shape E), but has five small plain bowls and the kero-shape with a double bulging ridge around the middle, decorated with winged condor head.

The description of the excavations shows that Grave AR-2G has disturbed Find AR-2F, the latter being without skeletal remains and outside the bark lining of Grave 2G. Find AR-2F has a kero with a bulging ridge near the top, decorated with a step design in black, white, yellow, gray-on-red, and also a small, plain two-handled bowl. Thus, the grave appears to belong to the Arani I group. Consequently, Grave AR-2B with its sixteen bowls may be considered as more recent than Arani I graves.

Grave AR-6D, at 1.50 meters depth, had been disturbed from above by an intrusive rubbish bed. The one vessel in the grave was a flaring-sided cup with an S design. If it is included, because of analogy of position, with the Arani I group, the intrusive rubbish heap would be more recent.

Burials with Large Ollas. A number of graves and sites were characterized by large cooking ollas. These do not form a solidly knit group, but have certain common traits. In general, this group, in which nine sites are included, can be classed as another variant of the Arani I. Two of the finds, AR-2B and 11D, contained plain ollas, without burials or other artifacts. One, Grave AR-7A, with two ollas, has already been described because of its fine pottery as part of the Arani I group. Like-

wise one burial with an olla, Grave AR-11B, is described in a later group, because of the peculiarities of its pottery.

Finds AR-2C and 2D contained large ollas with several vessels grouped around, and one child's skeleton between the two. It is not possible to state with assurance that the two finds were really a single burial, especially as the latter was deeper and badly broken by intruding stones, while the former (AR-2C) was a neatly covered hollow tomb, at one meter depth. The find, AR-2C, contained only two vessels. One was a constricted base kero-shape goblet decorated in black, white, yellow-on-red, with three bands, the first, at the top, a row of front view faces, the second, in the middle, an interlocking design, and the third, at the bottom, a series of connected diamonds. The second vessel was a flaring-sided cup (Shape E)¹ with a llama design in black, white, yellow-on-red. It is interesting to note that in all the ten graves of the typical Arani I group, the only constricted base kero-shape occurred in Grave AR-7A, in association with two ollas. The other olla, Find AR-2D, had six vessels around it, one kero-shaped goblet with a double bulge and a winged condor head design; one flaring cup (Shape E) with a black flag and circle design on the inside; a straight-sided cup variant, with a rough leaf and circle design in black, white-on-red on both the inside and out; and three plain vessels, one small two-handled, another with no handles, and a third with a single handle projecting from the side of an open bowl.

Find AR-11A, found at 1 to 1.50 meters depth, is difficult to classify. It contained an olla and four bowls; one flaring-sided cup with step and circle design, two plain two-handled collared jugs, and one plain two-handled bowl.

Finds AR-1D and 1G contained ollas with parts of broken vessels near them. In each the olla was covered by a stone, in one case slightly less and in the other slightly more than a meter deep. Both were associated with the broken base of a kero-shaped goblet decorated with a connected diamond design. The vessels are crude and lack the fine finish of the Arani I group. The base of another crude kero was associated with Find AR-1D. Included here, by analogy, is Find AR-1E which contained only two broken kero-shaped goblets. One goblet has the connected diamond design, and the other has a design of two human heads. Although these non-burial olla finds with their associated broken goblets, adorned with connected diamond designs, do show uniformity,

¹*This Series*, vol. 34, 407.

there are, unfortunately, not enough of them nor enough new associations to establish a distinct grouping.

ARANI II

A group of six graves with thirty-eight associated vessels represents a style which, although related to the Arani I, is nonetheless distinctive and introduces new elements not present in the first group. These graves include AR-1A, 1C, 2G, 9A, 9C, and 11B. We find again that all these graves are over 1.00 meter deep, are stone-covered, and are associated with skeletons. Three are bark-lined and two contain multiple burials.

The pottery in this group bears similarities to the Arani I group in the persistence of some of the shapes, designs, and colors, although with modifications towards the more typical Tiahuanaco Decadent, and away from the "Derived." At the same time, variations in the old pottery shapes, as well as the introduction of new shapes and designs which are not in the Tiahuanaco tradition make the group distinctive.

The color combinations used are, on the whole, simpler than in the Arani I group. The summary table demonstrates this shift in emphasis and at the same time lists new color combinations which did not occur in the former group, notably purple and the use of red as a design rather than a base color.

Color Combinations	Frequency	Percentage
Plain Ware	17	45
Plain incised design, 1		
Painted Ware	21	55
One-color	10	48 of painted ware
Black-on-red, 6		
Black-on-orange, 4		
Two-color	4	19 of painted ware
Black, white-on-red, 3		
Black, white-on-orange, 1		
Three-color	7	33 of painted ware
Black, white, yellow-on-red, 4		
Black, white, purple-on-orange, 1		
Black, white, red-on-orange, 1		
Black, white, gray-on-purple, 1		

Utilizing the percentages for what they are worth in such small series, we note that four-color ware, which forms 20 per cent of the Arani I group, does not occur in Arani II. The plain ware represents 45 per cent

of the total in this group, and only 28 per cent in the previous one. The one-color ware is here 48 per cent, while in the Arani I it is a bare 8 per cent. The two-color ware is 41 per cent in the Arani I and only 19 per cent here. The three-color ware, which occurs in about the same percentage (31 and 33 per cent, respectively) includes special variants in the Arani II group.

The designs on the wares of this group include seven samples of zoomorphic figures, all of which differ from the Arani I group; One is a pattern based on the elaboration of a wing (condor type); two are birds similar to those which occur on Inca and Chullpa pottery in the Titicaca region; one is an elongated human head. The remaining three are hitherto unreported designs, one being the decoration on a modeled bird bowl, another a bat (?) with outspread wings, on a bowl of unusual shape, and the third a series of conventionalized animal and bird heads on a Shape D vase, but with the color combination of black, white, gray-on-purple. The fourteen geometric designs include five linear patterns on the inner rim of the vessel only; two perpendicular wavy line designs and one horizontal wavy; one S; one series of triangles; one circle and line; one interlocking bent line; one like branches of a tree; and one combination of angular scroll, triangles, and wavy lines. The winged condor and puma heads, the semi-realistic human head, the step design, and the connected diamonds which typified the Arani I are not found in this group, and the S is uncommon.

Eight vessels are variations of the kero-shaped goblet (Shape A).¹ One has a bulging ridge around the top and another has the ridge around the center. Two are of the constricted base type, but modified with a bulging ridge just above the constricted base. Three are of the straight (non-concave)-sided variety. One is a special variant in the form of a small bulging-sided goblet. Three of the bowls are open flaring-sided cups (Shape E), six are straight-sided variants of this shape, and one is a special variant with a bulging ridge about the middle, a shape which is associated with the Chullpa ware of the Highlands. Of the small plain vessels, four are of the two-handled type, two have no handles, four are types of one-handled pitchers, and two are special flat-bottomed, two-handled vases. One hollow base plain libation bowl (Shape B) of the Decadent Tiahuanaco type was found and two vases with flaring rims corresponding to the Tiahuanaco Shape D, although one has a special color design, and the other is not a typical Tiahuanaco design. One vessel has a hollow spout connected to the rim by a bridge. Four are

¹*This Series*, vol. 34, 407.

special shapes. One is a plain orange open bowl with straight sides and plain rim, with the rim diameter over twice that of the flat base and with two lug handles projecting from the sides. Another is the bird-shaped bowl, with the bird neck and head forming a hollow spout connected by a bridge to the rim, and a tail lug on the opposite side. Still a third is a small black ware vase with constricted collar, tripod lug feet, and two horizontal small loop handles. It is decorated with an incised serpent (?) figure. Finally, an open bowl with a flat base, convex sides and a narrow flaring rim, has two rim-to-body loop handles and is decorated with a special color bat design.

In other words, aside from the introduction of new styles in shape, design, and colors in this group, we find a general disintegration of the Arani I pattern. The color combinations are simpler, the designs are broken down completely, the shapes are typified by straight-sided varieties and further substyles which do not occur in the Arani I group. The general finish of the ware is poorer, and except for the introduced ware, does not compare either individually or collectively with the rather fine work of Arani I. While the burial style is still similar to the first group, the combination of three typical bowl shapes in a grave is no longer followed.

Stratigraphically, Grave AR-2G, of the Arani II group, probably disturbed Find AR-2F, classed as related to the Arani I group, but no further observations can be made on the relation of these two groups. However, Grave AR-1A, of the Arani II group, is stratigraphically below Grave AR-1B of Arani III (?), or at least a later group.⁴ Furthermore, Grave AR-9A of this group was disturbed by a hollow tomb burial which contained two skeletons, but no artifacts. Consequently, the chronological position of Arani II as posterior to Arani I is judged largely on stylistic grounds, while the evidence for a post-Arani II division is confirmed by stratigraphy.

ARANI III

On the basis of stratigraphic evidence, already mentioned, certain graves can be considered as posterior to Arani II. Other graves can also be classed as more recent than Arani II on the basis of style. While some of this material bears positive relations to the previous Arani groups, other graves contain material which seems definitely recent at the site, even approaching the Inca period. The evidence is not complete enough to justify too many subdivisions, and consequently all

post-Arani II material is called Arani III. In the description which follows the sub-groups are indicated by their arrangement.

Transition Group. A group of four sites, while not a part of Arani II, are certainly not earlier; neither can they be included with the most recent group. These are Finds AR-1B, 1F, 7C and 9A (special). Finds AR-1F and 7C both have straight perpendicular sided kero-shaped goblets with short flaring rims. The goblet found in the ash bed of AR-7C was at 1.65 meters depth. It is decorated in bands of black, white-on-purple; a fragment of a similar vessel nearby had the same colors in a step design border. The ash beds seem to be late intrusions, although it was hard to distinguish them completely until they cut into the relatively undisturbed yellow clay. However, this particular type of kero-shape suggests Inca influence. Find AR-1F is associated with Find AR-7C because of the type of kero-shaped goblet. This one has a zigzag design of white-on-red. It is associated with a flaring-sided cup with an S design in black, white-on-red. Both bowls were found at 1.25 meters depth beside an old wall of stones, without grave associations.

While the two finds just described might be included with Arani II, the next two are stratigraphically above it. Grave AR-1B extended from 30 to 50 centimeters below the surface and protruded over AR-1A, a grave of the Arani II group. It contained two bowls. One is a plain black straight-sided cup, crudely made. With this was a small wooden spoon. The other is a high-necked vase with two long rim to body handles. It is decorated in black, red-on-orange, with a design consisting of wavy and straight lines, and a pattern of angular scrolls (Fig 12e). The design style is closely comparable to that of the Colcapirhua mound where all of the painted pottery is of this style. Furthermore, sherds of this type are found in isolated sites around this same valley. This is the only sample of the style found at the Arani hill, but it seems definitely placed as chronologically more recent than the Tiahuanacoid styles of Arani I and Arani II. Its affinities to the La Paya-Inca style are discussed in the chapter on Lowland Bolivia.

The special find near Grave AR-9A was part of a tripod vessel. This was actually found above Grave AR-9A, but since it was incomplete and in no grave association it might be considered as disturbed by Burial AR-9A and consequently older. The fragments indicate a small open bowl with a plain rim and convex sides. Three legs of a bulging, solid type project from each point of the flat triangular base. Around the outside of the bowl is an interlocking step design in a dull brown and gray-on-plain yellow clay. Several pieces found on the surface around

this entire hill indicated tripod legs, but, aside from the small incised vase in Grave AR-1A, no tripod bowls were found in grave association, nor in any other part of the excavations.

Recent Graves. A final group of five sites appears to represent the most recent material at the Arani hill, partly because of their position in the excavations, and partly because of their characteristics. This group includes Finds AR-4A, 5A, 8A, 10A, and 12A.

AR-4A and 5A were excavated half way up the second or upper knoll, near house foundations just within the outer defense walls of the fortified hill. At Grave AR-4A a skeleton was found lying directly on the undisturbed clay at 80 centimeters depth, covered with two roughly placed stones, and accompanied by two vessels. The first is a kero-shaped goblet with a double bulging ridge around the center with a careless black-on-red design of crescents and stripes. The second is a straight-sided cup with a crude design in black-on-orange on the inner rim only. Find AR-5A, directly north of the other site, was a sort of hollow stone-covered tomb 30 centimeters below the surface, but without a burial. In the tomb were two plain bowls, a one-handed pitcher and a two-handed sugar-bowl type, both of orange clay, which suggests the Highland Chullpa ware.

Graves AR-8A and 12A were both located on the very top of the upper knoll. Grave AR-12A was a shallow burial on bed rock containing a small straight-sided cup, painted inside and out with a black, white-on-red bent band design. The other site (AR-8A) was a similar burial containing a plain orange cup (Shape E)¹ and a kero-shaped goblet with a projecting side handle. The goblet was broken and faded, but a geometric design could still be discerned in dull black, white-on-orange. By association, the kero-shaped goblet with a projecting side handle found above Pit AR-10A is included here. While it has a shape with convex sides, the handle is of the same style. The geometric painted design is outlined with black lines filled with a dirty white, all on a plain orange base. This was above the pit which itself seems intrusive and aids in establishing this as a late style.

TIQUIPAYA

Near the pueblo of Tiquipaya, six miles northwest of Cochabamba, is a low, extensive mound of the type called *moro* in Spanish. Its actual outline has been obscured by years of excavation and cultivation. Many mounds of similar appearance, formed by wash from the nearby

¹*This Series*, vol. 34, 407.

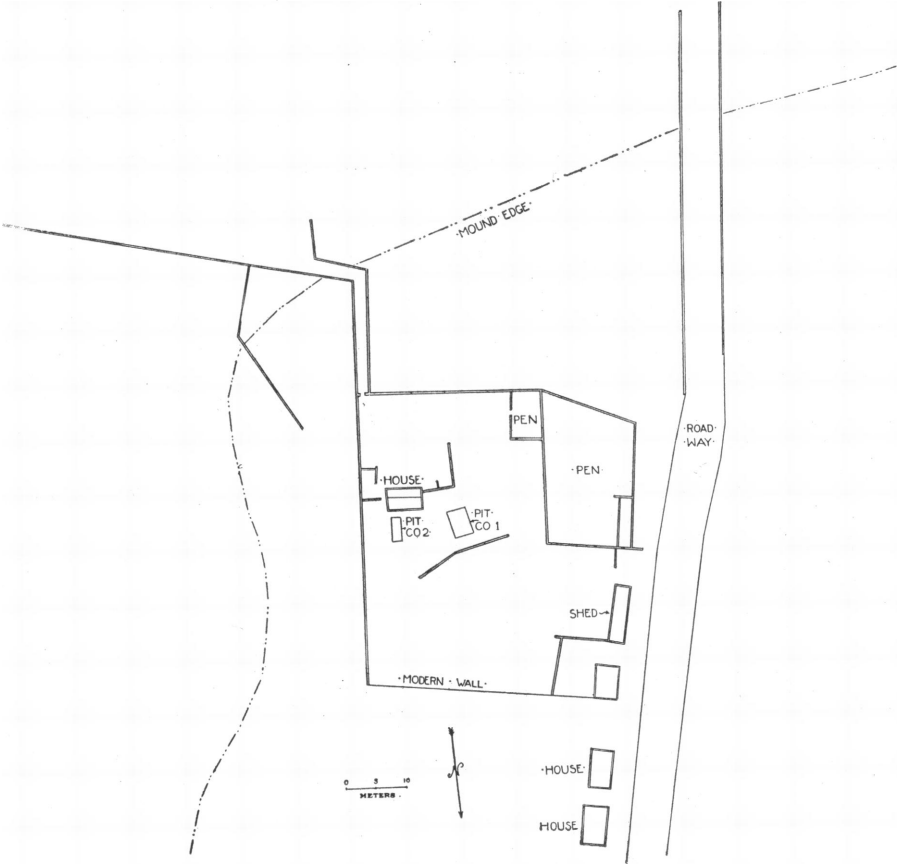


Fig. 5. Groundplan of Tiquipaya Mound showing Location of Excavated Pits.

hills during the heavy rain period, occur in the region, but a section along the side of the road which cuts through this mound and the excavation of two pits show that this accumulation is, at least, partially artificial. Furthermore, casual excavators have found skulls and bowls in the mound. The local name for this mound is Bruno-moco.

Our first pit (CO-1) was made in the highest part of the mound (Fig. 5). It measured 2.5 by 4 meters, the long side north to south. Though the whole pit was cleared to a one meter depth, the south half to three meters and the southeast quarter to 3.90 meters, undisturbed soil was not reached. A rough level calculation indicated that a depth of 5.5 meters might be reached before encountering the undisturbed base. The paucity of materials in the lower levels, added to the technical difficulties of pit excavation at great depths, made the prospect of further excavation appear unprofitable. No indication of stratification was found. The whole structure was an accumulation of clay with potsherds, animal bone, and worked stone. Large and small waterworn stones were mingled with the sherds.

Only one burial was found in this pit. This was in the third half meter, at a depth of 1.20 meters under four large rough stones. The bones were badly disintegrated, but the burial appeared to have been flexed, on the back, from east to west, with the head west. Near the burial, at the same depth, was a plain black two-handled cooking olla, upside down. Also, standing upright in the same half meter, at the north end of the pit, was a deep, handleless olla of plain gray ware, with a few animal bones inside.

The second pit (CO-2) was excavated a few meters east of the first in the same mound (Fig. 5). It measured 4 by 1.5 meters, north to south, and was excavated to a depth of 2.5 meters without striking undisturbed earth. Within a few centimeters of the surface we encountered a painted, one-handled vase and also a deep, two-handled cooking olla in an upright position. In the third half meter was a thick ash bed with considerable charcoal and sherds. At two meters a thick layer of crude sherds looked like a stratum of washed material.

The total composition of the mound seems to be of wash clay, dirt, and habitation accumulation. The burials are no doubt intrusive, although the fine clay wash has erased all traces. The wash layers of sherds observed both in the pits and in the road cut, suggest that the mound had various surface levels in the past, but there is not enough pottery change to establish a series.

THE COLLECTION

Although considerable pottery has been taken out of this mound by local excavators, we found only one painted bowl in the second pit (CO-2) at ten centimeters depth. It is a one-handled pitcher type, with globular body and flat base, with a Decadent head design in black, white, yellow-on-red. This pitcher, together with the type of sherds found, indicated that the whole accumulation dates with the Decadent Tiahuanaco period in the Cochabamba region. Pottery of Tiahuanaco type in local collections is said to have come from this mound, but the localities of finds are not too reliable. The sherd analysis was not completed in the field and since the Bolivian Government still holds the collection, no further details can be given at this time.

In both pits the plain sherds show the greatest concentration between two and three meters depth. The sherds from the lower levels are mostly plain thick orange fragments. In the upper levels not only was there more variety of colors, including reds and browns, but some plain polished wares were found. The majority of the painted sherds came from the upper levels. Except for the modern glaze ware in the first half meter, no stratigraphy of types was noted. Two plain ollas have two flat loop rim to body handles and are roughly globular in shape, over 30 centimeters high and 25 centimeters in diameter. The third olla is without handles. Around the edge of the mound, especially in the road cut, large U-shaped plain orange burial urns could be seen.

In the second pit only two stone artifacts were found, both at the surface (two to three centimeters deep), a piece of a grooved stone ax and a broken *batan* or grindstone (metate type). The first pit contained more stone work. On the surface was a piece of a thin cylindrical ring stone. In the first half meter was a 19 centimeter long grooved ax, with the groove completely encircling it; a slightly grooved stone 8.5 centimeters long; a piece of a flat drilled ax resembling the celt type; and a part of a rectangular stone, possibly a polisher. The second half meter contained a complete flat drilled celt-like ax, 6.5 centimeters long, 4 centimeters thick at the base, and with a curved cutting edge; part of a grooved ax or hammer; and a flat oval-shaped drilled ring stone. The third half meter contained only a part of a questionably worked rectangular tool 9 centimeters long. The fourth half meter contained a flat grinding stone, and a small carefully made labret 1.45 centimeters long, .4 centimeters in diameter in the shaft, with the mushroom end .7 centimeters in diameter, decorated with grooves. In the fifth half

meter was a plain hand grindstone (*mano*) 17.5 centimeters long, 7.5 centimeters wide, and 6 centimeters thick, and a large metate or *batan* 55 centimeters long and 29 centimeters wide. The sixth half meter contained a piece of a thick cylindrical drilled ring stone; a plain cylindrical stone plug; and a slightly worked stone 11.5 centimeters long. The only bone artifact was a pointed bone tool, 7.5 centimeters long, found in the second half meter of the first pit.

CONCLUSION

Until the collections of sherds can be examined more thoroughly no more can be said about this site than to record it as a Tiahuanaco type dwelling section and burial hill. The evidence indicates that the mound effect is due to an accumulation of wash and habitation material rather than to artificial construction. The discussion of Lowland Bolivian distribution will evaluate the material from this site (p. 381).

COLCAPIRHUA

MOUND 1

Six miles due west of Cochabamba is the pueblo of Colcapirhua which is built over at least two large *moros*. These mounds, if completely artificial, as our pit excavations suggest, must have accumulated through continuous habitation, since there is no high land in the vicinity from which material could be washed. Since one mound is at least a thousand feet long and four hundred feet wide and the other is even larger, the selection of a site for a test pit was somewhat arbitrary. For the first pit (CO-3), we chose a site south of the present cemetery hill on the eastern edge of the town. The pit was 4 by 1.5 meters, east to west. It was entirely excavated to two meters depth and then the east half was extended to three meters in order to remove a nest of four burial urns (Fig. 6). A cross-section of the south side, at two meters depth, showed a layer of burnt clay at one meter, a layer of stone at 1.30 meters, and a layer of pebbles from 1.45 to 1.50 meters. Otherwise, the clay composition was unvaried.

Two intrusive direct burials and five double urn burials were uncovered in this pit, indicating that such burials could be found almost anywhere in the mound. The first intrusive burial (CO-3A) dipped from ten centimeters to one meter in the southwest corner of the pit. It contained the rotted skeleton of a young child, unaccompanied by



Fig. 6. U-shaped Urn from CO-3, Colcapirhua.



Fig. 7. Globular Urn and Small Bowl from CO-3C, Colcapirhua.

artifacts. Under this, at 1.80 meters depth, was a 40 by 60 centimeter pocket containing a flexed adult burial with head south (CO-3B) and a copper needle.

At the center of the north side of the pit, 1.53 to 1.83 meters depth, was a large bulging globular urn with rim missing, covered by a shallow plain bowl (CO-3C, Fig. 7). The urn contained the bones of a young child. At the west side of the urn was a small round-bottomed plain orange ware bowl. Further east of this burial, still on the north side of the pit, was a cluster of four double urn burials (CO-3D, E, F, G).

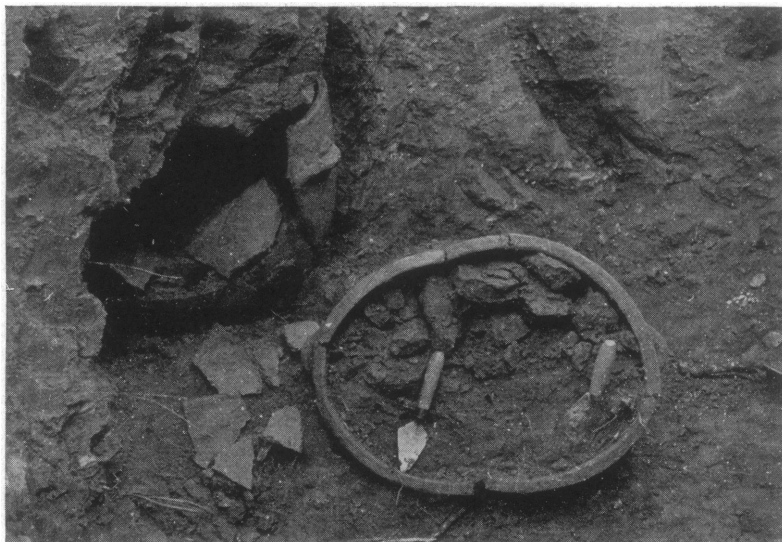


Fig. 8. Large U-shaped Urns, *in situ*, from CO-3D, E, Colcapirhua.

They were in contact with each other, although three sets were upright and one slanting and they ranged in position from 1.60 to 2.90 meters in depth below the ground surface. The slanting set (CO-3D) consisted of two U-shaped, thick orange, convex-sided bowls, with flat bases, plain open rims, and two horizontal loop side handles (Fig. 8). The bottom urn was 56 centimeters in rim diameter and 38 centimeters from rim to base. The covering urn was slightly larger so that the base fitted into it. This set was practically on its side at a depth of 1.90 meters. Powdered bones were found inside. The upright set (CO-3E) was virtually the same as the one just described, with the top of the covering urn 1.60

meters below the surface (Fig. 8). Below this set was another (CO-3F), in which the bones of an adult skeleton were fairly well preserved. Its base was 2.90 meters below the surface. The last set (CO-3G) had a U-shaped covering urn, but the base was a bulging globular urn like the one in CO-3C. The set was on the same level as CO-3E and contained, aside from the usual rotten bones, a small round-bottomed bowl with a single horizontal side handle and two projecting rim lugs above it.

MOUND 2

In the long mound beneath the present town of Colcapirhua we dug another pit (CO-4). This mound is distinct from the one in which we dug the previous pit (CO-3). It is oval in outline, approximately 300 meters long, 125 meters wide, and three to five meters high (Fig. 9). A main street of the town runs north and south along its axis and the small houses on each side have gardens which extend out to its borders. The edge has been cut back to level the land for farming or to obtain clay for adobe bricks. Five burials were seen around the edge-cut of this mound, all within one meter of the surface. In three of these, the bodies had been placed upright in sitting position. The other two were badly disturbed. One burial was accompanied by a large plain olla, about 50 centimeters high, and two small open bowls, one with a black stripe around the inner rim. The latter was the only painted piece seen around the edge-cut, although in some places plain orange and red sherds were found at three meters depth.

Our pit (Fig. 10) was roughly at the center of the east side of the mound. It was excavated in two adjoining sections, the first 4 by 2 meters, north to south, and the second extending 2.5 meters to the north. The south end of the first section had a typical cross-section:—

0-35 cm.	dirt humus
35-60 cm.	mixed dirt and clay
60-1.50 m.	solid clay with very few sherds (especially 1 to 1.50 meters)
1.50-1.60 m.	ashy layer, with burnt clay layer at 1.60 meters
1.60-2.50 m.	mixed clay and sherds (layer of large urn burials)
2.50-2.65 m.	black old humus type soil without artifacts
2.65-2.90 m.	yellow undisturbed clay

Section 1 was excavated to undisturbed soil, but Section 2 was only carried to 1.50 meters depth.

The seven burials in Section 1 and the two in Section 2 (Fig. 10) can best be described directly: CO-4A to CO-4G were in the first section, CO-4H and I, in the second.

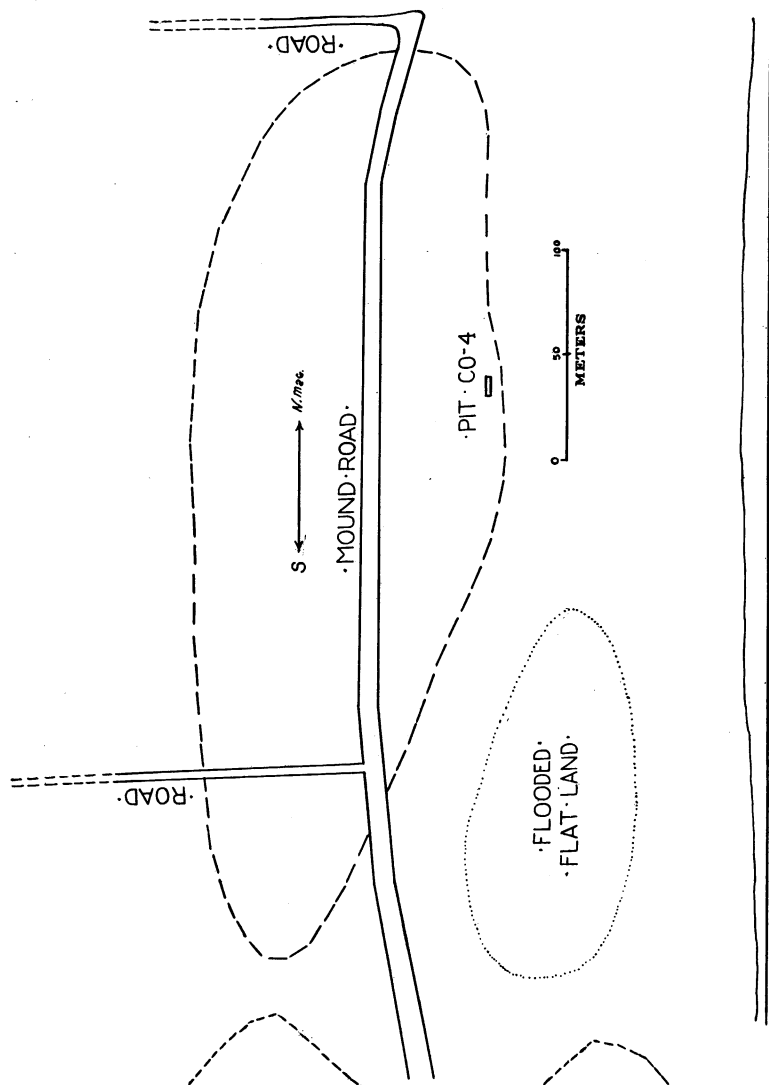


Fig. 9. Outline of Coleapirhua Mound 2 showing Location of Excavated Pits.

CO-4A. Flexed, adult skeleton, lying north to south with head south; found at one meter depth in the south part of the pit, without accompanying artifacts.

CO-4B. A disturbed intrusive burial found in the north end of the pit under flat stones and with some traces of a bark lining for the graves. A piece of a copper *topo* and two one-handled painted pitchers (Fig. 12b) were in the grave at one meter depth. Above the grave was a large grindstone.

CO-4C. A skull found at a depth of 1.60 meters and almost directly below Burial CO-4B.

CO-4D. A flexed adult burial, north to south, head south, in southwest center of the pit at 1.80 meters depth. The burial was covered by an ash bed. A large, elaborately painted one-handled pitcher (Fig. 12c) and a small open bowl were found just above the head of the skeleton.

CO-4E. A double urn burial in the south end of the pit, starting at 2.30 meters depth. The cover was the typical U-shaped thick orange urn, 50 centimeters in rim diameter and 30 centimeters deep, with a flat base 21 centimeters in diameter. The base bowl was a tall jar, about 75 centimeters high (found broken at 55 centimeters), 48 centimeters wide, with a flat base 23 centimeters in diameter and a flare rim 30 centimeters in diameter. A small horizontal handle was near the rim. In the side of the jar was an eight centimeter hole surrounded by six perforations. The jar contained the bones of a young child, covered by a small round-bottomed bowl.

CO-4F. Another double urn burial at 2.20 meters depth on the east side of the pit, in which the lower part was a typical U-shaped urn and the cover a bulging globular urn. Remains of a skeleton and fragments of a plain bowl were found inside the urn and a small plain bowl was found just outside of it.

CO-4G. An urn without cover was found in an upright position 2.30 meters below the surface in the northwest part of the pit. It was the bulging, globular type, with the rim broken. Parts of a bowl were found inside, but no trace of bone.

CO-4H. An adult flexed burial, the skeleton lying on its side, with the head north, body southeast, was uncovered at 60 centimeters depth in the northeast corner of Section 2. A painted two-handled bowl was with the skeleton.

CO-4I. A disturbed adult burial, probably flexed, with head north, and without accompanying artifacts, was at 2 meters depth in the center of Section 2.

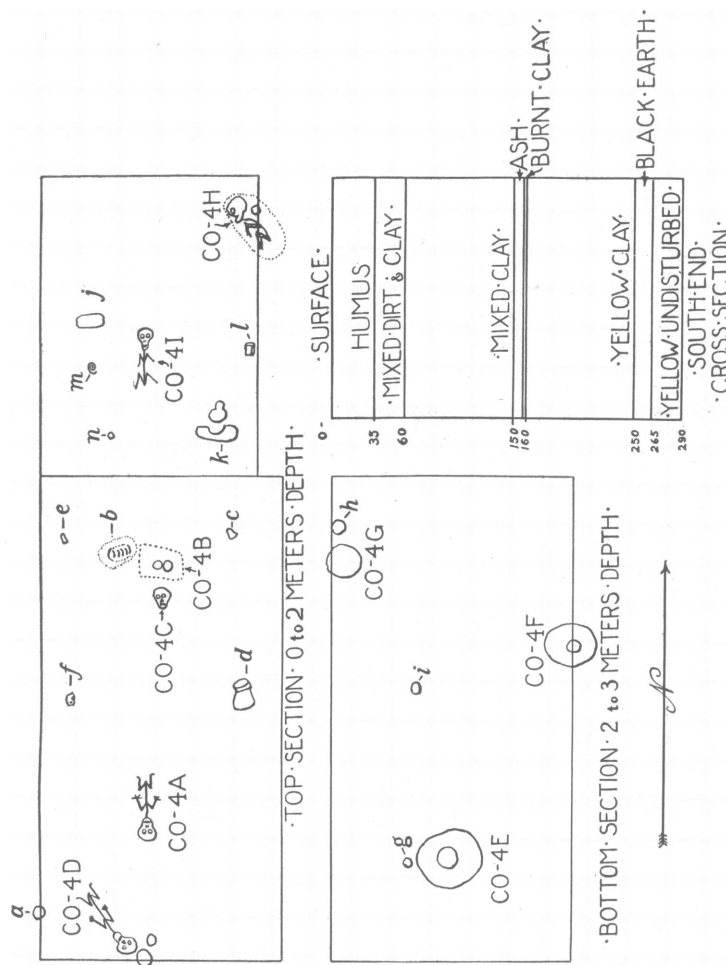


Fig. 10. Plan and Cross-Section of Trench CO-4, Colcaapirhua, with Location of Finds.

The Collection. A résumé of the pottery collection from Mound 1, in so far as it can be completed without the sherd analysis, shows a predominance of plain over painted sherds, with a concentration of plain thick orange sherds between one and two meters depth. Two types of urns have already been described, a globular urn with slightly restricted base, probably adapted from a cooking olla, and an open U-shaped urn with horizontal side handles. The three complete bowls were of unpainted orange ware. One next to CO-3C was a shallow open, plain rim bowl with rounded base, about 11 centimeters in diameter at the rim and 6 centimeters high. Another plain bowl with convex sides and curved base had a single horizontal handle. This was found inside the urn (CO-3G). The third bowl was a shallow open type with concave sides and flat base, found at 1.70 meters depth. The painted sherds were of a non-Tiahuanaco type.

On the surface of this mound were found a grooved ax with a hole drilled through it, a part of a thin, cylindrical ring stone, and a carved stone animal. At 20 centimeters depth was found a stone labret (?) shaped like a crude fish hook. At one meter were two broken grindstones and a small tubular stone bead. A broken clay figurine was found at 50 centimeters with appliqué nose and arms and punched eyes and mouth. With burial CO-3B was a copper needle with an eye.

In general, the collection is rather nondescript; it probably belongs with the material from Mound 2 to be described below, and will be treated jointly with the analysis of that site.

Again in Mound 2 the two types of urn, the U-shaped and the bulging globular type, were found, as in Mound 1. Still a third type is seen in the tall urn of Burial CO-4E. Two plain open shallow bowls, with convex sides and plain rim and slightly rounded base were found, one 50 centimeters deep and one inside Burial CO-4E. Another plain cup with a slightly flaring rim and rounded bottom was found with Burial CO-4D at 1.60 centimeters. Two one-handled pitchers, painted with black on an orange base, with high collars and flat bases were found with Burial CO-4B at 1.10 meters depth. The collar has perpendicular wavy lines around it, while encircling the body is a pattern of triangles, connected at their bases with elongated spirals projecting on each side of their points. At 60 centimeters, with Burial CO-4H, was a two-handled, high-collared globular bowl with a similar painted design. Finally, a most unusual type of bowl was found. It was a large, one-handled, high-collared, globular vessel, painted in black and purple on a white background, with perpendicular wavy lines and a scroll around the collar.

The lower half of the body has the connected triangle and spiral design of the small bowls; the upper half has a series of animal figures, probably llamas, with four legs, two toes, and long necks, on which stand another animal with triangular body and long neck, which is surmounted by still another triangle.

The surface finds around this site revealed an olla of globular, flaring rim type, with two round-bottomed orange bowls with a black stripe below the inner rim, all associated with a shallow grave near the edge of the mound. The plain sherds in the pit are mostly from thin and thick orange and brown cooking vessels. The greatest concentration is between 1.50 and 2.50 meters deep.

On the surface were found several stone artifacts: an elongated triangular shaped arrow point; a grooved ax or hammerstone; a flat pointed (diamond shaped) drilled stone; and a piece of a thin cylindrical ring stone. In the second half meter was a broken grindstone and pieces of a hand stone grinder. In the third half meter were found a broken grindstone and part of a thin cylindrical ring stone. The fourth half meter furnished a grooved ax; pieces of a flat pendant with two drilled holes; a grooved and pointed small stone plummet; a small stone bead; and a small stone figurine head, 7.5 centimeters high and 5.5 centimeters wide at the base, with slit eyes and mouth and a relief nose. Finally, in the fifth half meter was a small stone bead. Two pieces of copper were found, a part of a *topo* in the second half meter and a copper spiral in the fourth. The only bone tool was found in the fifth half meter.

As stated before, the similarity in urns, plain open bowls, and stone work definitely connects the two Colcapirhua sites, so that the materials should really be considered manifestations of the same culture.

An analysis of the material and the cross-sections of the two Colcapirhua sites permits a division into an upper and a lower level. The upper level, from the surface to about 1.80 meters depth, contains direct burials accompanied by painted pottery, stone, clay, and copper artifacts. The lower level from 1.80 meters into the undisturbed mound base at 3 meters depth in CO-4 contains double urn burials associated with plain pottery. The stratification is clear both in reference to artifacts found and relative position in the mound. The upper level includes the graves designated in this description of the mounds as CO-3A and B, and CO-4 A, B, C, D, H, I, although not all of these burials were accompanied by artifacts. The lower level includes Burials CO-3 C, D, E, F, G and CO-4 E, F, G. The significance of this stratification and the identification of the two types of material are treated in detail in the section on Lowland Bolivian distributions.

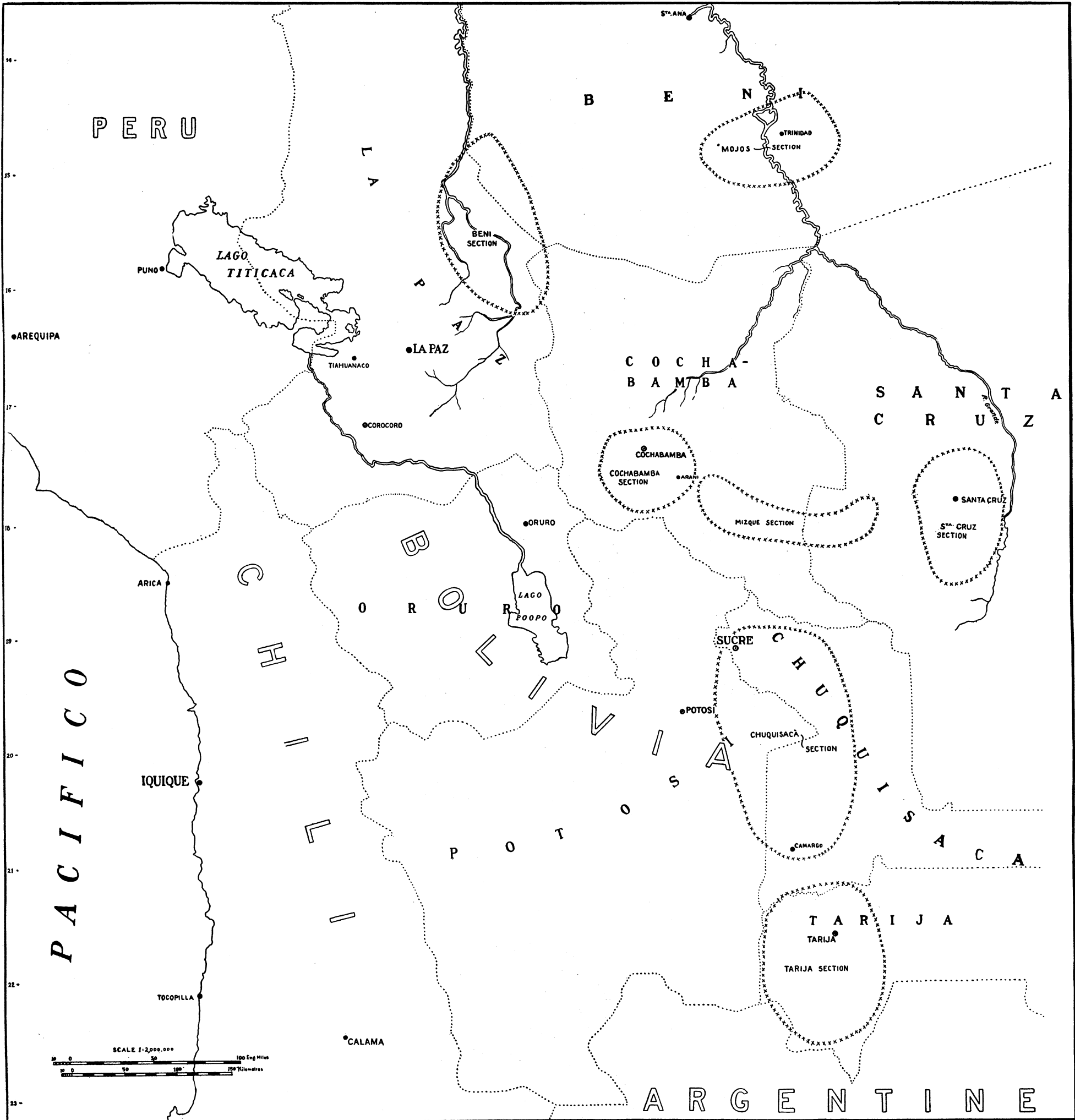


Fig. 11. Map of the Lowland Bolivian Regions showing Archaeological Sections.

LOWLAND BOLIVIA

Lowland Bolivia includes all that vast section of the country lying east of the Andes Mountains (Fig. 11). In spite of the designation Lowland, as contrasted to Highland, the area encompasses a considerable variety of topography within its boundaries. Archaeologically, Lowland Bolivia is peripheral to several centers of influence which furnish material for a wide geographic chronology. The Highlands of Bolivia first contributed Tiahuanaco materials and influence to the Lowlands and later became a route for the influence and invasion of the Inca. South of the Lowland area was the Northwest Argentine archaeological center which was a source of Calchaquí, Atacameña, and perhaps a secondary Inca influence. The eastern part of the Lowlands, including Paraguay, was the homeland of the warlike Guaraní, whose penetration into the area is part of the historical record. Finally, north of the region, the vast jungles of Brazil and the Upper Amazon brought Arawak influence.

The limitations of accomplished archaeological exploration in the Lowland Bolivian territory make it impossible to present either a complete picture or even an approach to a final picture of this complex area. A review of the archaeological work, however, falls into seven localities where a sufficient number of sites have been described to give a fair idea of the material available. These seven regions are reviewed in this section of the report and finally arranged in a tentative chronological sequence.

The archaeological regions, the explored sites, and references to the literature may be summarized as follows:—

1. The Cochabamba section includes the sites in the Cochabamba Valley surrounding the town of the same name (Fig. 11). The Arani site, although logically a part of this section, has been treated as a separate unit because of my rather extensive excavations there. Sites in this section which have yielded material to collectors are:—

Tiquipaya (Bennett excavations, 1934)

Colcapirhua (Bennett excavations, 1934)

Illuri (Ehrhorn excavations and collection)

Parotani, Muela, Aramasi (Posnansky, 1928, 195)

Cayacayani, Clisa, Callachullpa, Queacollu (Ayala private collection)

Sipisipi

Other collections in the Cochabamba Museum and the Salamanca Collection

a. Arani, south of Cochabamba (Bennett excavations, 1934)

2. The Mizque section (Fig. 11) lies southeast of Cochabamba and Arani and thence eastward towards Santa Cruz, following the Mizque valley for the most part. This section was explored by Nordenskiöld (1917, 1924) and the following sites examined:—

Incallaeta
Pulquina
Batanes
Holquin
Sapaina
Peres
Perereta
Pucara

3. The Chuquisaca section (Fig. 11) comprises the west end of the Department of Chuquisaca and the southwest corner of the Department of Santa Cruz. The following sites have been described:—

Incahuasi (Nordenskiöld, 1924a, 43–46)
Santa Elena (Nordenskiöld, 1924a)
Culpina (Métraux, 1933, 280–288)
Parapiti and Pilcomayo river sections (Nordenskiöld, 1924a, 40)

4. The Tarija section (Fig. 11) lies at the western end of Tarija Department. Only two sites have been examined in this important section.

Tolomosa (Von Rosen, 1924)
Tarupayu (Nordenskiöld, 1924a, 25–28)

5. Santa Cruz section (Sar´) includes the region around the town of Santa Cruz (Fig. 11).

Rio Palacios 1 and 2 (Nordenskiöld, 1913, 210–212)
Guayabas (Métraux, 1933, 289–290)
Samaipata (Nordenskiöld, 1911, 5–11)
Pucarilla (Nordenskiöld, 1924a, 51)

6. The Mojos section (Fig. 11) is around the town of Trinidad between the Mamor´ and Iviri rivers, in the Department of Beni, northeast of Cochabamba. Nordenskiöld (1913, 215–242) has done the only excavating.

Mound Velarde (upper and lower)
Mound Hernmarck
Mound Masicito

7. The Beni section (Fig. 11) covers the upper part of Rio Beni in

the Lowlands, almost straight east of La Paz, and northwest of Cochabamba.

Covendo (Nordenskiöld, 1924a, 99)

Chimay (Nordenskiöld, 1924b, 229-234)

Buturo (Nordenskiöld, 1906, 93-94)

Rurrenabaque (Posnansky, 1928, 195-197)

In the analysis of the Lowland Bolivian sites ceramic shapes and design styles are the principal criteria for distinguishing cultures. However, classifications are also made on the basis of a few outstanding traits which appear to be of particular significance in this region. A brief résumé of these diagnostic traits will clarify the analysis which follows.

a. Urns. Urn burial is not a characteristic of either Tiahuanaco or Inca civilization in the Highland region. In the Lowlands, however, urns are found in many of the sites. Consequently, the presence or absence of urns is of great importance, especially when it is shown that sites with unquestionable Tiahuanaco or Inca material are not accompanied by urns even in the Lowlands. On the other hand, adult urn burial is considered typical of Guaraní civilization by most authors. That similar burials are also typical of some non-Guaraní groups has been clearly demonstrated by Nordenskiöld.¹ Consequently, aside from the presence or absence of urns, the subject must be considered from the angle of the type of urn and the manner of urn burial; in other words, the urn shapes, painting, modeling, corrugating, tripod, and the method of covering with stone, bowl, sherds, or another urn, are all factors entering into the classification.

b. Handles. Nordenskiöld² believes that handles on clay vessels are a definitely western culture element in South America. Consequently, he considers the presence or absence of handles as a very significant diagnostic feature.

c. Tripod ware. Tripod vessels have a mixed distribution in the Lowlands. They are not found at the Tiahuanaco site in the Highlands, nor at some Tiahuanaco-influenced sites in the Lowlands. In the Mizque section, however, tripods are associated with Tiahuanaco-influenced ware. The presence and absence of tripod vessels assists in distinguishing upper and lower strata at Mound Velarde. Furthermore, a distinction between tripods on large and on small vessels can be made.

d. Painted versus incised decoration. At some sites incision and appliqué pellet modeling are the only forms of decoration on clay vessels,

¹Nordenskiöld, 1920, 185.

²Nordenskiöld, 1917b, 18.

while at others painting is the exclusive decorating medium. Painted ware groups may be further distinguished on the basis of type of design. Tiahuanaco and Inca designs are of paramount importance in segregating styles, as both are well known from the Highlands.

e. Pottery shapes. Since ceramic designs appear to have a somewhat different distribution than ceramic shapes, both become important. A Lowland site with both Tiahuanaco decorations and shapes in its ceramics is obviously more closely affiliated with the Highland prototype than is a site with influenced designs only.

Largely because of their rarity, except in Inca sites, stone, metal, and bone artifacts are of secondary importance in the Lowlands. Inca stone masonry fortresses and buildings serve to identify the presence of that civilization. Otherwise building remains are unknown, in spite of the numerous refuse heaps. In this connection, the mounds of the Mojos section may be shown to be of artificial construction and thus to be considered as a significant trait. Direct burial is also important, not only as a contrast to urn burial, but also because of its various forms, such as hollow tombs, stone covered, or with or without artifacts.

COCHABAMBA SECTION

THE ARANI SITE

The Arani burial hill of *Chullpa-orco*, described in detail in a previous section, is summarized here as a representative Tiahuanaco type site in the Cochabamba region. No significant stratigraphy was found at this site, but the material was divided into three phases on the basis of the ceramic contents of forty-one graves. Utilizing all the evidence available, the conclusion was reached that these three phases represented a chronological series at this site. A résumé of these phases is given below, with emphasis on the factors of Lowland distributional significance.

Arani I. Ten typical graves represented stone-covered, bark-lined burials, one to two meters deep, each containing at least one skeleton and four or more bowls including a kero-shaped goblet, an open flaring-sided cup, and a small plain two-handled bowl. All graves contained at least one piece of well painted, Derived Tiahuanaco pottery. The ceramics were variants on known Highland Tiahuanaco forms in shape, designs, and colors, and were not associated with new styles. To this typical group other graves, without the totality of these characteristics, were added by analogy. Burials were direct, without urns; tripod

ware was absent; decoration was polychrome painting, but never incised; vertical handles were common on plain ware and on some painted vessels. In general, the Arani I may be classified as a Derived (rather than Decadent) Tiahuanaco style.

Arani II. A group of graves similar to Arani I, but not having all the characteristics, was distinguished from it by a general decadence in ceramic decoration, as well as by the introduction of new elements. In general, this group approaches the Highland Decadent Tiahuanaco style, especially in the disintegration of design and the use of simpler color combinations. However, Arani II probably represents a continuation of Arani I, rather than a branch of Highland Decadent. Again the graves are over one meter deep, stone-covered, and each contains at least one skeleton. New shapes are introduced as well as variants of known shapes, particularly straight-sided kero-shaped goblets and open cups. Handles are still typical and one small black incised jug had three nubbin legs. Urns do not occur. Painting is still the characteristic decoration technique, the only exceptions being the incised tripod-like black jug, and one modeled bird head spout bowl. Interesting from the point of view of Lowland distributions is one associated flaring rim vase (Shape D)¹ painted with a design of stylized heads in the manner and in the same colors as the Mizque Tiahuanaco style. The only other piece which might represent the Mizque style is a small open two-handled bowl, with a flat base, convex sides and narrow flare rim, decorated with a bat-like creature with spread wings. In both these pieces a purple paint has been used in the design which is a contrast to the rest of the Arani material. They are exceptional in the Arani collections and possibly represent trade pieces. There is no indication that the Mizque style itself is a direct spread of Arani II.

Arani III. In the descriptive analysis, Arani III was composed of post-Arani I and II material, and was divided into two groups, one of which may have been transitional to the other. The material included is considered late at the Arani site both on the basis of position of the graves and by the analysis of the styles. The Arani-Tiahuanaco trend continues, however, apparently without a break. The kero-shaped goblets in this group include a perpendicular-sided variety with a simple angular design and a type with a projecting solid side handle. The ceramics, except for the introduced styles, are, on the whole, crude and Decadent in design and fabrication. One of the clay vessels, a two-

¹*This Series*, vol. 34, 407

handled high-collared globular-bodied vase has a design of angular scrolls, wavy lines and triangles, closely similar to the painted ware found in the upper levels of the Colcapirhua site. The grave in which this vase was found, together with a straight-sided plain cup and a wooden spoon, overlay a grave of the Arani II group. While the graves of Arani III were shallow and the contents plainer, no great modification occurs. There are still no urns, no positively associated tripod vessels, no change in the mode of decorating by painting, and enough handles found on vessels to typify the group.

The Arani site, throughout its three periods, is dominantly Tiahuanaco in style, modified by local development. On top of the Arani hill are the foundation walls of a fortress which suggests Inca influence, but one cannot be certain, as too little of the walls remains and excavation yielded no Incaic pottery. In the modifications of shapes and design of the Arani III Inca influence is suggested, but no Cuzco-Inca types are found.

As stated previously, urn burial does not occur at Arani. Although large cooking ollas were associated with some graves, or found isolated in the excavations, none of these contained bones. Parts of a large olla found on the surface indicated a bowl 80 centimeters high, with a rim diameter of 27 centimeters, and a base of 15 centimeters. A pointed base olla 42 centimeters high, 35 centimeters in diameter at the widest part, was found next to a child's skeleton (AR-2C). It is not impossible that some actual urn burials will in the future be found at Arani, but at present it can be stated that they are absent.

Ceramic fragments scattered on the surface, largely from previous excavations, indicated several tripod legs. Part of a tripod bowl with solid bulbous legs and a design of interlocking steps in brown and gray on a yellow clay, was found near Burial AR-9A. Unfortunately, its position could not be established exactly. However, in consideration of the large collection obtained at this Arani site it is safe to say that tripod vessels are absent or at best extremely rare.

Metal artifacts were not found at Arani. A leg bone end scraper was found on the surface and three points in the excavations. Two of these antler points were associated with the allied Arani I group and one plain bone point was encountered in a refuse pit. Stone artifacts consisted of a notched ax, a flat round ring stone, a whetstone, and a grooved bola, all found in refuse deposits, not in grave association. In other words, ceramics constituted virtually the only grave equipment.

COCHABAMBA

The Arani site is actually part of the Cochabamba section and was treated separately only because, to my knowledge, it is the first record of excavation in a Cochabamba-Tiahuanaco type site. The presence of other similar sites in the region of Cochabamba is amply illustrated by the local collections. The collection of Luis Ayala contains every style of fine pottery described for the Arani excavations, plus some varieties not found. The only record of the sites, however, is his statement that the material came from Cayacayani, Clisa, Callachullpa, and Queacollu. To this list may be added three localities, namely, Parotani, Muela, Aramasi, mentioned by Posnansky¹ as yielding Tiahuanaco type pottery. There are doubtless many other sites around Cochabamba which contain the derived Tiahuanaco type pottery. At least the collections and excavations leave no doubt as to the presence of a strong Tiahuanaco influence in the region.

Tiquipaya. The excavations at this site have already been described and a brief review is given here because this accumulated mound of wash clay and dwelling site refuse appears to represent a Decadent Tiahuanaco type site. The one complete bowl and the numerous sherds were all of Tiahuanaco style, but, almost without exception, of poor quality and disintegrated design. In general, the material is similar to Arani II, rather than Arani I. No urns were found in association with the Tiahuanaco material at Tiquipaya, but in a cut made by road construction through part of this mound were found the remains of U-shaped bowls suggesting the U-shaped urns of Colcapirhua. No bones were seen with these disturbed bowls, however. The Tiquipaya material, like that at other Cochabamba-Tiahuanaco sites, has handles but no tripods, and is decorated only by painting, not incision. Metal work was not found and only one bone point was encountered. Stone artifacts, distributed through most of the mound, included grindstones and grinders, grooved and flat drilled axes, a flat oval ring stone, and two cylindrical ring stones, two lip plugs, and various partially worked tools. No stratigraphy was noted at this site despite the depth of deposit, although it is not impossible that some post-Tiahuanaco material has intruded.

Colcapirhua. Other sites in the Cochabamba region do not contain Tiahuanaco type material. Colcapirhua falls into this category, although geographically not far from Tiquipaya and although the large

¹Posnansky, 1928, 195.

accumulated mounds are of the same composition. A summary of the excavations described previously in two of these Colcapirhua mounds (CO-3 and CO-4) reveals an upper layer containing direct burials and painted pottery similar to the La Paya-Inca type over deep double urn burials with plain pottery, probably of Guaraní origin.

a. The urn burials, or lower level. In CO-3 a cluster of four double urn burials was found from 1.60 to 2.90 meters deep, as well as a single urn with shallow bowl cover at 1.53 to 1.83 meters deep. In CO-4 two double urns and a single urn were found at a depth of over 2.20 meters. The bases of some of these urns intruded into apparently undisturbed clay at a depth of about 3.00 meters. It is logical to assume that all of the urns are intrusive in the mound, although no traces of such intrusion are visible. Of the fourteen bowls used as urns or covers, nine are large U-shaped, four are globular, and one is a large jar. All of the urns are of plain undecorated orange clay. The U-shaped urns have flat bases and slightly convex sides and plain straight rims. The ware is from 2 to 3 centimeters thick. Two horizontal handles are on the sides. A typical measurement is 56 centimeters rim diameter and 38 centimeters depth. The globular urns have thinner walls, no handles, and the rims are missing. The large jar attains its greatest width at the high shoulder from which the sides taper down to a flat base. It has a constricted neck and a flaring rim. On the shoulder is a small horizontal handle. Both U-shaped and globular urns are used as base urns or covers, with no difference in construction. Two urns contained child burials and the rest adult burials. The bones were badly disintegrated so that it was impossible to determine whether the burials were primary or secondary.

Pottery associated with the urn burials was neither painted nor incised. Only two urns contained a pot, the rest being associated by proximity. The pottery consists of two convex-sided open bowls, one with a small horizontal handle and rim lugs; a concave-sided open bowl; a shallow round-bottomed dish; and various plain fragments, all of orange clay.

No non-ceramic artifacts were directly associated with the urns. However, several objects were found in the stratum in which the urns occurred and consequently below the stratum of the painted pottery. These may be representative of the same culture. No metal objects were found and only one fragment of a bone tool. Two stone beads, a piece of a drilled stone pendant, a plummet, a grooved stone ax, a piece of a cylindrical ring stone, and a small stone figurine with simple features, were the only stone objects found.

These urns do not represent the typical Guaraní, but some of the characteristics are present. Lothrop¹ identifies secondary urn burials, in painted and corrugated urns, together with stone labrets and celts and some bone tools, as typical Guaraní. Serrano² speaks of Guaraní clusters of decorated urns in cemeteries, together with an absence of bone work. This urn burial group does represent clusters of urns, but these are urns without decoration. Furthermore, double urns and U-shaped urns are not typical Guaraní. The U-shaped urn is also found at Sará (Rio Palacios, 2, Santa Cruz section), as are double urns. Nordenskiöld³ considers the latter types as Guaraní. Finally, the associated orange ware is similar in shape to the red ware described by Lothrop⁴ from the Guaraní site of Arroyo Malo, on the Argentine Paraná Delta.

b. Painted⁵ ware, or the upper level. In the upper part of the two Colcapirhua pits direct burials with associated painted pottery were uncovered. Five intrusive burials ranging in base depth from 1.00 to 1.80 meters, contained four adult and one child direct burial skeletons as well as a group of associated artifacts which distinguish these burials from the urn burials beneath them. Two of the bowls are one-handed, high-collared, globular body pitchers, painted in black-on-orange, with wavy lines around the collar and a band of triangles, from the apexes of which jut elongated scrolls (Fig. 12b). A similar one-handed much larger pitcher is painted in black and purple on a white background (Fig. 12c). To the design of triangles and scrolls and the wavy perpendicular lines is added a band of animal-like figures, one above the other. A final painted vessel with the triangle and scroll design has the same globular body and high collar, and in addition, two rim to body handles. One plain orange, flaring-sided, round-bottomed cup was associated. With the graves were a copper needle, part of a copper pin (*topo*), and the head of a copper spiral. In the same stratum, but not directly associated, were two parts of an elongated clay doll with features in relief, a hook-like stone labret, a tubular stone bead, and three grindstones.

The shapes of the painted vessels suggest Inca influence. The designs are more closely related to Inca than to anything from Tiahuanaco.

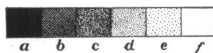
¹Lothrop, 1932, 183.

²Serrano, 1933.

³Nordenskiöld, 1913, 255.

⁴Lothrop, 1932, 135-138.

⁵In the illustrations, the following color key was used:
b, dark brown; c, red; d, orange; e, yellow; f, white.



a, black;



Fig. 12. Inca-Influenced Ware from Lowland Bolivia. *a*, La Paya-Inca type bowl, from Culpina (after Métraux, 1933); *b*, one-handed pitcher, black-on-orange, from CO-4B; *c*, one-handed pitcher, black purple-on-white, CO-4D; *d*, two-handed pitcher, from Illuri (Ehrhorn Collection); *e*, two-handed pitcher, from Arani (AR-1B).

A similarly shaped two-handled vessel, with angular scroll design, has already been mentioned in association with Arani III (Fig. 12e), and at the Illuri site (p. 384) was still another with plain triangle design. This material, although not extensive in quantity, forms a group which has several traits in common, including a late position in the stratigraphic set-up. In a later section the relation of this type to the La Paya-Inca style found in the Lowlands at Culpina and Tolomosa will be discussed. At the moment it is sufficient to state that it appears to have been influenced by Inca style and that it is in a position posterior to the Guaraní urns.

Illuri. A short drive out from the town of Cochabamba is the site of Illuri which consists of a large field at the base of a hill, through which streams have cut gorges to a depth of over twenty-five feet. Stone house foundations, embedded stones, remains of old defense walls, all indicate structures on the flats. The gorge cut indicates disturbance to a depth of twelve feet along its edges. The lower part of the disturbed area is a confused mixture of bones, sherds, and river deposit. In the upper part are indications of intrusive burials. Although considerable excavating has been carried on by Mr. Carlos Ehrhorn and his friends, no attention has been paid to stratigraphy. In 1932 I visited this site for a few hours, but was unable to do any work in so short a time. However, the Ehrhorn Collection gives a good idea of the dominant type material which is mostly from the upper level section, from one to two meters deep. Only direct burials were reported. However, fragments of thick orange U-shaped urns were seen around the edges. Possibly the urn burials were deep, as at Colcapirhua. However, it seemed certain that the material represented in the collection had no association with urn burial.

The pottery consisted of mostly plain ware cups, with round bottoms and flaring sides, as at Colcapirhua; or vessels with flat bottoms and straight sides, as in Arani III; or larger plain bowls and platters. One semi-aryballoid redware jar, of the type called *yuro* in the Northwest Argentine, is interesting as an indication of Inca influence. A small black incised cup, like the base of a kero-shaped goblet, also looks Incaic. Finally, a high-collared, constricted neck, globular-bodied vessel has two rim to body handles, each with a nubbin on it (Fig. 12d). It is painted in black, red, and yellow, with a double row of triangles around the body. The shape and design style of this vessel, as previously mentioned, suggests the upper level material from Colcapirhua and the one grave of Arani III. All of these appear to be Inca-in-

fluenced. The Illuri site, furthermore, shows even greater Inca influence in the non-ceramic artifacts.

Stonework is particularly extensive at Illuri. Oval and round flat ring stones are common. Grindstones and hand grinders and mullers are abundant, as are shaped sling stones and hammerstones. Axes and celts are especially numerous. The grooved ax is represented by two specimens, but most of the axes are variants of the wide flat polished ax with a curved blade and two side notches for hafting. Drilled stone pendants are common. These are flat, with concave sides decorated with notches. Finally, large polished round and square stone platters are found, most similar to their Cuzco prototypes. Platters of this kind are also found at the La Paya-Inca site of Tolomosa (p. 392).

Metal objects are present, but not very common at Illuri. Incised and modeled clay tubes are unique finds. Clay dolls are similar to the Colcapirhua types. Bone work is abundant, consisting of bone awls, drills, points, antler points, serrated-edged tools and ornaments, and incised bone tubes.

In final analysis the Illuri site, while not pure Inca, is certainly strongly influenced, and probably belongs with the Cochabamba variant of La Paya-Inca.

Sipisipi. This site was described to me as a typical Incaic type ruin, north of Cochabamba. I was unable to visit it and know of no published descriptions. However, it is logical to suppose that some of the Inca forts, which continue in a chain to the southeast of Cochabamba in the Mizque section, were located in the Cochabamba section. Local collections in Cochabamba contain some Cuzco-Inca type material.

In review, then, the Cochabamba section contains the following array of materials and influences.

1. Derived Tiahuanaco (Arani I and related sites)
2. Decadent Tiahuanaco (Arani II and Tiquipaya)
3. Guaraní (Colcapirhua urns of lower level)
4. Semi-Inca (or La Paya-Inca type) (Colcapirhua painted or upper level, Illuri, and one grave at least of Arani III)
5. Inca (Sipisipi, and collections from unidentified sites)

A large modeled clay figure from Cayacayani, with symbols in a decorated area on the back, is suggestive of post-Inca times, although the piece is of uncertain authenticity. Furthermore, a backwash from the Mizque-Tiahuanaco type is represented in Arani II and in private Cochabamba collections.

MIZQUE SECTION

Nordenskiöld¹ in his rather extensive examination of the Mizque valley, which runs south and east from the Cochabamba section and thence curves eastward to Santa Cruz, found polychrome painted pottery of a related Tiahuanaco style, an unpainted incised ware associated with urn burials, and finally numerous Inca forts. A review of his work describes the three styles in the order mentioned, which Nordenskiöld supposed² was chronological.

MIZQUE-TIAHUANACO

Pottery with Tiahuanaco affinities was found principally at the following sites in the Mizque section: Peres, Perereta, Pucara (in unmixed deposits), and Sapaina and Pulquina (mixed with the plain incised ware). The sites were dwelling places in the open and in caves, with some association with direct burials, but no indication of urn burial. The thickness of the culture layer indicated a long period of occupation.³ The influence of Tiahuanaco is unquestionable. Designs include puma heads, running figures, bird heads, and step and scroll figures all directly comparable with Tiahuanaco prototypes. In spite of the introduction of some new colors, the combinations, and the applications of figures on vessels is in the traditional style. Some of the Tiahuanaco shapes are represented, notably the kero-shaped beaker and the globular-bodied, one-handled constricted neck bowl. Handles on vessels are not uncommon, although not as frequent as at the Arani Tiahuanaco site. Decoration is characteristically by polychrome painting and not by incision or modeling. However, in addition to the Tiahuanaco elements a number of distinctive traits are found, making it possible to distinguish Mizque-Tiahuanaco from the Cochabamba or the Highland types. New shapes are introduced, with tripod vessels as an outstanding difference. Tripod vessels have both straight rectangular solid legs, on a vessel resembling the open flaring-sided cup, or hollow bulbous legs filled with pellet rattles on a convex-sided open bowl. The design elements are combined in new ways and have appendages which are non-Tiahuanaco. Rows of heads are typical, although these have a freshness which distinguishes this use of parts of figures from the Decadent Tiahuanaco. Other new shapes are a globular-bodied bowl with constricted orifice and flaring or converging rim and a slender flask-like

¹Nordenskiöld, 1917b, 1924b.

²Nordenskiöld, 1917b, 18.

³Nordenskiöld, 1924a, 61-63.

vessel with flaring rim. Non-ceramic artifacts, with the exception of one or two stone pieces, are not found in association.

Although Aymara is not spoken in this region today, having been supplanted by Quechua, Nordenskiöld¹ points out that many Aymara root place names are still used in the region. This he gives in further confirmation of the Tiahuanaco affiliations.

An examination of the Mizque-Tiahuanaco style leads one to the assumption that it is a diffusion of the Cochabamba-Tiahuanaco, itself a derived style, rather than a direct branch of the Highland Tiahuanaco. This is also logical from a geographical point of view. The evidence in the Cochabamba region is that the Tiahuanaco culture was firmly and extensively represented. In Cochabamba the style has already changed from the Highland prototype, not only in design arrangement, but in the introduction of new shapes. A puma head, for example, is used in the Cochabamba region as a design element with well-applied technique and on well-finished ware. The Mizque puma head is a further stylization of the Cochabamba. Examples of such distribution could be multiplied and thus account for the absence of some of the more complex Highland designs and the more characteristic shapes in the Mizque region. On the basis of this assumption, the Mizque-Tiahuanaco would be derived from the Tiahuanaco style represented by Arani I. No great discrepancy in chronology is implied by this. In fact, Mizque-Tiahuanaco is represented by at least one trade piece in an Arani II grave and in collections from the Cochabamba region. Further affiliations of the Mizque style will be discussed in more detail later, notably Nordenskiöld's comparisons of Mizque and Mojos.

Mizque Plain Incised Ware. At Sapaina and Pulquina, Nordenskiöld found the polychrome ware mixed with a simple, unpainted ware, decorated by incision. Although not isolated stratigraphically Nordenskiöld considers it a later type. At Holquin the plain incised ware was found unmixed with polychrome. The material is fragmentary and little can be said about the shapes involved. One bowl purchased at Holquin was of the globular bodied type augmented by four bulges and three short solid rectangular feet. Otherwise the style is one of plain rim bowls with straight, wavy, and zigzag incised lines and some punch design. At Pulquina a plain urn with an engraved lizard design was considered as probably associated with the plain ware. At Sapaina a pair of urns containing children's bones was associated. Nordenskiöld

¹Nordenskiöld, 1917b, 15.

mentions no artifacts, but Humbla¹ associates a celt with this unpainted ware.

Nordenskiöld² states that this incised ware seems much simpler, technically, than Aymara or Quechua workmanship and that it possibly belongs to the Chiriguano. The type of incised pattern bears a resemblance to the ware found at Mound Masicito in Mojos. Since the incised ware is found both isolated and mixed with the Tiahuanaco type and since the latter is also found isolated, there is no positive information as to chronological position. However, by comparison with other material which is apparently post-Tiahuanaco (i.e., Masicito Mound), and by the implied antiquity of Tiahuanaco in this region, as well as by the presence of urns which are relatively later than Tiahuanaco, Nordenskiöld's placing of this incised type ware between Tiahuanaco and Inca seems justified.

Inca Fortresses. Three Inca forts are described for the Mizque region, Incallacta, Batanes, and the *pucara* at Pulquina. These are groups of adobe and stone houses, temples, and fortification walls, representing a late Inca building style. Inca house features found are tapering, lintel-covered doorways, wall niches, grass-covered roofs, some of which were pointed to a single central gable, painted adobe layers on walls, and windows and archery peek holes. Incallacta excavations indicated only a shallow deposit and confirmed Nordenskiöld's (1915) historical conclusion that the fort was built by the Inca, Tupac Yupanqui, around the end of the fifteenth century. No graves were encountered in his excavations,³ but the few pottery fragments represented such typical Cuzco-Inca shapes as the bird-handle ladle, the shallow dish with rim lugs, and the loop-handled small olla on a pedestal.

The Mizque section, in review, presents evidence of an extensive Tiahuanaco-influenced period, with developments of a local character, overlapped by a period with plain incised ware (with questionable Guaraní-Chiriguano affiliations), and finally followed by Inca dominance.

CHUQUISACA SECTION

Information on the Chuquisaca section is inadequate for any exacting conclusions, but the scanty material available does allow suggestions as to the character of the remains.

¹Humbla, 1925.

²Nordenskiöld, 1924a, 63.

³Nordenskiöld, 1924a, 74.

PARAPITI AND PILCOMAYO RIVERS

On the Parapiti river banks Nordenskiöld¹ reports the finding of burial urns and dwelling sites. Some burials were covered with several superimposed inverted bowls as at Tarupayu (Tarija section, p. 391), but without the characteristic hollow rims of the latter site. In the region of the Parapiti and the Pilcomayo rivers, Nordenskiöld likewise reports finger-scalloped (corrugated) ware associated with urn burial of the Guarani type (cf. Sará, Rio Palacios in Santa Cruz section, p. 393). This Guarani material is said to differ from the ceramics in the grave and dwelling sites of the same region, although the latter type is unfortunately not described.

CULPINA

Métraux² described a collection in the Göteborg Museum which was made by Otto Braun at Culpina, fifty kilometers from Camargo, in the Province of Cinti. This material is stated to have come from a tomb, 1.20 meters long and 1.50 meters deep, lined and covered with flat stones, and containing a flexed burial and thirteen pieces of pottery. The pottery is described as Inca shapes with a specialized design style (Fig. 12a), consisting of triangular fields outlined with three lines and an inner serrated edge. Within the field are animal figures with triangular bodies, E and H figures, triangles, and scrolls. The style, as described, is typical of the La Paya-Inca already mentioned. Its distribution will be discussed later. The shapes include a red slip, semi-aryballoid, two vertical-handled jars (*yuro*); a semi-globular constricted neck bowl with horizontal loop handle; and a semi-globular bodied bowl with wide mouth, high collar, and two short vertical side handles. Besides the La Paya-Inca bowls, the remainder of the pottery consists of straight-sided open bowls decorated either with black triangles and lines on a grayish-white base, or with black triangles or lines on a red base. These latter are considered to be a local type.

INCA FORTRESSES

Incahuasi and Santa Elena are described by Nordenskiöld³ as Inca forts of the same type as those already described for the Mizque section and represent a further distribution of the same type of building. No excavations were made at these sites, but the assumption is again that Cuzco-Inca material would be found.

¹Nordenskiöld, 1924a, 40.

²Métraux, 1933, 280-288.

³Nordenskiöld, 1924a, 43-46.

The Chuquisaca section presents, then, a sample of Guaraní urns and a suggestion of other non-Inca material; a characteristic La Paya-Inca style site; and, finally, Inca fortresses of a late type.

TARIJA SECTION

Very little work has been done in the Tarija section, an unfortunate circumstance, because geographically, this is the logical place for Lowland and Northwest Argentine contacts. Two sites are described without any positive indication of chronology.

TARUPAYU

Nordenskiöld¹ found seated burials in holes covered with one or more urns. Small children were buried in small urns with covering bowls, or between two bowls. The multiple covering bowls, as well as the small bowls at Tarupayu are of plain undecorated ware. They present, however, one unusual feature, hollow rims filled with pellet rattles. From a flat constricted base the sides of the bowl diverge sharply to the hollow rim which has a diameter almost three times that of the base. A variant is a flat-based, almost vertically-sided bowl with a hollow rim. Multiple covering urns, as previously stated, were found on the Rio Parapiti, but these had no hollow rims. The only other artifacts mentioned are an ornament of snail shell and a tobacco pipe.

TOLOMOSA

At this site von Rosen² found no buildings, agricultural terraces, nor graves, but a considerable quantity of material from refuse sites badly mixed with heavy wash. No stratigraphy could be determined; consequently, the material is described as a unit, despite its variation. Outstanding in the ceramic group are Inca-shaped vessels decorated with those special designs already designated as La Paya-Inca (cf. Culpina in Chuquisaca section, p. 390). The shapes include the bird-handled and the loop-handled ladle, a shallow dish with rim lugs, and a semi-aryballoid shape with horizontal wide loop body handle. The designs include the same triangular field, serrations, triangles and scrolls, animals, E figures, and others of this La Paya-Inca style. Further evidence of the Inca influence is seen in the non-ceramic artifacts. However, the ceramic group includes two other styles of pottery, exclusive of the La Paya-Inca classification. One of these consists of

¹Nordenskiöld, 1924a, 25-28.

²Von Rosen, 1924, 98.

vessels painted with a black-brown on a light red. A typical shape is a flat-bottomed bowl with high vertical sides ending in a slight flare rim edge, and with two vertical side handles. Minor variation occurs in the position of the side handles and includes even one horizontal and one vertical handle. A further shape variation appears in a slight convexity of the sides. The designs consist of rows of triangles and zigzag horizontal lines, or strips of vertical zigzag lines with triangles. This style cannot be clearly classified as Incaic. Finally, there are a few plain incised and punched bowls. A two-handled plain rimmed globular bowl and a one-handled globular pitcher are two additional shapes represented. The incision and punch work differ in style of design from that found at Holquin in the Mizque section. The shapes themselves differ from the Masicito style which is profuse in tripod vessels which are lacking here. The presence of handles on these incised vessels indicates Highland influence, according to Nordenskiöld's view, and so perhaps this group is a plain variant of some Inca ware.

Bronze chisels, elongated breastplates, tweezers, bracelets, and rings represent the common metal work. No bone work is mentioned, but stone artifacts are profuse. Innumerable arrow points of many kinds and materials, as well as some chipped spear heads, were found. Stone disc beads and long and short tubular beads were found. Stone spindle whorls occur in great variety, mostly flat, oval, and rectangular with modifications in outline. Some are incised. Snakes and small animal amulets are common. An engraved stone box fragment and an engraved tubular stone whistle are the finest decorated specimens. Bolas, T-shaped polished axes, and ball club heads are common. Both round and semi-rectangular stone bowls and platters are described, as well as mortars and cups, and one stone bird-shaped dish. In general, the metal and stone work illustrates Inca influence.

Unfortunately, little can be said in review of this Tarija section. Tarupayu is not typical Guaraní, as represented by other sites in the Lowlands. There is no indication that it is earlier than Tolomosa, except that urn burial is earlier than La Paya-Inca style in other localities. Tolomosa may well represent a mixed material, but new finds are necessary to confirm this opinion.

SANTA CRUZ SECTION (SARÁ)

No extensive excavation has been reported for this section, although several sites are briefly described by Nordenskiöld¹ and Métraux.²

¹Nordenskiöld, 1913, 210-212.

²Métraux, 1933, 289-290.

RIO PALACIOS

North of Santa Cruz, in the Province of Sará, Nordenskiöld located two groups of urn burials. The first contained one large urn capped with a small U-shaped bowl and was associated with bowls and a sherd-covered urn. The second group consisted of eight double urn burials and some artifacts. The pottery and urns from both sites belong to the same unit type. The commonest urn type was a globular bowl with a high collar decorated with finger scallops or corrugations, handleless and without further decoration. Another type was a large egg-shaped urn with high collar and four quarter-moon side lugs. A U-shaped urn served as a cover. The pottery was plain, even fragments of painted ware being rare, and appliqué strips formed the typical decoration. Some small vessels had solid bulging tripod legs. One such bowl was a squat olla type with flare rim; another had a rounded base and straight, slightly converging upper sides, ending in a plain rim. A globular bowl with constricted orifice, high collar, and slightly pointed base, and an open bowl with convex sides almost forming an angle, completes the ceramic type.

A pierced copper disc and three pieces of silver were obtained from one urn. A tubular and an elongated pierced bone bead were found. Star-shaped clay whorls occurred at the first site.

Nordenskiöld¹ considers the Sará urns as Guaraní; indeed, they conform to the described type. With the possible exception of the tripods, the pottery presents no great changes from the pattern. Metal artifacts, however, are not common accompaniments of the Guaraní burials and may possibly represent an Inca influence.

GUAYABAS

South of Santa Cruz, Métraux describes a bowl of the Rio Palacios type with finger scallop collar, appliqué strip body decoration, and tripod feet. The description of Guayabas is not one of excavations, however, so that association of urns and artifacts with this find is unknown. A tall open-mouthed, high-collared bowl found at Guayabas is decorated with a face modeled with appliqué strips, and a convex-sided open bowl has a similar face as well as modeled rim ornaments. These latter pieces present some similarities with the material found at Masicito Mound (Mojos section), or better still, with Chimay (Beni section).

¹Nordenskiöld, 1913, 255.

INCA CONSTRUCTIONS

Pucarilla¹ is another of the Inca forts presenting no significant variations from those already described for the Mizque section. The sculptured hill of Samaipata, however, is an Inca ruin of a different type. The following translation by Mr. N. C. Nelson of Nordenskiöld's² original account in Swedish describes this ruin.

The sculptured mountain at Samaipata is called "El fuerte del Inca"—the Incan stronghold. A stronghold it has obviously never been. The first one to mention this mountain was d'Orbigny. He believed that gold was once washed here. This is not possible; the mountain at Samaipata can have had no practical purpose. The sculptured mountain is a big flat outcrop of loose, red sandstone on which has been cut out of the surface (for a stretch of about 1000 meters) numerous rows of niches which at a distance look like windows and doors. Treasure seekers have sought to open them with explosives, but none has been lucky enough to find the "right entrance" to the interior of the mountain where the treasures are hidden. For the rest the whole mountain is cut with peculiar figures, seats, steps, basins, etc.

Around the mountain were agricultural terraces as well as some poorly preserved masonry walls. No graves were encountered. Among the finds were a T-shaped bronze ax, a piece of a silver pin (*topo*), some slingstones, and a star-shaped stone club head. Small gold llamas were also said to have been found there. Nordenskiöld believed (in 1911) that this was the last outpost of the Highland Inca culture, built for ceremonial purposes.

In summary, the Santa Cruz section presents evidence of a Guaraní culture with some variations (Rio Palacios and Guayabas), and of two styles of Inca buildings (Pucarilla, Samaipata). As usual, placing the Guaraní as earlier is based on comparison, and not on direct evidence from the region.

MOJOS SECTION

One of the most important regions in the Lowland Bolivian area is the Mojos section, so rated largely because of the extensive excavations of Nordenskiöld³ in three mounds (Velarde, Hernmarck, Masicito) near the town of Trinidad, between the Mamoré and Iviri rivers. The importance of these excavations is augmented by the two distinct stratigraphic layers in Mound Velarde. Furthermore, the material encountered in Velarde and Hernmarck differs in style, shapes, and associated artifacts from other Lowland remains, in spite of some exchange influ-

¹Nordenskiöld, 1924a, 51.

²Nordenskiöld, 1911, 8.

³Nordenskiöld, 1913, 215-242.

ences, leading Nordenskiöld¹ to refer to this section as demonstrating an Arawak Mound culture.

The Mojos section is completely arid in one season, but so flooded during the rainy season that only elevated land remains above the water forming islands. It is logical that these elevated islands served as dwelling sites in the archaeological past and gradually accumulated refuse material. The mounds were probably not built intentionally; certainly their use as cemeteries is secondary. Stone is not found in the region and only the most durable artifacts are preserved in this region of contrasting seasons.

MOUND VELARDE, LOWER

This mound island measured 45 by 25 meters with a height of about 5 meters. The two levels are accumulations of refuse around the mound and could be distinguished by observation of the trench walls. The upper level varied from 50 centimeters to 2 meters in thickness, and the lower level continued below it to 3 meters depth. The lower level is independent, in a sense, of the upper, and in parts runs under the actual mound, showing that part of the mound accumulation was effected, either naturally or artificially, between the periods represented by the two levels. Even where the two levels are less positively distinguished, however, the materials are so distinct that no difficulty is found in segregating the two. The material from the lower level is largely dwelling site refuse. Quantities of bones from meals are found mixed with mussel shells. Indeed, the shells and large unbroken sherds suggest refuse accumulated under a pile dwelling. No urns were found in association with the lower level, but instead there were two extended direct burials.

Sherds from the lower level indicate a great variety of pottery shapes, but, significantly, no tripod vessels. Instead a four-footed vessel base was found. A common shape is a flat-based bowl with sides which diverge sharply to an angular shoulder near the plain rim of the wide orifice. Other shapes indicated by the sherds are a convex-sided, projected base and roll rim olla; an olla with a bulge below the rim; and a constricted-necked, raised-collar olla. Modeled rim lugs are common ornaments, representing human heads with slit eye features. Handles are completely absent. With the exception of the rim ornaments, decoration is by painting. The most typical design is the short spiral, worked into complex designs, and sometimes associated with the triangle. Hooks, cross hatch, and triangles are also employed.

¹Nordenskiöld, 1917b, 18-19.

A short clay, spherical-headed grinding implement is common in the lower level and virtually limited in its distribution to this site. Clay spoon-shaped ladles are also found. A modeled seated clay female figurine occurred, as well as one clay disc whorl with fretted edge. Ear and lip piercing is indicated by the modeled rim ornaments, and one piece of a circular quartz plug was found. No bone or metal artifacts were encountered.

Lower Velarde is comparable to the Tiahuanaco periods of Cochabamba and the Mizque sections in the presence of direct rather than urn burials, the use of painted decoration, and the short spiral design. The absence of tripods compares with Cochabamba-Tiahuanaco only. However, the shapes, including the four-footed vessel, absence of handles, modeled rim ornaments, clay ladles and grinders, and detail of design, in general, are quite distinct. Furthermore, shapes and designs of Tiahuanaco style, common in the Cochabamba and Mizque sections, are lacking in Lower Velarde. Nordenskiöld notes the comparisons between Mizque Tiahuanaco and Lower Velarde and comes to the conclusion¹ that if the ceramics of Mojos were influenced by Tiahuanaco cultures they had, in turn, influenced the latter type. In other words, a contemporaneity is suggested.

MOUND VELARDE, UPPER

Upper Velarde is a level of dwelling site refuse and burials superimposed on the lower level of the mound, but the resemblance between the two is slight. The pottery has fewer varieties of shapes, no four-footed types, no rim ornaments, and uses simpler design without the short spiral. No direct burials are found. The characteristic Lower Velarde clay ladles and grinders are absent. The characteristics of the Upper Velarde level itself are more significant in contrasting the two levels than the mere absence of Lower Velarde traits. The burial style consists of double urns. The urns are painted and both oval and globular in shape, without collars or flare rims, but characteristically with pointed tripod feet. The burial urns are covered with other plain urns or with shallow tripod vessels. In fact, tripod painted bowls are typical. The cross is a typical design element, but checker patterns, parallel lines, pyramid steps, and rows of triangles are also used. Some vessels had covers with handles.

A clay cylinder with engraved decoration resembles the rolling clay stamps found elsewhere in South America, but since it occurs in associa-

¹Nordenskiöld, 1917b, 18.

tion with a shallow, ribbed bowl, it is considered a grinding roller by Nordenskiöld. Ribbed bowl and roller are typical of Upper Velarde. A standing clay figure, with appliqué and slit features was found, and also a clay disc with four holes. Three-legged clay stools, with painted decoration, are compared by Nordenskiöld¹ to wooden stools found in Brazil. A complete small polished stone celt and a piece of a lip plug were the only stone artifacts. Bone artifacts included an arrow point, a stopper, and finally, a beautifully carved bone with faces and curved figures in a style quite different from the simple painted designs on pottery.

Upper Velarde is more closely related to Mound Hernmarck than it is to Lower Velarde. Little comparison can be made between Tiahuanaco and Upper Velarde. In Mizque the Tiahuanaco material is associated with tripod vessels, but these differ from the short pointed tripods of Upper Velarde, although some relationship may be unfolded.

MOUND HERNMARCK

East of Velarde, near Caimanes is a large mound about 225 meters long, 85 meters wide, and 3 to 4 meters high. Nordenskiöld² made a three-meter cut in a refuse heap at the northeast end of the mound. In other parts he encountered many secondary urn adult burials; in fact, forty-three urns were found in one part of the mound. No stratigraphy was detected.

The refuse heap contained fish and animal bones and numerous shells. Plain and painted open bowl tripod vessels were typical. Clay bowl covers with handles were found. The roller grinders and the ribbed clay grinding platters were common. Two clay figurines with appliqué and slit features occurred. Characteristic are clay whorls incised with simple to elaborate designs before firing. A piece of a T-shaped stone ax is the only non-ceramic artifact.

The urns are from 10 centimeters to 1.50 meters deep (to top) and the urns found at the greatest depths are generally of better quality design. Urns are covered either with another urn or with a tripod vessel. Some flexed sitting burials were found with urns over the head and part of the body only. Small urns, found empty, possibly contained child burials. Few mortuary objects accompanied the burials. The urns themselves are globular tripod bowls with and without short flaring rims. Most of them are painted with elaborate free-hand designs, in brown

¹Nordenskiöld, 1913, 224.

²Nordenskiöld, 1913, 226.

shades. One design group includes a human face with eye, teeth, mouth, and nose. Another is a degenerate face, with only the nose recognizable. Other design elements include simpler patterns formed by lines, curves, and checkers. Accompanying the urns were plain open bowls on pedestal bases. One of these had lug side handles and one had a wishbone-shaped handle.

In spite of considerable difference in design detail in painting, Mound Hernmarck compares closely with Upper Velarde and contrasts with Lower Velarde. Both Hernmarck and Upper Velarde have double urn secondary adult burials, with tripod painted urns. Both have cover urns with round holes in the bottom. Small tripod vessels are also typical of both. Clay rollers and ribbed grinding platters are typical of both. Small clay figurines are found in each place. Finally, the design on the carved bone piece from Upper Velarde has the same faces as the incised whorls of Hernmarck; these are in turn related to the painted urn designs. Thus a strong resemblance is observed between the two cultures, although enough differences exist to keep them from being identical. About the only resemblance between Hernmarck and Lower Velarde, on the other hand, is the use of the short spiral design and the brown paint. The elaborate designs of Hernmarck plus other distinguishing artifacts, such as the incised whorls, suggest that it is slightly older than Upper Velarde, although the time interval is not of great significance.

MOUND MASICITO

Sixty kilometers from Trinidad on the Rio Mamoré, Nordenskiöld¹ found an artificial mound 300 by 150 meters and about 3 meters high. Sherds and refuse material occurred in quantities as well as two disturbed urn burials. The ceramics from this mound present a contrast to the other Mojos sites. The pottery is unpainted and decorated by incision, stamping, appliqué pellets and strips, and some modeling. Tripod vessels are again typical, in the form of shallow plates, or convex-sided open bowls, but great attention is paid to the modeling of the feet which are stylized animal feet and possibly heads. A constricted-mouthed olla is represented with a raised incised and punched collar and undulating appliqué strip ornament. Simple faces occur as rim lugs. The clay roller grinders and ribbed grinding platters are still found. Other artifacts were not described for this site.

Urn, tripod vessels, lack of handles on pottery, and clay grinding

¹Nordenskiöld, 1913, 240-242.

rollers and platters are in the Mojos tradition and suggest some association with the other mounds. Other characteristics of Velarde and Hernmarck are absent, however, and the tripod feet and the vessel shapes differ in the two groups. The other contrasts are glaring, particularly the change from painting to incision as a decorating medium. A consideration of the nature of the changes suggests that Masicito is later than the other Mojos mounds. At least it has some of the characteristics of Upper Velarde and Hernmarck, none of Lower Velarde, while the latter mounds have none of the Masicito traits.

In final analysis the Mojos section presents a rather unique array of material. The chronological sequence appears to be as follows:—

Lower Velarde (roughly contemporaneous with Mizque-Tiahuanaco)

Upper Velarde, Hernmarck (with Hernmarck possibly somewhat older than Upper Velarde)

Masicito

Mojos presents new material, in a sequence which must be compared to other sections of Lowland Bolivia by mutual influences, rather than by direct development or branching.

BENI SECTION

The Beni section is somewhat outside the region of Lowland Bolivia as treated here. Its geographical position is such that contacts with the Highlands could have been direct, rather than through the Cochabamba section. Furthermore, it is an outskirt of the great Amazon area. No extensive excavations have been carried out in this section, but the known sites are briefly reviewed here.

COVENDO

Unassociated finds at Covendo, as described by Nordenskiöld,¹ include T-shaped axes with flaring blades, round flat ring stones, and a bronze ax or knife with T-handle.

CHIMAY

Chimay is located some distance below Covendo. There Nordenskiöld² found a stratum of dwelling site deposit about 20 centimeters thick and one meter below the ground surface. This area continued for about 300 meters along the Rio Beni cut. Below this stratum, at about 2 meters depth he found three graves. One burial was extended on its

¹Nordenskiöld, 1924b, 230.

²Nordenskiöld, 1924b, 229-234.

back, one flexed on its back, and one flexed on its side. Bowls, and three white shell beads, were found with these burials. The bowls were of the same type of pottery as the sherds in the refuse level above, unpainted, but decorated by incisions, appliqué pellets and strips, and some modeling. Four-footed vessels with solid, short cylindrical feet were characteristic. Modeled face and animal rim decorations were common. Loop handles were common. Complete vessels show a shallow, convex-sided open bowl with rim decoration; another with angular sides, four feet, and animal rim ornamentation; a two-handled collared globular jug with incised design and four feet; and finally, a kero-shaped goblet with crude design (painted ?) and projecting solid side handle. Associated with the refuse level were T-shaped polished stone axes, a scooped out grindstone, and two stone chips of questionable use.

Because of the four-footed vessels and the rim decorations which faced inward, in addition to the absence of urn burials, Nordenskiöld¹ suggested a connection with Lower Velarde. He also points out the glaring differences in the painted versus plain incised and modeled pottery in Chimay and the absence of any of the characteristic artifacts of Lower Velarde. Chimay appears to me to be a much later site than Lower Velarde, in spite of the four-footed vessel similarity. The pottery with its incised design and appliqué modeling is much more closely allied to Masicito Mound in the Mojos section, which was pointed out as post-Velarde. The Tiahuanaco influence, indicated by the kero-shaped goblet and the presence of handles (?), is not strong. Polychrome Tiahuanaco painting is not present, and four-footed vessels do not occur in Tiahuanaco. Furthermore, the kero shape with projecting solid side handle is not found at Tiahuanaco. It did occur at Arani III in the last phase and in graves which appeared to be the most recent of all. The T-shaped stone axes are common unassociated finds on the border line between Peru and Bolivia² and do not, in themselves, indicate any great antiquity.

BUTURO

In the eastern Andean jungle country between Peru and Bolivia Nordenskiöld³ found dwelling sites at Buturo. Grindstones, sherds, and stone axes were found. The sherds are plain. One indicates a modeled and appliqué strip clay face and another sherd is from a crude shallow open bowl with vertical grooves along the upper rim.

¹Nordenskiöld, 1924b, 234.

²Nordenskiöld, 1906, 87.

³Nordenskiöld, 1906, 93-94.

RURRENABAQUE

Posnansky¹ reports a site on the Rio Beni, north of Covendo, containing a conglomeration of material. A large effigy urn in the form of a human figure, the globular bowl forming the body, the collar the head, and with modeled feet and arms is a unique piece. Another urn has a constricted base and sides which bulge out near the open rim. This is painted with a curvilinear design in white. Other pottery includes three and four-legged ware, painted and incised, and appliqué modeled vessels. The painted design is a combination of short angular hooks. A bronze plate was also found with incised figures, reminiscent of the Diaguite bronzes, which Posnansky attributes to Tiahuanaco influence.

It is useless to draw conclusions on the Beni section from so few worked sites. The Chimay site, at best, fits into the scheme of Lowland Bolivia in a late position.

LOWLAND BOLIVIAN PERIODS

Nordenskiöld² suggested a threefold division of Bolivia into Highlands, Lowlands south of Latitudes 17 and 18, and Lowlands north of Latitudes 17 and 18. In reference to the seven sections considered in this report this division would resolve itself into Highlands; Cochabamba, Arani, Mizque, Chuquisaca, Tarija, Santa Cruz; Mojos and Beni. Linguistically, this division simplifies³ into Aymara and Quechua (Highlands); Guaraní (South Lowlands); Arawak (North Lowlands). Nordenskiöld supports his division with considerable evidence. However, sound as such a division may be, it does not solve the problem of periods and their chronological relations. Obviously, any scheme suggested at this time must be flexible enough to meet the inevitable changes which will result from future excavating, especially in the little-known sections. It does, however, seem profitable to sum up this review of Lowland archaeological work with a tentative arrangement of period chronology.

Most sections and sites can be classified on the basis of Early, Middle, and Late periods. Using terminology of known cultures in this connection gives the following array:—

¹Posnansky, 1928, 195-197.

²Nordenskiöld, 1913, 206.

³Nordenskiöld, 1913, 208.

- Early: Derived Tiahuanaco; Mizque-Tiahuanaco; Early Arawak
 Middle: Decadent Tiahuanaco; Late Arawak; Incised ware of questionable
 affiliations; Guaraní
 Late: La Paya-Inca; Inca

This division is confirmed in some sections by direct or grave isolation stratigraphy. Other sites are included by analogy and comparison. In the final analysis, unfortunately, there are still gaps that cannot be filled in, discrepancies which cannot be explained. There is nothing that can be said, for example, for the Santa Cruz section in which only Inca buildings and Guaraní burial urn sites have been recorded. A comprehensive history of the section cannot be reconstructed until further excavating fills out the picture. The evidence for the classification of unstratified material is presented in the following discussion, although perforce such classification is somewhat subjective.

EARLY PERIODS

Derived Tiahuanaco. The influence of Tiahuanaco on the ceramics of the Cochabamba section is soundly established. Similarities of colors, shapes, and designs between Highland Tiahuanaco and Cochabamba leave no doubt as to the relationship. The Tiahuanaco material shows no trace of the Early Tiahuanaco period, as described in my excavations at the Highland ruin.¹ Furthermore, as discussed in the Arani excavation section (p. 352), the true Classic Tiahuanaco is not represented. In other words, Cochabamba-Tiahuanaco, at its best, lacks the full puma, condor, and human figures of the Highlands, as well as the painted hollow base incense bowls and the open flaring rim bowl (Shape C).² Furthermore, the kero-shaped goblets present numerous special varieties and all painted ware is associated with rather inferior material in the same grave. Still the polychrome color combinations, the well-drawn designs, and the well-finished pieces do not conform to a Decadent Tiahuanaco type. Consequently, the term, Derived Tiahuanaco, is used to indicate the relationship of the best Cochabamba material to the Classic Highland type. Moreover, numerous local modifications of both shapes and design combinations give the Derived Tiahuanaco period a freshness which would be inconsistent in a disintegrated Highland style.

The Derived Tiahuanaco type was isolated by graves at Arani and designated as Arani I. Much of the same type material appears in the collections from the Cochabamba section and failure to isolate it in other places is probably due to the lack of supervised excavation.

¹Bennett, 1934, 448-453.

²*This Series*, vol. 34, 407.

The characteristics of Derived Tiahuanaco as represented by Arani I, from the point of view of Lowland distributions, are summarized briefly. The Derived Tiahuanaco ceramics are decorated by polychrome painting, without incision or modeling, with designs, shapes, and colors all derivatives of the Highland prototypes, plus some local modifications. No urn burial is associated. Vertical handles are common, but tripods are absent. Burial is direct, in deep stone-covered, bark-lined graves. No significant stone, bone, or metal artifacts are associated.

The distribution of the Derived Tiahuanaco is limited, within the scope of present excavations, to the Cochabamba section.

Mizque-Tiahuanaco. The spread of Tiahuanaco influence is not restricted to the Cochabamba section, although the pure Derived type is so limited. A polychrome pottery has been found in the Mizque section which is related in colors, shapes, and design elements to Tiahuanaco, although with some noteworthy variations. Mizque polychrome ceramics appear to be related to the Derived Tiahuanaco of the neighboring Cochabamba section in the same way that the latter is related to Highland Tiahuanaco. In other words, Mizque style seems derived from the Cochabamba Tiahuanaco style. That no great discrepancy in time is represented is shown by the appearance of a characteristic piece of Mizque painted ware in an Arani II grave. Furthermore, because of the abundance of Aymara place names still extant, Nordenskiöld concludes that Aymara was once spoken in the Mizque section.¹

Noteworthy differences between Derived and Mizque are the introduction of many totally new shapes including solid and hollow-rattle tripod-legged vessels; new color combinations involving the use of purple and red as a design color; new design combinations, the elements of which are Tiahuanacoan in origin. However, urns are still not associated, incised and modeled decoration are not found, and handles persist. Bone, stone, and metal artifacts are still not significant.

Mizque painted pottery is treated as a unit by Nordenskiöld although he states that the thick deposit indicates a long period of occupation.² As will be mentioned in the discussion of the Middle Periods, the Cochabamba Derived Tiahuanaco falls into a phase of local decadence. It is quite conceivable that Mizque-Tiahuanaco will some day be found in a site which permits stratigraphic isolation into sub-phases. At that time, it may be possible to isolate a portion of the material more closely re-

¹Nordenskiöld, 1917b, 14-15.

²Nordenskiöld, 1924a, 61.

lated to the Derived, and the remainder, including perhaps the tripods and some of the new shapes, may be shown to be more recent. The plausibility of this suggestion is augmented by the Velarde Mound excavation in the Mojos section where tripods and urns are associated with the upper level only.

Early Arawak. In the lower level of Mound Velarde in the Mojos section a stratum was found without urn burial, tripod vessels, or incised decoration of ceramics. Painted pottery decoration was typical, with a characteristic short spiral which is comparable to Lowland Tiahuanaco styles. Here, however, the parallel ends. Lower Velarde includes a variety of shapes new in the Lowland sites. A four-footed vessel, a variety of modeled rim decorations, and a clay grinding artifact are all distinctive traits.

Nordenskiöld¹ has pointed out that the Tiahuanaco influence in this material makes it seem logical that the two are roughly contemporaneous. The stratified position in the mound under a type with a rather extensive distribution confirms the antiquity. The distribution of this type is, so far, limited to this one site. It must be stated, however, that the Tiahuanaco influence is not outstanding, nor very direct.

The Cochabamba Derived Tiahuanaco, the Mizque-Tiahuanaco, and the slightly Tiahuanaco-influenced Early Arawak of Lower Velarde are the only materials which can be classified in the Early Period section at this time. It is hardly logical that such sections as Chuquisaca, Tarija, and Santa Cruz were totally without inhabitants in this period, but, so far, no material has appeared which can be assigned to the early epoch. Further distribution of Early Arawak or Tiahuanaco may one day be revealed, or perhaps different influences will be shown to have penetrated the region at early dates. Some influence from the Northwest Argentine might be expected, especially in the southern sections.

All indications are that the Tiahuanaco period in the Lowlands was of long duration. Furthermore, the Derived Tiahuanaco is but slightly post-Classic if not contemporaneous with it. My feeling is that no direct Classic distributions will be found in the Lowlands, but that this Derived is in the same category.

MIDDLE PERIODS

The Middle Period in the Lowlands includes a variety of influences and local modifications of the Early Period styles, possibly fostered by the collapse of centralized Tiahuanaco authority. It is not possible to

¹Nordenskiöld, 1917b, 18.

segregate all these influences into a stratigraphic series. Perhaps no great time period is represented, and, at best, the series in one section need not necessarily be the same as in another. That is, the Guaraní may well have been established in one area long before they penetrated to another, which makes absolute chronological sequences inaccurate over so large a region. Suggestions as to the position of various phases will be made in the descriptions, but these are not intended to be dogmatic.

Decadent Tiahuanaco. In the Cochabamba section the Derived Tiahuanaco disintegrates slightly into a local Decadent phase. This was isolated at Arani II and in the Tiquipaya Mound. The collections present additional material, unisolated. The Decadent appears to be local, although it is probably roughly contemporaneous with the Highland Decadent style and possibly still in contact with it. At least the principal characteristics of the Derived Tiahuanaco period are continued, with further modifications of shapes and disintegration of design towards stylization. The quality of the ware is inferior. Urn burials, tripods, incised and modeled decoration are still absent, and handles and polychrome (in a reduced color array) continue to be typical. The materials in the Mizque section suggest a similar Decadent period, but, so far, it has not been isolated. The distribution of the Decadent is essentially the same as the Derived. At the Arani site an unbroken chain from Derived to Decadent was indicated and consequently Decadent should be placed chronologically as immediately following Derived.

Late Arawak. Upper level Mound Velarde as well as Mound Hernmarck were shown to represent a unit type material, superimposed, in the first mound, on the Lower Velarde or Early Arawak. Late Arawak is in no sense a continuation of Early Arawak, as represented by Lower Velarde. In fact, the contrast between the two types is great.

Late Arawak employs painted tripod urns with covers for burial. Small painted tripod vessels are typical. In Upper Velarde painted designs are largely geometric, but in Hernmarck are curvilinear designs which represent stylized faces. Cylindrical clay grinders and ribbed clay grinding platters are typical. Three-legged clay stools, clay figurines, and some bone and stone artifacts are found.

Little association of Late Arawak with other Lowland types can be shown. The tripod ware in the Mizque section may have been introduced from Late Arawak. Other tripod ware (Masquito in the Mojos section and the Guaraní in the Santa Cruz section) might be an indirect influence of Late Arawak.

The Late Arawak probably represents an intrusion into Lowland Bolivia from the Brazil area to the north. Nordenskiöld saw little comparison between his Arawak mound culture and Marajó,¹ but that is the logical direction to seek prototypes. Perhaps future work in Brazil will establish more definite connections. As already stated, the material from Mound Hernmarck is slightly older than Upper Velarde, although both should have an early position in the chronology of the Middle periods.

Incised Wares. In three sections (Mizque, Mojos, and Beni) was found an incised plain ware type culture which may possibly represent a distinct unit. Little is known of the plain incised ware in the Mizque section, except that in two places it was mixed with Mizque-Tiahuanaco (although considered distinct by Nordenskiöld), and that it was associated with urn burial. In Mound Masicito it is also associated with urn burial as well as small tripod vessels. In Chimay, no association with urn burials was mentioned, although the possibility is high that some of the urn burials found in the Beni section belong with the incised ware. In every case the incised decoration is dominant, though at Masicito and Chimay appliqué strips and modeled rim decoration were also used as decorative elements, but nowhere is painting employed. The presence of urn burial, plain ware, and other characteristics, including tripods and appliqué strip decoration suggest that the incised ware period is Guaraní. Yet, other Guaraní sites are found in the Lowlands which are not associated with incised ware.

The Masicito site differs greatly from Late Arawak, but still includes some of the characteristics, such as tripods (although the Masicito tripods are modeled feet) and particularly the rolling grinder and ribbed platter, so typical of Hernmarck and Upper Velarde. The conclusion was reached that Masicito represented a survival influence of Late Arawak mixed with this incised ware type. At Chimay, on the other hand, Nordenskiöld² compares the four-footed vessels and modeled rim decoration with Early Arawak. At the same time, he concludes that Chimay is quite distinct, if not more recent than Lower Velarde, due largely to the absence of painted ware and the Highland influence of handles on vessels.

One cannot state conclusively that all the incised ware sites are contemporaneous, although they are definitely in the Middle period in all sections. Furthermore, as previously stated, some mixture with Gua-

¹Nordenskiöld, 1917b, 16.

²Nordenskiöld, 1924b, 233-234.

raní is noted. Lothrop's¹ summary of the Paraná Delta, Argentine region, gives a basis for distinguishing Guaraní versus incised and modeled rim decorated ware, although without chronological implications. The greatest contrast in the Lowland Bolivia area is the association of urn burial with the incised ware which is not found on the Delta.

Guaraní. There are a number of sites in the Lowlands which can be called Guaraní, even after eliminating the incised ware sites of doubtful Guaraní affiliations. In the chronological table (see Table 2) these Guaraní sites are treated as slightly more recent than the incised ware sites. The greater antiquity is assigned to the incised ware sites because of their association with Tiahuanaco influenced material at Mizque and Chimay, and with Late Arawak at Mojos. On the other hand, Guaraní urns were found in the lower stratum of the Colcapirhua mounds, below La Paya-Inca material which is relatively recent.

The Guaraní sites in the Lowlands contain clusters of urn burials associated with plain ware pottery. Local differences occur in each site. At Colcapirhua (Cochabamba section) double U-shaped urn burials associated with plain orange ware open bowls are found. In the Santa Cruz section double urns, including the U-shaped and some large jars are also found. Here the urns are associated with tripod plain ware with appliqué strip decoration and corrugated rim bowls. Nordenskiöld² called this Santa Cruz material, Guaraní. Both in the Tarija and Chuquisaca sections multiple covering urns were found over a skeleton, together with corrugated decoration on plain ware. At Tarupayu (Tarija section) the covering urns and some of the bowl types were specialized with hollow rims containing pellet rattles. Hollow rims have a Brazilian distribution and suggest an Arawak origin. It is possible that much of the material identified here as Guaraní may be shown to be of Arawak origin instead. Doctor A. Métraux informs me that he has unpublished material that supports this thesis.

Some of the Guaraní migrations into the Lowland area were late in the history of the Inca Empire. Nordenskiöld³ reviews historical evidence to show

that at the beginning of the 16th century numerous Guaraní Indians emigrated from the Rio Paraná and Rio Paraguay to Guarayos and the outermost valleys of the Andes towards the Gran Chaco.

The series of Inca fortresses are considered as defenses against this

¹Lothrop, 1932, 183-189.

²Nordenskiöld, 1913, 255.

³Nordenskiöld, 1917a, 121.

Guaraní invasion. Interesting in this connection is Nordenskiöld's conclusion in the same reference¹

that the districts in which these Indians settled were not previously inhabited by Guaraní Indians, but chiefly by Arawaks.

This is borne out by the archaeological record in its gross outline, but further evidence supports Means'² contention that the Chiriguano Indians, a Guaraní tribe, entered the region before these final emigrations. In another paper, Nordenskiöld³ also suggested that the warlike Chiriguanos may have dispersed the Aymara peoples before the arrival of the Inca.

Archaeological evidence points to Guaraní sites as being not only isolated from Inca sites, but as stratigraphically below them. Furthermore, distribution of Guaraní types into the Northwest Argentine region indicates that even greater antiquity may in the future be assigned to this culture. Ambrosetti⁴ found plain globular and U-shaped urns containing adult burials at unusual depth in the Pampa Grande site (Salta Province). Boman⁵ considers this find of Ambrosetti's as the superimposition of Diaguite child-urn burials over adult urn burials which he identifies as Tupí-Guaraní of the Chiriguano type. In spite of these suggestions, however, there is, as yet, no positive evidence in the Lowlands for attributing great antiquity to the Guaraní material.

LATE PERIODS

The Late Period includes only Inca and Inca-influenced sites and strata. The possibility that Guaraní is partially contemporaneous with Inca has already been indicated, but, except where material shows definite Inca influence it is classed in the Middle rather than the Late group. With sufficient supporting evidence this arrangement may be modified in the future. Inca forts are common in the region, but other sites containing Inca-influenced material are also found. Certain of these conform definitely to the type of Inca modified material found at La Paya in Salta Province of Northwest Argentine⁶ and consequently, for the time being, this rather awkward designation of La Paya-Inca is used to name this material.

La Paya-Inca. Métraux⁷ gives a fine summary of the design style of

¹Nordenskiöld, 1917a, 121.

²Means, 1917, 482-484.

³Nordenskiöld, 1924a, 61-63.

⁴Ambrosetti, 1906, 28-31.

⁵Boman, 1923, 4.

⁶Ambrosetti, 1907.

⁷Métraux, 1933, 281-283.

this group with reference to material found at Culpina. As usual the shapes of the vessels are clearly Incaic (Fig. 12). The triangular design fields are outlined with double lines, of which one is saw-edged. Within the triangles are double scrolls, or triangular-bodied animals, surrounded by small E-like or H-like figures. Other common design elements are triangles and scrolls and angular scrolls or frets. The combinations of these elements form a design group distinct from the common Cuzco-Inca geometric design patterns.

At Tolomosa the pottery was accompanied by a large number of stone and metal artifacts of Inca types. At the same time was found pottery which was not of the La Paya-Inca style, but suggested either a local type or an intrusion of new material. Incised and punched ware without painted design, found at Tolomosa, was also not the Incaic type. However, no stratification was noted at the site, so little can be said about the actual association of these varied types. At Culpina, however, red slip and black-on-gray painted open bowls were associated in the same grave with Inca influenced ware, showing localized styles.

La Paya-Inca material has been found in wide distribution. In Lowland Bolivia it occurs in its pure form at Culpina (Chuquisaca) and Tolomosa (Tarija). In the Northwest Argentine it is found most extensively at La Paya (Salta Province) where it is associated with a late type Diaguite (Calchaquí) material, but one which does not include the Santa Maria type urns (although they occur at La Paya in other graves). Luracatao and Isla de Tilcara in the same region also have this type material. On the north coast of Chile it is found at Freirina and Vallenar. This wide distribution led Métraux¹ to the conclusion that the style was a branch of the Chíncha-Atacameña established by Uhle² as a pre-Inca period in the north Chile region. In a previous paper Métraux³ demonstrated the contacts between the southern Bolivian Lowlands and the Northwest Argentine in a manner which makes the spread of the La Paya-Inca style to Tarija and Chuquisaca seem logical. Both Boman⁴ and Uhle⁵ considered the Inca style at the La Paya site as a local combination of Incaic and Diaguite elements and the Chilean branch sporadic. The theory that La Paya-Inca style resulted from a local mixture of Inca and Diaguite in the La Paya region and then spread to the southern part of Lowland Bolivia and the northern part of Chile is not

¹Métraux, 1933, 284.

²Uhle, 1919, 30-46.

³Métraux, 1930, 399.

⁴Boman, 1908, 244-246.

⁵Uhle, 1912b, 536-537.

inconsistent with the time element. The typical Inca shapes could not represent any period that preceded actual Inca contact. The chain of Inca influence continued (as traced by the forts of the later periods) without a break from North Chile, through Northwest Argentine, and into Lowland Bolivia. It is logical to assume that a style developed in the center of this arc could spread in both directions. That it represents an early phase of Inca influence is demonstrated by the later conventional Cuzco-Inca types found isolated in the same region, as well as by the association with Calchaquí at La Paya. The association of local styles and variations in pottery other than design style is summed up by Métraux¹:—

sur un fond andin, mais original, se sont superposées des influences venues du Cuzco

In the Cochabamba section is found a type of Inca-influenced ware which may one day be related to the La Paya-Inca style. The best example of this style was superimposed on Guaraní urn burials at Colcapirhua. Large one-handled and small one-handled high-collared pitchers were found with triangle and scroll designs (Fig. 12), as well as animal figures like the triangular-bodied La Paya-Inca figures, but not as conventionalized. Metal work of Inca type was associated. As in all the Lowland Inca influenced sites no urn burials are found and pottery with handles and without tripods is decorated by painting. At Illuri a bowl with two handles and high collar was similar to one at Colcapirhua. Furthermore, metal, bone, and stone artifacts of Inca types were numerous, and closely similar to those found at Tolomosa. In a grave of the Arani III group another of these two-handled bowls with scroll design was found. The Arani III period is certainly later than the Early Arani Periods, although it still contains many Tiahuanaco types. These three sites form a unit which suggests Inca influence, but which is not definitely associated with Inca remains of the Cuzco type. It is analogous to the La Paya-Inca style and is probably about contemporaneous. However, it may represent a direct Inca influence from the Highlands, rather than any Northwest Argentine distribution.

Inca. The numerous Inca fortresses in the Lowland region bear witness to the Inca invasions, even if they were not a matter of historic record. Inca forts are described from the Cochabamba, Mizque, Chuquisaca, and Santa Cruz sections. Most of these were built late in the Empire days, probably to resist the Guaraní invasions. They are largely *pirca* masonry buildings on a naturally protected ridge or bluff,

¹Métraux, 1930, 427.

augmented by concentric circles of enclosure walls. Excavation reveals no evidence of antiquity, but pottery of the Cuzco-Inca type. Both the type of building and the pottery is characteristically Incaic.

RÉSUMÉ

This review of Lowland Bolivia has been presented, not in any sense of finality, but as an aid in the analysis of the rather scattered literature, and as an attempt to give some order to a confused archaeological field. There is little doubt that future work in the Lowlands will complete the information on some of the weaker sections, add new type material, and perhaps reinterpret the influences and distributions. In particular, I anticipate that added data will reveal wider distributions of materials and influence from the Northwest Argentine center into southern Lowlands. At the moment, however, I feel that it is unwise to force distributions or conclusions in a region that has been so little explored.

TABLE 2
LOWLAND BOLIVIA SITES ARRANGED BY SECTIONS, PERIODS, AND CULTURES

Period	Arani Section	Cochabamba Section	Mizque Section	Chquisaca Section	Tarija Section	Santa Cruz Section	Mojos Section	Beni Section	Culture
Late	Inca Ruin	Spisipi	Incallacta Pulquina Batanes	Incahuasi Santa Elena		Pucarilla Samaipata		Artifacts	Inca
	Arani III	Illuri Upper Col- capirhua		Culpina	Tolomosa				La Paya-Inca
Middle		Lower Col- capirhua	Holquin Sapaina Pulquina	Parapiti Pilcomayo	Tarupayu	Rio Palacios Guayabas			Guaraní
							Masicito	Chimay	Incised
Early	Arani II	Tiquipaya					Upper Velarde Hernmarck	Rurren- baque (?)	Late Arawak Decadent Tiahuanaco
	Arani I	Cochabamba- Tiahuanaco	Sapaina Pulquina Peres Pucara Perereta				Lower Velarde		Early Arawak Derived Tiahuanaco

EXCAVATIONS IN THE BOLIVIAN HIGHLANDS IN THE SOUTHERN LAKE TITICACA SECTION

CHIRIPA

THE MOUND

On the northern side of Taraco (Fig. 13), near the base of the peninsula, is the hacienda of Chiripa, the property of Sr. Abel Iturralde. Adjacent to the plantation house is a large artificial mound with traces of a cut stone temple on top and various stones around the edge. To the north of the mound the flat farm land slopes gently down to Lake Titicaca some hundred or more meters away. To the south the land rises more rapidly. A newly constructed church stands immediately to the west of the mound; the plantation house is on the east, as before stated. The lake shore road from Taraco to Lacaya passes to the north of church, mound, and house. The lake flats in front and the sloping hills behind the mound support considerable cultivation. With care, trees and flowers can be grown. The mound site commands an excellent view of the lake in front as well as the surrounding country.

The mound (Fig. 14) at present is, roughly speaking, a round-cornered square, about sixty meters north to south, and fifty-five east to west. It is about 6 meters high at the center and the top is about 25 meters above the lake level. In erecting the houses and the church some of the mound has been cut away and many of the stones removed for building purposes. During the removal of this construction material, and especially when excavating in the fields immediately to the north of the mound, many graves were discovered, resulting in a collection which contains many interesting examples of the various phases of Tiahuanaco as well as Inca and the so-called Chullpa culture.

Our excavations consisted in making a two-meter wide cut from the north edge of the mound almost to the center, in line with the west wall of the temple. The cut was approximately 30 meters long and in three places the undisturbed area was reached at about five meters depth. Paucity of materials at the greater depths and the danger of cave-ins made it inadvisable to clear the whole trench to undisturbed soil. Halfway between the edge of the mound and the temple we encountered the corners of the foundations of two adobe and stone houses, both of which were completely cleared, although the excavation involved a considerable extension of the original trench at this point. Three pits were made around the temple, in the east and west walls and in the center, to

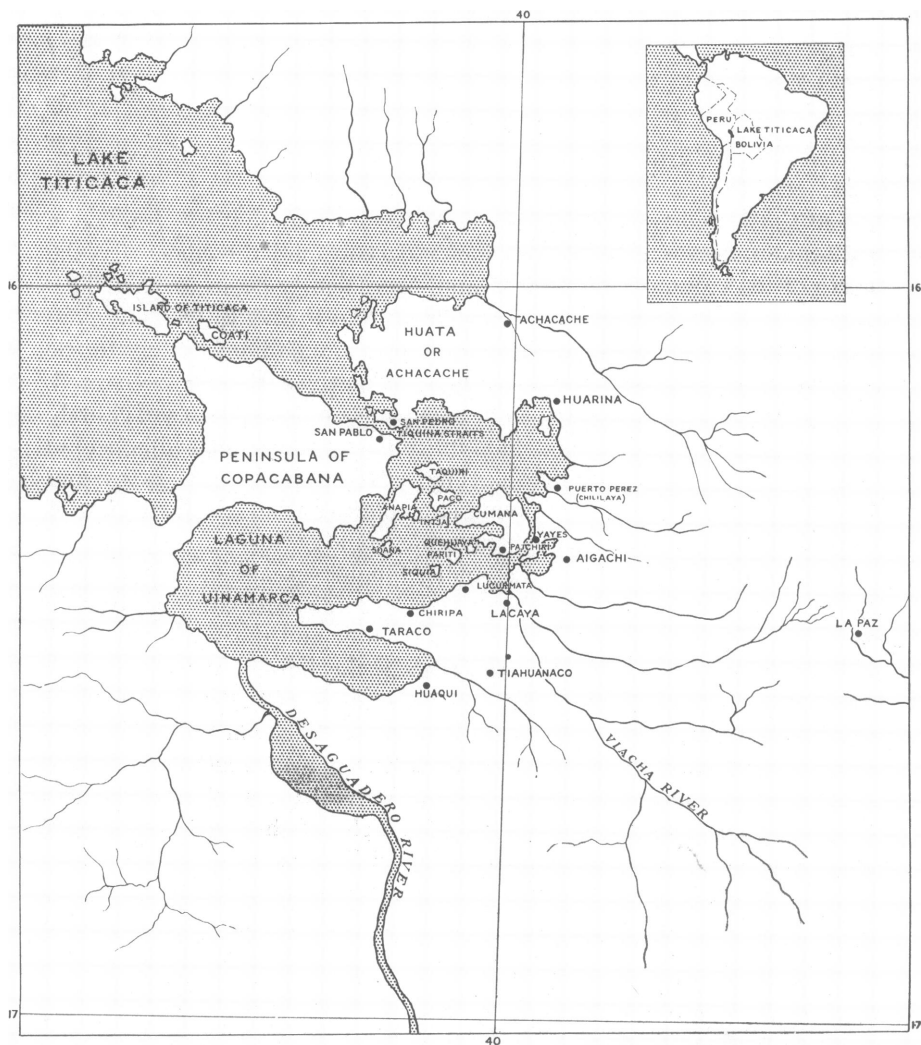


Fig. 13. Map of the Southern Half of Lake Titicaca (After Raimondi).

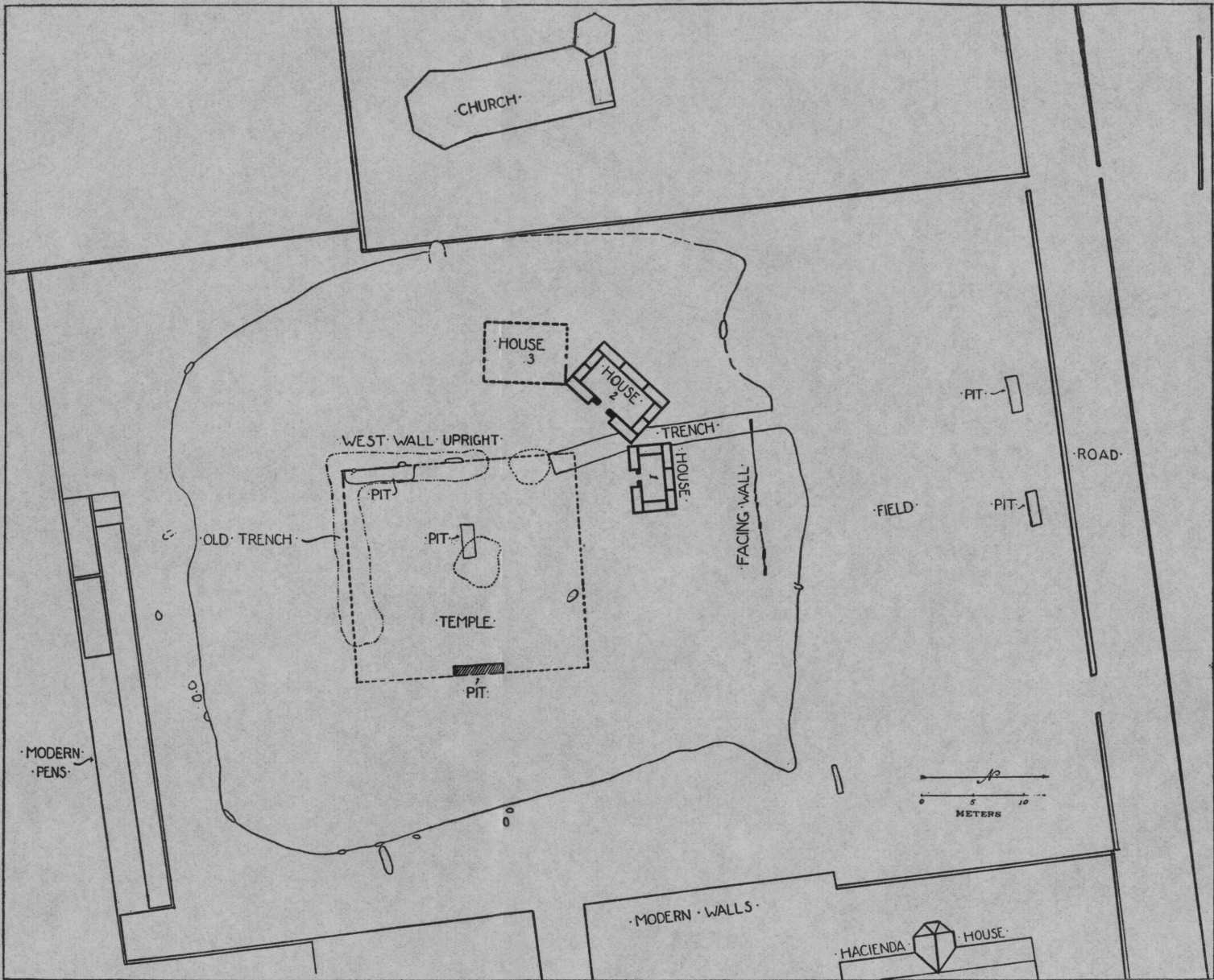


Fig. 14. Groundplan of Chiripa Mound showing Excavated Trenches, Houses, Temple, and Facing Wall.

determine the extent and nature of the structure. One trench, excavated along the north edge of the mound, uncovered a stone facing terrace. Later, three trenches were made in the field to the north of the mound, partly in a search for graves and partly to trace the continuation of the lower mound strata. Three other trenches were made around this region, one near the road just east of the house, the second in a low mound to the southeast of the house, and the third, at the old Chiripa ranch, about one mile east of the present hacienda.

THE TEMPLE

The small temple on top of the mound has been badly destroyed in recent years because many of the stones have been removed for building purposes. The trenches made in removing these stones are still visible and thus some idea of the size of the temple can be formed. In the west wall is an upright stone, still in position, 60 centimeters wide, 40 centimeters thick (at present ground surface), and 3.25 meters high (Fig. 15). It probably protruded above the general wall level of the old temple and therefore its top was used as a basis for all our temple measurements. An excavation beside this stone revealed a connecting wall of small stones to the north and south, starting at the base level and attaining an average height of about 60 centimeters (Fig. 16). To the north of the upright stone, this connecting wall continues for 1.20 meters and then, after a gap of 60 centimeters, continues 2.00 meters further to a flat slab upright about 2.00 meters long, 27 centimeters thick, and 1.50 meters high. The break in the connecting wall indicates the spot where a wall upright has been removed. In the northwest corner of the temple is the top of an upright stone (Fig. 16). To the south of the main upright stone the connecting wall continues for 1.15 meters to the base of broken slab upright, 1.40 meters wide and now 1.00 meters high. The upright stones and connecting wall are finished and aligned on the inside only, thus suggesting a semi-subterranean temple, faced with stone around the sides. In the east wall our pit uncovered one upright stone, slanting inward, but still in position, 75 centimeters wide, 25 centimeters thick, and 1.15 meters high, the top about 1.00 meter below the present ground surface, and the base, by calculation, 3.17 meters below the top of the west wall upright.

Four more large stones had fallen in towards the center of the temple, the lowest of which, probably resting on the old temple floor, was calculated to be 3.20 meters below the top of the west wall upright. The south wall had no visible uprights, so the trench of the old excavation



Fig. 15. Upright Stone, West Wall of Temple, Chiripa.

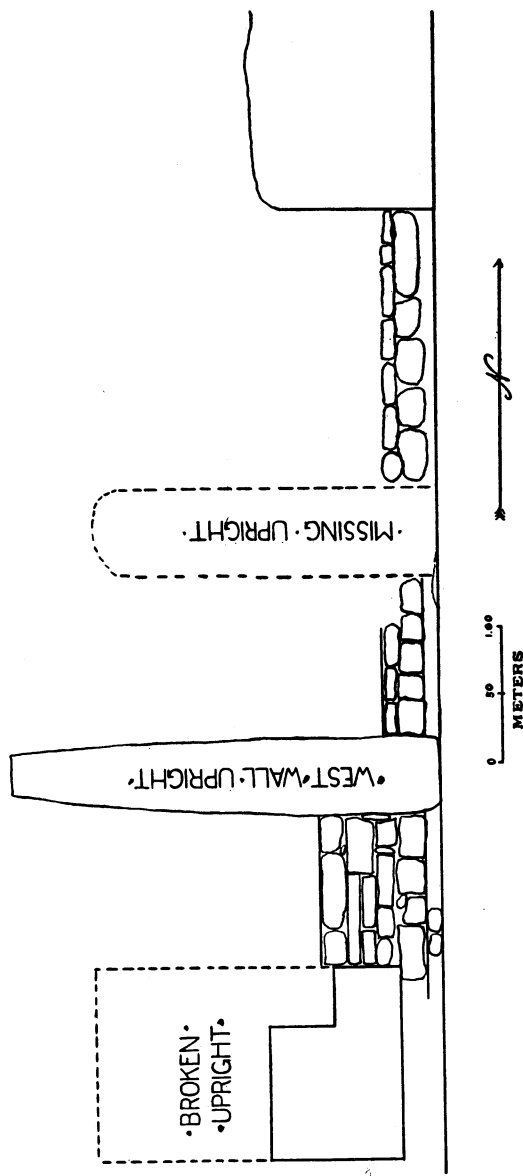


Fig. 16. West Facing Wall of Chiripa Temple showing Large Upright Stones.

was our only guide. The north wall has an upright, slanting inward, near the east end, and in our cut, which crossed this wall at the west end, we found another upright, 66 centimeters wide, 16 to 18 centimeters thick, and 1.10 meters high, about 15 centimeters out of position towards the center of the temple. Near this upright, small stones, which probably mark the base of the old wall, are about 3.00 meters below the top of the west wall upright. Finally, the test pit in the center of the temple had the following cross-section: 40 to 50 centimeters of light brown soil with a few stones; from 50 centimeters to 1.62 meters depth was an apparently recent fill of dark earth interspersed with many cobbles and small stones; from 1.62 to 1.72 centimeters was a brown clay, mixed with dirt; and from 1.72 centimeters down, a hard yellow packed clay. Assuming the yellow clay to represent the approximate old temple floor, we find that it is 3.15 meters below the top of the upright stone.

To summarize these results: we find the remains of a rectangular temple measuring about 23 meters, inside, from north to south, and 21.50 meters from east to west. The temple was apparently semi-subterranean, with a hard clay floor something over 3.00 meters below the top of the west wall upright pillar. The facing wall, aligned and finished on the interior, was composed of uprights set at irregular intervals with a wall of smaller stones connecting them. Judging from the seven uprights retaining their original positions, more or less, the facing wall extended about two meters above the clay floor, the upright in the west wall being at least a meter above the general average.

THE FACING WALL

The significance of this temple, its cultural connections, and its relation to the house foundations which form a circle around it, will be discussed later in this section. Anticipating this discussion to some extent leads to a description of the terrace facing wall (Fig. 17) around the outer edge of the mound. In the north section of the principal cut, about two meters in from the irregular north edge of the mound, a large slab stood on edge, 1.43 meters wide, 1.34 meters high, and 20 centimeters thick. A small stone connecting wall continued into the sides of the trench on both the east and west sides. Consequently, we dug a long trench to the east of this slab, in line with it, and exposed seven more upright stones set at irregular intervals with a connecting wall of small stones between them. The facing terrace thus formed is about 1.45 meters high and reaches to within ten centimeters of the present mound

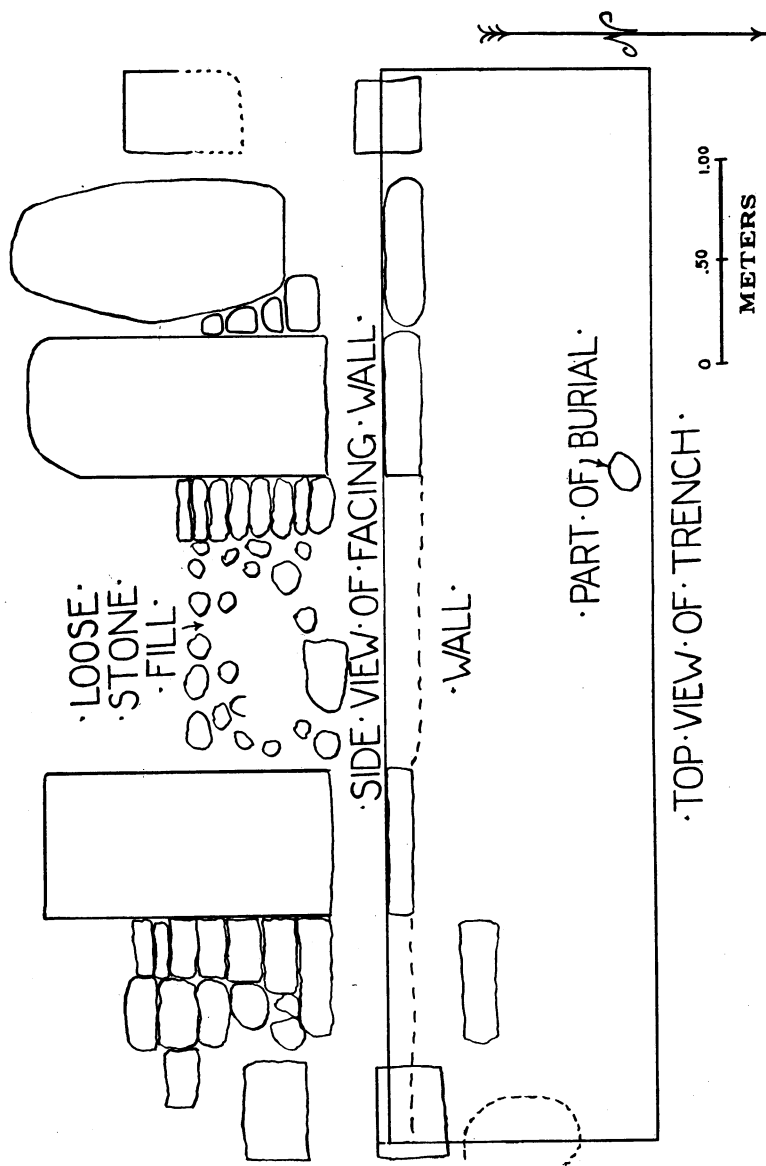


Fig. 17. Top and Side View of Trench along North Facing Wall of Chiripa Mound.

surface. The type of stone wall construction is similar to that of the temple, although the uprights are not as carefully finished. To the west of the slab in the original cut, the mound has been disturbed in recent years, but one upright still remained in relative position. The wall thus formed is approximately eighteen meters north of the north temple wall and parallel to it. Stones on the other sides of the mound indicate that a similar facing wall once surrounded the temple, more or less the same distance from it, thus forming a square measuring about sixty meters on each side. Still visible on the east side of the mound, badly cut into at present, are nine roughly dressed stones, three of which seem to be in their original locations as part of this wall facing. On the south side of the mound six slabs are still exposed and on the west side there is one large fallen pillar. In total, then, twenty-five uprights, which were probably part of the terrace facing, still remain around the edge of the mound.

THE HOUSES

In the third section of our cut through the mound the corners of two houses were discovered (Fig. 18). The point where these two house corners contact each other is about six meters north of the northwest corner of the temple and twelve meters south of the north facing wall. Both houses were excavated completely and the corner of a third was determined on the west side of the mound. The relation of these three houses, each one contacting the corner of the next, but placed at a different angle, gives the impression that a series of such house foundations completely encircled the temple. In the two houses excavated the doorways faced towards the center of the mound. The houses had no visible openings towards the outside. In other words, a circle of such houses around a mound would in itself form a fortified unit. Estimating on the basis of the sizes of the three houses located, eleven more houses would be required to complete the circle, making a total of fourteen.

These houses consist, in reality, only of the foundations and lower walls. At no point is a wall more than 1.10 meters high from the floor. Consequently, the construction of the upper part of the houses cannot be accurately determined although, judging from the remains, they were probably made from adobe bricks. The curve of the mound surface produces a variation in the actual depth of the foundations, but the tops of the remaining walls average one meter or more below the surface, the floors about 1.60 meters, and the base of the outer walls about 1.90 meters.

House 1, to the east of the trench, has double walls (Fig. 19), measuring on the outside 6.65 by 4.60 meters, the long axis being east to west. The outer wall is about 25 centimeters thick. The base of this wall is of stone which extends about 25 to 30 centimeters below the floor level of the house. The lower wall, which still stands, is of stone mixed with clay, and also contains some adobe brick. The upper wall was probably pure adobe brick. The inner wall is the same thickness as the outer and forms a room 4.50 by 2.40 meters. The interwall space ranges in width from 45 to 62 centimeters. The interwall space is left hollow, except for partitions, which probably served both as supports between the walls,



Fig. 18. View of Houses 2 and 1, Chiripa.

and as divisions between storage bins. The west wall of House 1 was badly damaged partially by our back-hand discovery of it, but the other three were well preserved. The three inner walls still preserve six window niches (Fig. 19) which enter the storage bins of the interwall spaces, and one outside doorway through the south wall. The destroyed west wall was probably similar to the east and thus must have contained two niches. There was probably another niche in the destroyed part of the south wall, west of the doorway, corresponding to the one east of the doorway. In other words, the house originally had nine window niches, more or less evenly spaced around the inner walls. Their arrangement

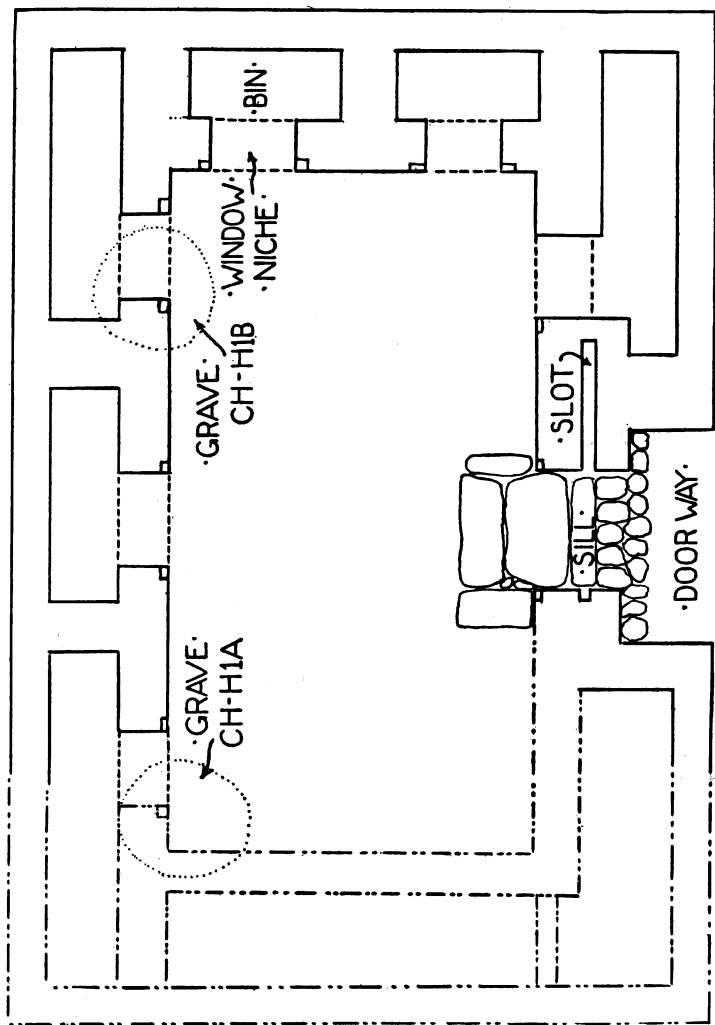


Fig. 19. Plan of House 1, Chiripa.

was that of two niches in both the east and west walls, three in the north wall, and two, plus the doorway, in the south wall.

The niches are well finished and are not only decorative but serve as entrances to the bins (Fig. 20). The base of the niche is 30 centimeters from the floor; the actual opening is 60 centimeters wide and 50 centimeters high. On each side of the opening is an inset panel, 1.8 centimeters wide, which ends in a double step fret at the top. Across the top is

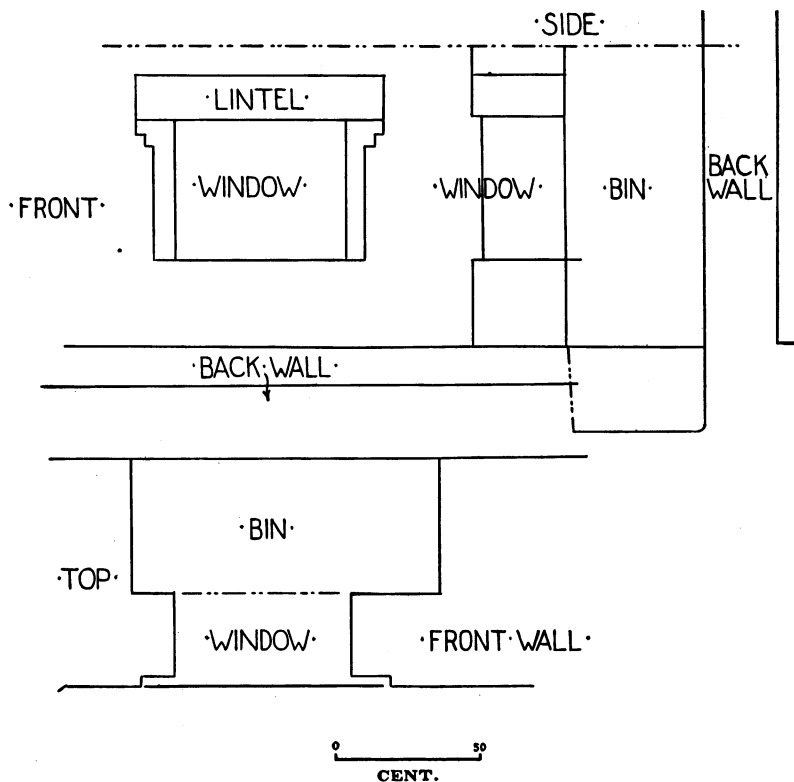


Fig. 20. Detail of Storage Bin and Window Niche, House 1, Chiripa.

an adobe lintel. The niche enters the interwall space which extends to the partitions on either side and down to the base of the wall, some 30 centimeters below the house floor level. This description of one niche applies to all.

The inside walls of the room are finished with a thick yellow clay wash. In some parts this has been fired and forms a plaster 1.5 cen-

timeters thick. The yellow wash coating covers the entire inside wall, including the frets on the niche decoration.

The doorway (Fig. 19) in the south wall is slightly off center to the west. The outer wall turns in at right angles on each side of the inner door opening, leaving the entrance way 1.40 meters wide. The inner wall continues, however, so that the actual width of the doorway is only 80 centimeters. A stone door sill 32 centimeters wide and 30 centimeters high, on the outside of the doorway served to keep out the rain, as in modern Indian houses; however, it was necessary to step over the sill to enter the house. Inside the doorway the floor was paved for a short distance with five flat stones. The actual door was probably a sliding slab of wood, or at least the construction suggests such a door. The inner wall on each side of the doorway is of double thickness. To the east of the doorway, the double thick wall contains a slot ten centimeters wide. The slot, which extends to the floor level, is as long as the doorway is wide, and is divided into two sections by a row of flat stones carefully set across it about the center of the height of the doorway. The slot (Fig. 19) is covered at the top by another row of small flat stones. In other words, the door consisted of two panels, one above the other, which were slid back into the slot to open the door. On the west side of the doorway a vertical groove is cut, 10 centimeters wide and 10 centimeters deep to receive the panels. A flat stone is set across this groove, at a height corresponding to a row of small stones which divides the slot on the other side. The upper panel could rest on this stone. The inside edge of the doorway is decorated with an inset band, topped with a double step fret like that around the niches.

The floor of the room is a 30 centimeter thick bed of yellow clay, well smoothed and packed. It was covered by a thick layer of ash and charcoal, burnt clay, bone and stone tools, and many fragments of plain and painted bowls. Two kinds of grain were found, the common quinoa and the small grained variety. The rest of the house fill was burnt adobe. The charcoal gave the impression of a thatch roof which had burnt and collapsed. This is the only evidence of the roofing.

House 2 (Fig. 21), adjacent to the first on the west side of our trench, is of the same type as House 1. The southeast corner of House 2 contacts the west wall of House 1. However, the southwest corner of House 1 slightly overlaps the front paving of House 2, so that the latter house may be somewhat older, although both are most probably of contemporaneous construction.

House 2, then, is double-walled, covering a total of 5.75 by 9.00

meters, and is therefore considerably larger than House 1. The outside walls are about 38 centimeters thick and 1.05 meters high at the south-east corner. The wall of waterworn stone and clay was once finished on the outside, at least near the doorway, with a wash of reddish clay. The corners of the outer walls are carefully constructed of rectangular slabs of cut stone, split, but not dressed. The doorway faces the center of the mound and along this front of the building is a 60 centimeter wide stone pavement. The interwall spaces vary in width, being about 75 centimeters wide on the south, 68 centimeters on the east, 55 centimeters



Fig. 21. General View of House 2, Chiripa.

on the north, and 60 centimeters on the west side. The inner wall is about 30 centimeters thick, thus leaving a room 6.40 by 3.05 meters in size.

The house has one doorway, nine window niches, and four decorative niches (Fig. 22). Thus, the south wall has the doorway about in the center and a window niche entering an interwall bin on each side. The east and west walls have two window niches and one decorative niche each; the north wall has three window niches and two decorative niches, alternating. The niches are constructed just like those in House 1, but although the 8 centimeter wide inset band decorates the sides, all traces of the top double step fret and the clay lintels have been destroyed. The four

small decorative niches are higher on the wall and are placed directly in front of the partitions which divide the interwall bins. They are about 25 centimeters wide and are cut to a depth corresponding to the thickness of the inner wall.

The doorway is much the same as that in House 1, except that it has a single rather than a double door panel section. The vertical slot in the double-thick inner wall is slightly longer than the 90 centimeter width of the doorway. The opposite side contains the same vertical groove to receive the door panel. The base of the cut is stone paved, its width 10 centimeters and height 54 centimeters. The entry way is completely paved with flat stones, but there is no raised door sill.

The floor is again of packed yellow clay, covered with the same layer of ash, charcoal, burnt clay, and artifacts. The inside walls of the house are well finished with a thick clay resembling a plaster, apparently fired and slightly polished. The finish is better than in House 1.

We found nothing under the floor of House 1, but a number of tombs were uncovered under the floor of House 2 (Fig. 23). These will be described in detail in the section on burials. The pottery and artifacts of the house levels are in many ways unique. The painted pottery, described in the section on the collection, is a new type in shape and design. Before going into further detail, however, it is necessary to discuss the cross-section of this mound and establish the relationships between the mound, the houses, the facing wall, and the temple.

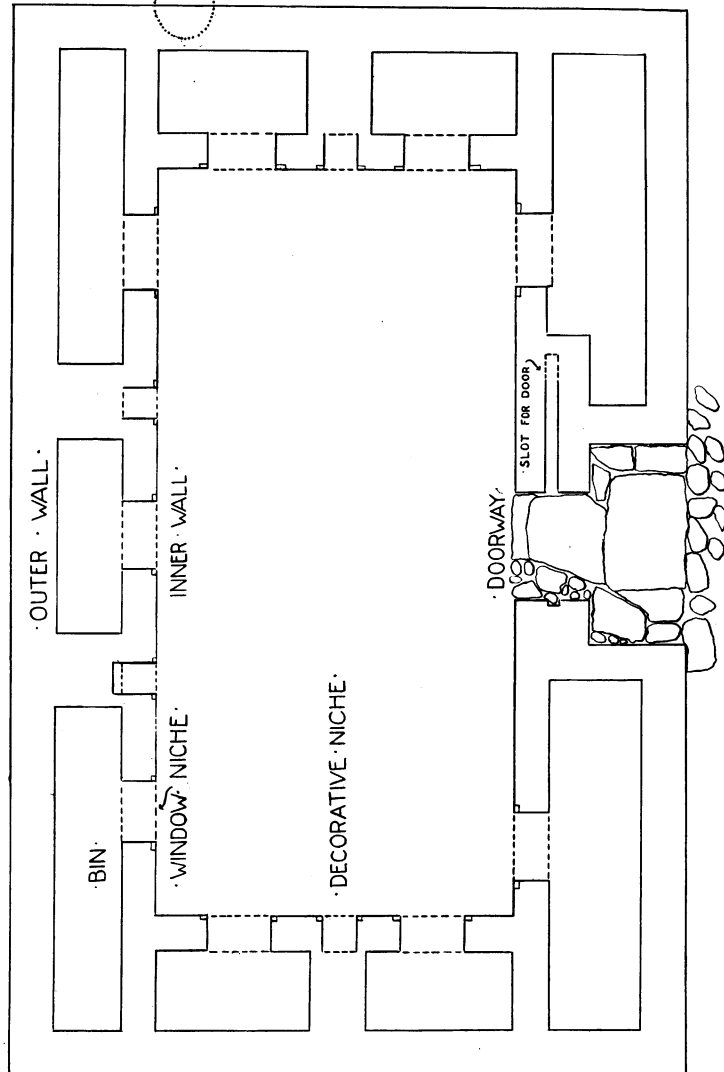
CROSS-SECTION ANALYSIS

The vertical cross-section (Fig. 24) of the mound, along the west side of our trench from the north edge almost to the center of the mound, conserves the history of the site. The undisturbed area at the south end of the trench (near the center of the mound) was at 5.10 meters depth from the surface, while near the north edge of the mound it is only 4.80 meters deep. However, when the cross-section is plotted, we note that the undisturbed area at the north end is actually 40 centimeters lower than it is at the south end, or, in other words, that the undisturbed mound base declines from south to north on an average of 2 centimeters to the meter.

At the south end of the trench, about the center of the mound, the first two meters above the undisturbed earth are composed of almost horizontal bands of clay. The lower bands are of plain clays containing a few sherds, but more fragments occur in the upper 70 centimeters which consist of two bands of brownish clay, separated by a strip of

GRAVE
CHH2
- C

GRAVE
CHH2
- A



0 .50 1.00
METERS

Fig. 22. Floor Plan of House 2, Chiripa.
427

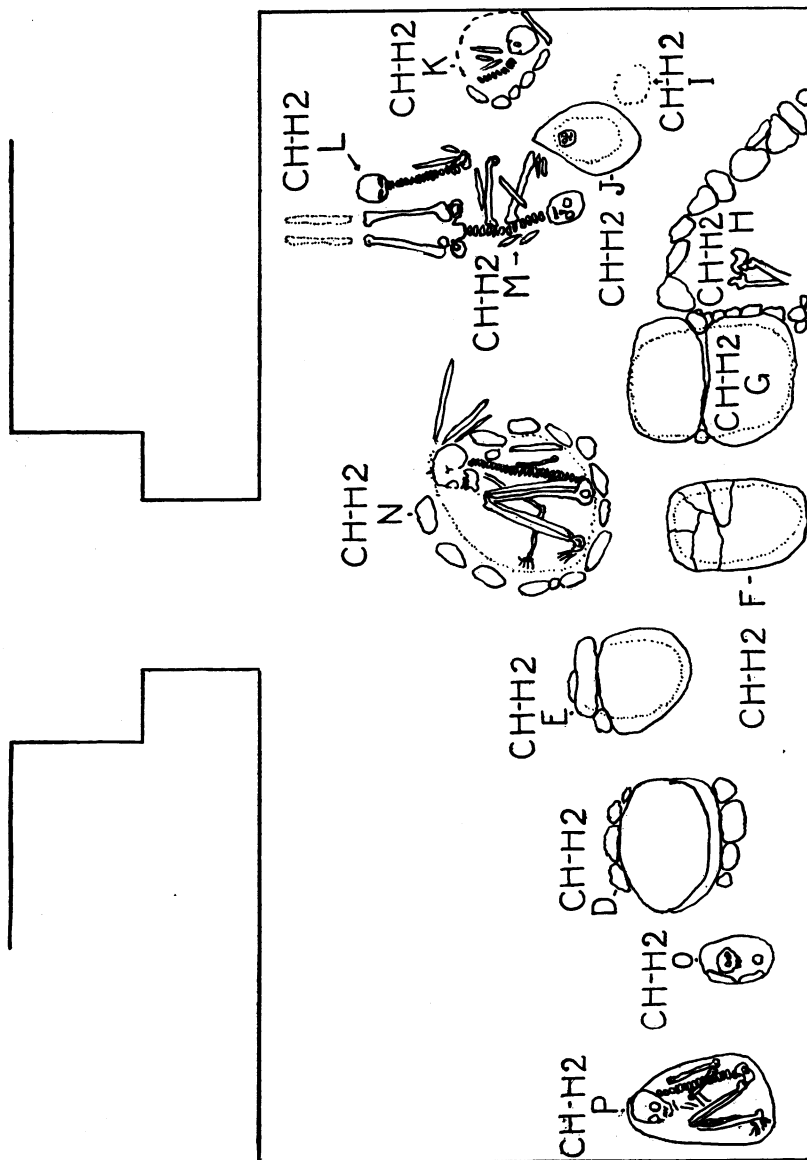


Fig. 23. Arrangement of Graves under the Floor of House 2, Chiripa.

yellow clay. Between 2 and 3 meters above the undisturbed layer the bands of clay curve up slightly as they approach the north wall of the temple. On this thick stratum of horizontal clay bands rests the plain clay floor of the temple, topped with a more recent fill of dirt and stones and fallen slabs from the temple walls, and the whole section is covered with a thick layer of top soil.

An old surface layer of dark soil and cobblestones, covered with a layer of burnt clay, probably from the fallen upper walls of the house, extends outward from the base of the wall of House 2. The strata run south from the house towards the center of the mound, sloping downward, until they are interrupted by the intrusive pit of the temple wall. The pit, at this point, cuts much deeper than the temple wall base (i.e., to 3.85 meters below the top of the upright stone pillar in the west temple wall, instead of the average 3.00 meters plus). Even so, the strata of the old house ground surface and the burnt clay continue on the south side of the intrusive temple wall pit, at a level under the temple floor.

Under the temple wall pit, at a depth of 3.40 to 3.90 meters below the ground surface, are some piled up stones in the nature of a wall. From these a connecting bed of cobblestones curves up almost to the pavement in front of House 2, at a level slightly below the old ground surface of the house. The top of this low stone wall is about two meters above the undisturbed layer, or on the same level as the top of the horizontal clay strata in the lower section of the south end of the trench. Except for another disturbing pit, the double brown layer in the south section would connect with this wall. The strata just south of House 2, and under it, form a raised ridge or upward fold starting at these stones and continuing under the house to the north side, where a corresponding drop is noted. But whether this lower stratum or that of the soil capped with burnt clay is used to determine the surface at the time of the house construction, the house and its strata will always be older than the temple, as the lower strata dip some distance below the temple wall and the upper strata are cut into by the pit for the temple wall, and then continue under its floor.

Examining next the section to the north of House 2, we find a brown bed extending under the house and thence northward, curving down to meet an old surface stratum of black soil and cobblestones which continues well under the facing wall at the north edge of the mound. As on the south side, a bed of burnt clay covers this old surface line, following its curve from the base of the house northward, joining, about four meters to the north, a similar bed which originates at the top of the pres-

ent house wall. This burnt clay layer fades out before it reaches the facing wall, but in the corresponding cross-section on the east side of the trench a similar bed can be clearly traced from the base of House 1, under the facing wall. Above the houses and the surfaces that mark that period there is a confusion of layers with very little interpretation possible, except for the intrusive graves, to be described later. In the east side cross-section a streaked brown layer starts just above House 1, continues in a plainly visible band to the top of the terrace facing wall, and may mark a surface contemporaneous with the facing wall. The same layer can be seen in the west side cross-section, although its origin above House 2 is more obscured and it does not quite reach the retaining wall on this side.

At the north end of the trench a cut to the undisturbed layer shows the same two meter thick deposit of horizontal strata at the base as was seen at the south end. It is hard to align the actual strata through such widely separated cuts, although there is a general correspondence. In this north section the strata are disturbed by an intrusive grave pit at one point.

Considering the cross-section as a whole there are three, and possibly four, stratified layers, or groups of layers, observable in the construction of the mound. First are the lower, or pre-mound, horizontal strata which follow the tilt of the undisturbed layer in a two-meter thick band. The top level of this band corresponds almost exactly to the surface level of the fields to the north of the mound. One trench excavated in a field, 25 meters north of the facing wall of the mound and in line with our trench, encountered undisturbed clay at 2.60 meters depth, surmounted with a series of horizontal strata similar to those of the lower mound. In other words, this level has no direct relation to the mound, except for stratigraphic position, since it extends beyond the mound. In this level are rough stone walls which cannot be identified as specific structures, ash beds, stones, fish, animal and human bones, pottery fragments and bone tools, pits which run into the relatively undisturbed clays, and perhaps human burials. The contents have the appearance of a section of casual habitation, augmented by wash from the hills to the south.

Upon this lowest level, represented by the lower mound strata, a circle of houses was built. To judge by the three house sites which form one segment of this circle it must have had an inside diameter of about 32 meters. The houses were built on a raised ridge which was about 1.25 meters high and sloped gradually off towards the center of the ring and towards the outside. The strata indicate that this ridge

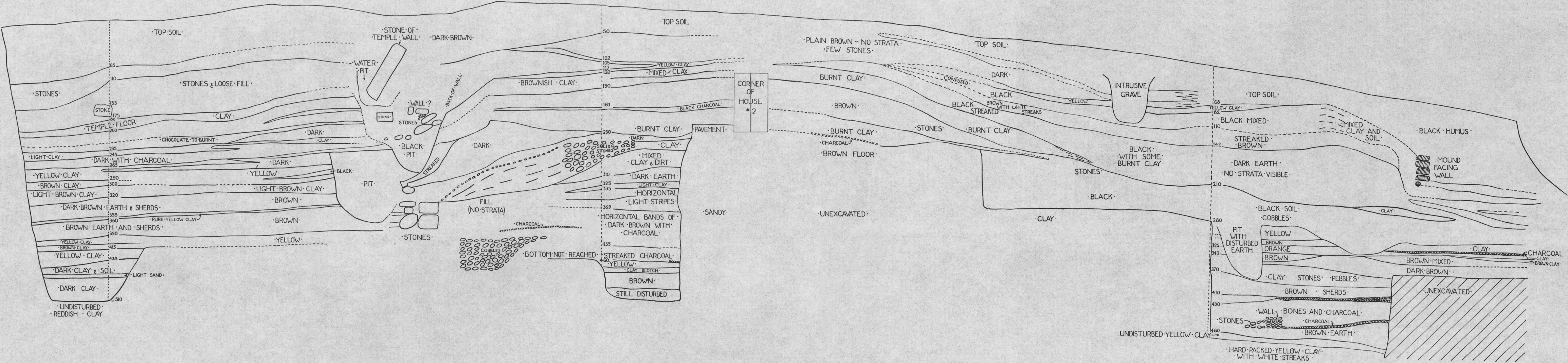


Fig. 24. Cross-Section of the West Wall of the Long Trench at Chiripa Mound showing Relation of Temple, House, Facing Wall, and Lower Mound Strata.

was built specifically for the houses. During the habitation period a certain amount of accumulation increased the height of the surrounding surface, especially on the inside of the circle of houses. Later, came their destruction, probably by fire, as the burnt clay and piles of ashes on the floors suggest, and the old ground surface was covered by the fallen adobe walls. In other words, the destruction of this circle of houses left a low mound, with a slight depression in the center.

The next stage represented by the strata above the old ground surface of the house period, as well as above the houses, was the building of a temple site. During this phase the whole mound was artificially enlarged, a semi-subterranean stone-faced temple erected in the center, and a stone facing wall built around the edge. Burials contemporaneous with this phase actually cut into the remains of the old house walls.

Finally, a fourth stage may be represented by the post-temple period, in which the temple itself partially filled with débris, and the dirt washed over the facing wall. Unfortunately, it is hard to distinguish this stage, except by one or two burials, as it probably does not represent active habitation, and is further confused by changes made around the mound in recent years.

Anticipating, for the sake of completeness, the analysis of artifacts to follow, we may note that two significant periods are represented. The lower mound strata and the house building stage cannot be distinguished on the basis of materials; they represent one period, with a distinct type of pottery and other distinctive features. The temple, the facing wall, the intrusive graves, and the sherds from the upper mound, post-house phase, represent a culture distinct in every way from the house builder's culture, and are definitely related to the Decadent period of Tiahuanaco. This comparison will be made in more detail later.

BURIALS

Our excavations in the mound itself encountered a total of twenty-eight burials and five fragmentary deposits of human bones. On the basis of the cross-section analysis of the strata the burials can be identified according to their period. On this basis there are seventeen burials and three fragmentary human bone deposits in the house and pre-house period, ten burials and one fragmentary deposit in the post-house period, and one burial and one deposit which cannot be attributed to a definite period. A descriptive summary of the graves follows.

Definitely part of lower mound stratum:—

CH-1A. Outside of the north facing wall, at 2.85 meters depth, was

a stone-covered grave containing two flexed burials with artificially deformed skulls. The heads were placed to the west and the bodies to the northeast, but there were no artifacts.

CH-1C. Outside of the north facing wall, at 2.90 meters depth, was a deformed skull with a few human bones, which may once have been part of Grave CH-1A.

Graves in house period stratum:—

CH-1B. At the north end of the mound cut, at 3.20 meters depth was a partly stone-covered grave which intruded into the lower mound stratum. The grave contained a flexed burial, placed on its side, facing north, with the head to the west and the body to the southeast. The skull was deformed and the grave was without artifacts.

CH-2E. In the center of the mound cut and definitely a part of the house stratum ground surface, at 2.15 meters depth, was a deformed skull flexed burial, placed on its left side with the head south, and the body to the north. The left arm was straight and the right flexed. There were no artifacts.

Near the north end of the trench, at 2.60 meters depth, in the old ground surface of the house stratum were a jaw and pieces of human bones.

In the same position, at 2.50 meters depth, were parts of a skull, radius, and other human bones.

A human sternum was found near the north end of the trench at 2.60 meters depth.

Graves in the floor of House 2:—

CH-H2D. A stone-lined grave, covered with flat stones, was just under the floor surface. It measured 42 by 60 centimeters north to south, and 25 centimeters deep, and contained a child's skeleton in powder.

CH-H2E. A similar grave measured 58 by 66 centimeters, east to west, and 20 centimeters deep. It contained a child's skeleton with two narrow bands of thin gold over the forehead, one tubular shell bead, and the remnants of a plain covering cloth.

CH-H2F. A similar grave containing a powdered skeleton with three gold bands, measured 50 by 80 centimeters, north to south, and 20 centimeters deep.

CH-H2G. A similar grave, well-made with stone-lined sides, a clay base, and two large flat covering stones, was rectangular in shape, 56 by 95 centimeters, north to south, and 40 centimeters deep. It contained the powdered skeletons of two youths, flexed on their left sides, with

their heads south. Three gold bands and some plain cloth accompanied the skeletons. One of the gold bands had been cut from the same strip as one found in the previous grave. The tomb was lined with straw and preserved some evidence of a plaster.

CH-H2H. A plain grave, without covering, contained some badly disintegrated adult bones and no artifacts. The grave extends under the inner house wall and was disturbed by Grave CH-H2G.

CH-H2I. A crushed adult skull with well-worn teeth and a few bone fragments were found between two graves and probably represent a disturbed burial.

CH-H2J. The grave of a child, measuring 25 by 35 centimeters on the inside, was covered by a single flat stone 30 centimeters below the house floor. No artifacts were present.

CH-H2K. A grave of a young child with a few stones around the edge, but otherwise neither walled nor covered, had the skull upside down with the jaw on top. No objects were definitely associated with this skeleton, but two bone tools and two worked bones were in the surrounding earth.

CH-H2L. A shallow grave, without stone covering, contained a badly preserved and disturbed skeleton unaccompanied by artifacts.

CH-H2M. Another grave, without covering stones, contained a skeleton extended on its back with the arms crossing to the right side. A bone labret was in the grave.

CH-H2N. In a grave, outlined but not covered with stones, was a flexed burial with well-preserved bones, but with the skull crushed by the weight of the dirt. A string of stone beads was around the neck of this skeleton, and around each ankle were beads of lapis-lazuli, bone, and copper.

CH-H2O. A grave, 20 by 40 centimeters, had a stone at each side, but no covering. It contained the bones of a young child, but no artifacts.

CH-H2P. About 90 centimeters below the house floor was an adult flexed burial placed on its left side. The grave was without covering stones or artifacts.

Graves in post-house stratum:—

CH-2A. In the northern section of the trench, 70 to 85 centimeters deep, was a grave which contained a badly disintegrated skeleton and two bowls. The first vessel is an open, flaring-sided cup (Shape E),¹ rim 14 centimeters, base 11.5 centimeters, height 8 centimeters, with a black

¹*This Series*, vol. 34, 407, for shapes.

double scallop design on the inner rim on a red slip, and all other design faded. The second vessel is a plain black one-handled pitcher; rim 7.5 centimeters, body 9.5 centimeters, base 5.5 centimeters, and height 11.5 centimeters.

CH-2B. Also in the northern section of the trench was a stone-covered grave 1.15 meters deep. It contained a powdered skeleton and five bowls. The first is a plain orange base of a broken olla. The second is a plain orange, two-handled, hollow base libation bowl (Shape B); rim 19 centimeters, base 11 centimeters, height 8 centimeters. The third is a two-handled, orange flaring rim open bowl; rim 17 centimeters, body 19 centimeters, base 11 centimeters, and height 12 centimeters.

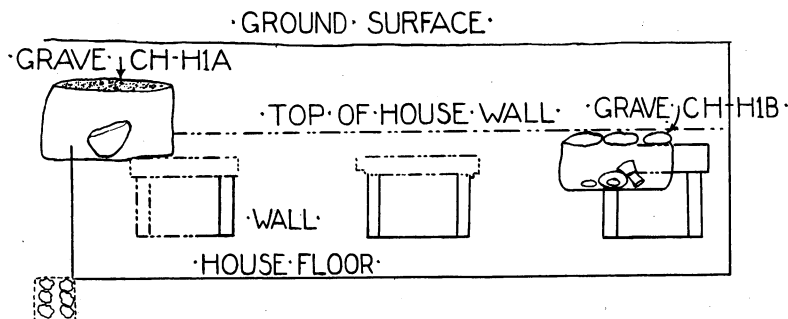


Fig. 25. North Wall of House 1, Chiripa, showing Intrusive Graves.

The fourth is a plain kero-shaped goblet (Shape A) with a black, white-on-red design of bands and connected triangles; rim 9.5 centimeters, base 7 centimeters, and height 10 centimeters. Finally, the fifth vessel is another flaring-sided cup with a black-on-orange scroll design on the outside, and wavy lines and scallops on the inner rim; rim 14 centimeters, base 9 centimeters, and height 7 centimeters.

CH-2D. A stone-covered, straw-lined grave was from 1.10 to 1.25 meters deep in the north section of the trench and contained a powdered skeleton and the base of a broken olla.

CH-H1A. An intrusive slab-covered grave (Fig. 25), 25 to 80 centimeters deep, cut into the northwest corner of the inner wall of House 1. It contained a powdered skeleton and the base of a plain broken olla.

CH-H1B. Another intrusive stone-covered, bark-lined grave, 60 centimeters to 1.00 meter deep, cut into the east end of the north inner wall of House 1 (Fig. 25). This grave contained the remains of a skele-

ton and two bowls. The first is the usual base of a broken olla. The second is a plain black kero-shaped goblet (Shape A), with a double ridge bulge at the center; rim 15 centimeters, base 9 centimeters, and height 15 centimeters.

CH-H2A. An intrusive grave, 45 to 60 centimeters deep, cut into the outer wall of House 2, just south of the northeast corner. It contained traces of a skeleton and two bowls. One is a small plain black bowl with a flaring rim and a hollow spout connected to this rim by a solid bridge; rim 6 centimeters, body 9 centimeters, base 5 centimeters, height 8.5 centimeters. The other is a flaring-sided cup with a black, white, orange (or yellow)-on-red design of two men leading two llamas; rim 14 centimeters, base 9 centimeters, height 8 centimeters.

CH-H2B. A grass-lined grave, 60 to 70 centimeters deep, just one meter east of the northeast corner of House 2, contained powdered bones and pieces of a plain orange, hollow base libation bowl.

CH-H2C. A grass-lined grave, 70-85 centimeters deep, is near the northeast corner of House 2, and is covered with an old grindstone. The grave is circular in shape and contains traces of bones accompanied by two bowls. The first is the base of a plain orange broken olla. The other is a plain kero-shaped goblet with a black, white, yellow-on-red design consisting of a band of white short horizontal wavy lines on a black background and bands of plain yellow; rim 14.5 centimeters, base 8.5 centimeters, and height 15 centimeters.

Graves in the top surfaces in the most recent stratum:—

CH-1E. Just inside the facing wall in the north part of the trench was a grave in the top soil about one meter deep. It contained a skeleton, placed east to west with the head east, but no artifacts.

CH-2C. In the northern section of the trench, and at one meter depth, was a powdered skeleton without artifacts.

An isolated skull was found at 30 centimeters depth in the north end of the trench.

Miscellaneous burials:—

CH-1D. Outside of the mound at the north end of the trench was a stone-lined, oval, slab-covered grave, 50 centimeters deep, which contained a child's skull.

CH-5A. A trench cut to uncover more stones in the north facing wall of the mound revealed disturbed human bones at 1.60 meters depth.

A review of the significance of these burials shows certain contrasts in materials and very definite stratification. Thus, the house-strata and

pre-mound burials contain skeletons with longitudinally deformed skulls, unaccompanied by pottery. Of the burials under the floor of House 2, some are covered with cloth, three had strips of gold on the forehead, several had bone, shell, and copper beads, and one had a small bone labret. In general, the bones in the lower mound burial were better preserved than those above. The typical late Tiahuanaco stone-covered, grass-lined tomb occurs in the post-house strata burials with the bones badly preserved. Seven are accompanied by pottery, commonly the broken base of an olla, and typical Decadent Tiahuanaco painted bowls, identified by colors, shapes, and designs. Three of these graves definitely cut into the walls of House 1 and House 2 so that the stratification is established beyond doubt. On the other hand, the thirteen graves in the floor of House 2 are unquestionably identified with the house culture despite the absence of characteristic pottery.

There remains, therefore, an analysis of artifacts to demonstrate the differences already suggested by the cross-section analysis and the graves.

THE COLLECTIONS

Decadent Tiahuanaco. The upper mound strata, associated with the temple and facing wall of the mound and definitely superimposed on the houses as well as on the lower mound strata, contain material readily identifiable as Decadent Tiahuanaco (Fig. 26), following the classification established in the excavations at Tiahuanaco itself.¹ A review of the grave material associated with this level leaves little doubt as to the correctness of this identification. Fifteen pieces of pottery were taken from the graves. Five are bases of broken ollas. Three are kero-shaped goblets, of which one is black with double ridge (Fig. 26h), one is plain with a connected diamond design (Fig. 26j), and one is plain with a design of a band of broken horizontal lines. Three flaring-sided cups are included, one with the design faded, one with a black scroll design, and one with a design of two men leading two llamas (Fig. 26c, i, k). Vessels of plain black ware are represented in a one-handed pitcher and a small bowl with hollow spout (Fig. 26e, g). A plain orange two-handed bowl and a plain orange hollow base bowl complete the list. All the ceramics are of the Decadent Tiahuanaco type in shape, colors, and design.

Decadent Tiahuanaco sherds are found on the surface of the mound, in the top half meter and occasionally in the second half meter, but they

¹ Bennett, 1934.



Fig. 26. Decadent Tiahuanaco Ceramics from Chiripa. *a*, two-handled orange libation bowl, CH-2B; *b*, plain orange two-handled bowl, CH-2B; *c*, black-on-orange flaring cup, CH-2B; *d*, black-on-red flaring cup, CH-11A; *e*, one-handed black ware pitcher, CH-2A; *f*, black, yellow-on-red kero-shaped goblet, CH-11C; *g*, black ware bowl with spout, CH-H2A; *h*, black ware kero-shaped goblet, CH-H1B; *i*, black-on-red flaring-sided cup, CH-11A; *j*, black, white-on-red, kero-shaped goblet, CH-2B; *k*, black, white, yellow-on-red flaring-sided cup, CH-H2A.

do not occur below one meter. The same array of materials is found in the field to the north of the mound: the first half meter has many Tiahuanaco sherds; the second half meter has fewer of this type; the third half meter has only Chiripa sherds. The major part of the Iturralde Collection has come from this field, both from graves encountered accidentally when plowing and by deliberate search. The collection in its majority is Decadent Tiahuanaco, although other material which cannot now be segregated is represented. The excavation of Trench CH-5 to uncover the facing wall along the north edge of the mound revealed Decadent Tiahuanaco sherds mixed with crude material, perhaps of the Chullpa type. This area consists of wash from the upper part of the mound which has covered the old facing wall and is consequently late material. Finally, graves found at the old farm, one mile to the east of the present plantation house, contained Decadent Tiahuanaco material (Fig. 26d, f, i). In all, the Decadent Tiahuanaco seems well established as a period around Chiripa.

The Decadent Tiahuanaco graves contained only ceramics, so the identification of other artifacts is more difficult. The upper level of the mound contains the usual mixture of Chiripa and Decadent Tiahuanaco type sherds, so that one cannot say with certainty that implements found in this level belong definitely to one period or the other. In the lower levels, with one hundred per cent Chiripa type sherds the associated artifacts may be identified with assurance. However, the following suggestions can be made about non-ceramic artifacts. No metals are found in association with the Decadent Tiahuanaco. This may be because of the bad preservation in the upper part of the mound. The bones of the burials in the upper level graves had disintegrated to powder. Among the stone artifacts the straight-edged slate knives, arrow points, a whetstone, and a piece of a stone plate, because they occur exclusively in the top level, seem more likely to be associated with Decadent Tiahuanaco than with Chiripa. Other stone artifacts which are found in the top level occur in the lower levels in greater numbers and suggest identification with Chiripa rather than a persistence of the artifact into Decadent Tiahuanaco times. This observation is even more true of the bone artifacts. The few bone tools which might be associated with the Decadent Tiahuanaco top level are plain end scrapers, antler tip awls, a flat disc whorl, notched knuckle bones, and one or two questionably worked tools. Certainly bone artifacts are far more characteristic of the Chiripa levels.

The Chiripa Culture. As shown in the analysis of the mound strata,

the houses, the house ridges, and the pre-mound strata all underlie the Decadent Tiahuanaco with its temple, facing wall, and series of distinctive graves. The examination of the collection shows that these underlying strata, including the houses, represent unit material distinct from the Tiahuanaco, and definitely a type heretofore undescribed for Bolivia. As a matter of convenience I have decided to call this new style, Chiripa, or Chiripa yellow-on-red, interchangeably.

Chiripa pottery is found exclusively in the houses and all mound structures below the houses, including the pre-mound stratum. Some fragments of Chiripa type are found in the upper level of the mound as well. In the field to the north of the mound the Chiripa type is found mixed with Decadent Tiahuanaco pieces in the second half meter below the surface and is the only type found at greater depths. Furthermore, Chiripa style was also found in one stratum on the Island of Pariti, and on the Peninsula of Copacabana, all of which makes it something more than a purely local style.

The Pottery. The Chiripa graves contained no pottery, and no unbroken vessels were found, although there were some which could be partially reconstructed and thus indicate the shapes and designs. The sherds come largely from the dwelling site refuse levels with the greatest concentration along the floors of the houses. As in most dwelling site refuse levels the majority of the sherds are from plain cooking ollas. Dark brown is by far the most common type in these plain wares. Light brown and black plain sherds, together with some minor variations, were also found. The typical shape is a medium-sized globular olla, with flat base, slightly constricted orifice, flare rim, and no handles. In fact, plain pieces, throughout the collection from the Chiripa levels, are without handles. Plain ware rim pieces with differing degrees of flare represent minor variations in the olla shapes. An entirely different type of plain ware bowl copies the perpendicular-sided, flat-bottomed painted-ware bowls. One piece of extra thick ware was found; another example of reddish brown ware had a raised band. Elongated button body lugs are common in the brown ware group, but other decorative modifications are absent. On the whole, the plain wares are a remarkably consistent group.

The painted ware, like the plain, is consistent in style and design. The most characteristic bowl represented is an open circular vessel with flat base, the diameter of which is only slightly smaller than the inner rim diameter (Fig. 27o). Perpendicular sides rise from this flat base and flare slightly to form the rim. The sides are comparatively thick, almost

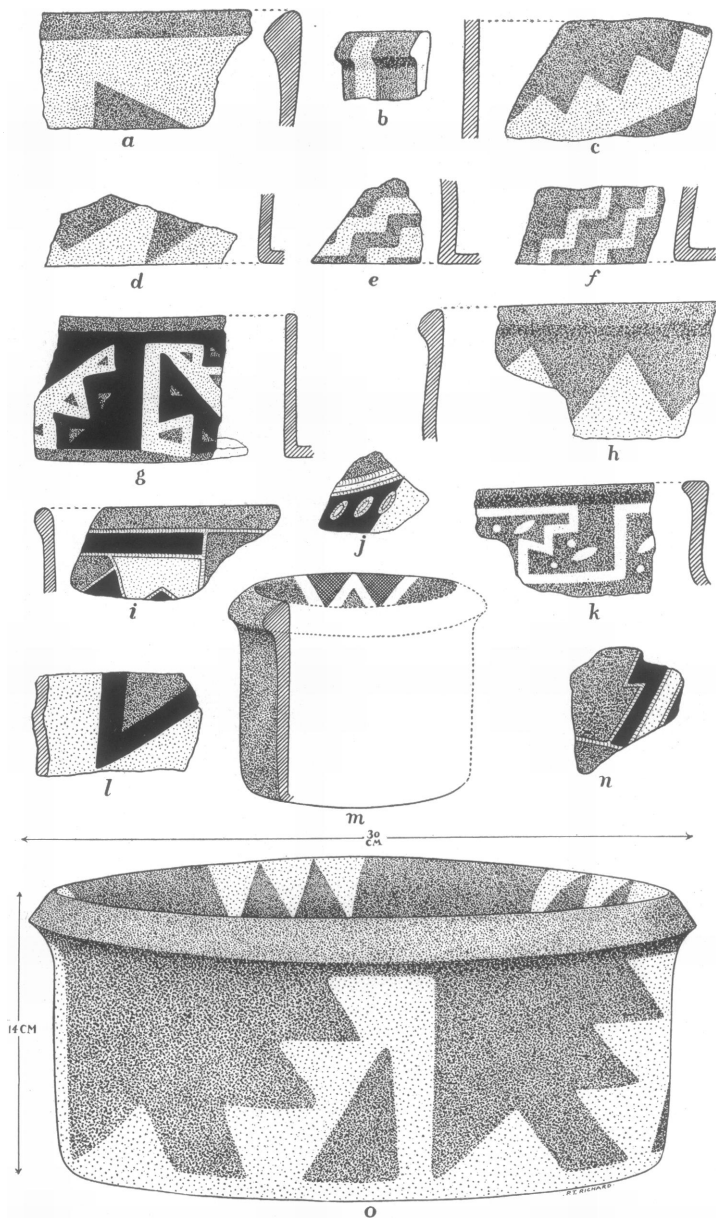


Fig. 27. Painted Pottery of Chiripa Type. *a-f, h, k*, yellow-on-red sherds, from floors of Chiripa houses; *g, l*, black and yellow-on-red sherds, from Chiripa; *i, j, n*, black, yellow-on-red sherds with incision outlines, from Chiripa; *m*, dark brown and yellow-on-red sherd, from Chiripa; *o*, reconstructed yellow-on-red bowl, from Chiripa.

one centimeter. No handles are found on this type of vessel. A typical example from the floor of House 1 measures 30 centimeters in diameter at the rim and 14 centimeters high. This ratio of rim diameter about twice the height of the vessel, seems to hold rather consistently. To my knowledge this shape has not heretofore been reported in Bolivian collections; it is, however, typical in the Chiripa group. The rim shapes (Fig. 27) demonstrate a considerable variety on the plain rim theme, modifications taking the form of bulges and outward projections. However, the basic shapes of the vessels are not affected by these rim variations.

On the vertical-sided vessels, as well as on most others, the decorations are almost invariably a thick yellow paint applied on a red base paint or slip. The red base covers the inner and outer sides of the vessel, but the bottom is often without color. The designs consist largely of oblique bands and triangles commonly arranged in step pattern. As the illustrations (Fig. 27) show there is very little variation on this design scheme. While step and triangle designs are typical of Tiahuanaco culture, the Chiripa style differs largely in its complete simplicity of application and in the absence of the black outlines so typical of Tiahuanaco design. Black is added to the yellow in some Chiripa sherds and in one case a dark brown color is used. The black, like the yellow, is treated as a decorative color, and is never used as an outline. In several of the black, yellow-on-red sherds the color areas are separated by incised lines (Fig. 27i, j, n). Incision does not occur on the plain yellow-on-red fragments, however, and isolated incised or engraved lines are rare. Some plain red pieces, however, have engraved designs. Another characteristic of the painted design is the absence of curved lines. Painted lines are straight, sharp-edged, and the angles in the triangles and steps are sharp. The design is regularly applied to the outside of the vessel; but the inner rim is sometimes simply decorated; in one fairly complete bowl only the inner rim was decorated (Fig. 27m).

Modeled relief is a fairly common decoration on the outside of the typical vessels. In some pieces it is associated with the typical painted decoration. The simplest form is a circular body lug depressed in the center. One complete animal figure has four feet, a curled tail, and a front view head, and possibly represents a puma (Fig. 28i). Other fragments represent modeled paws, modeled heads, an animal body, and a modeled human face (Fig. 28a-f).

Fragments indicate not only variations of the typical vertical-sided shape, but some new forms. A few pieces represent open bowls with

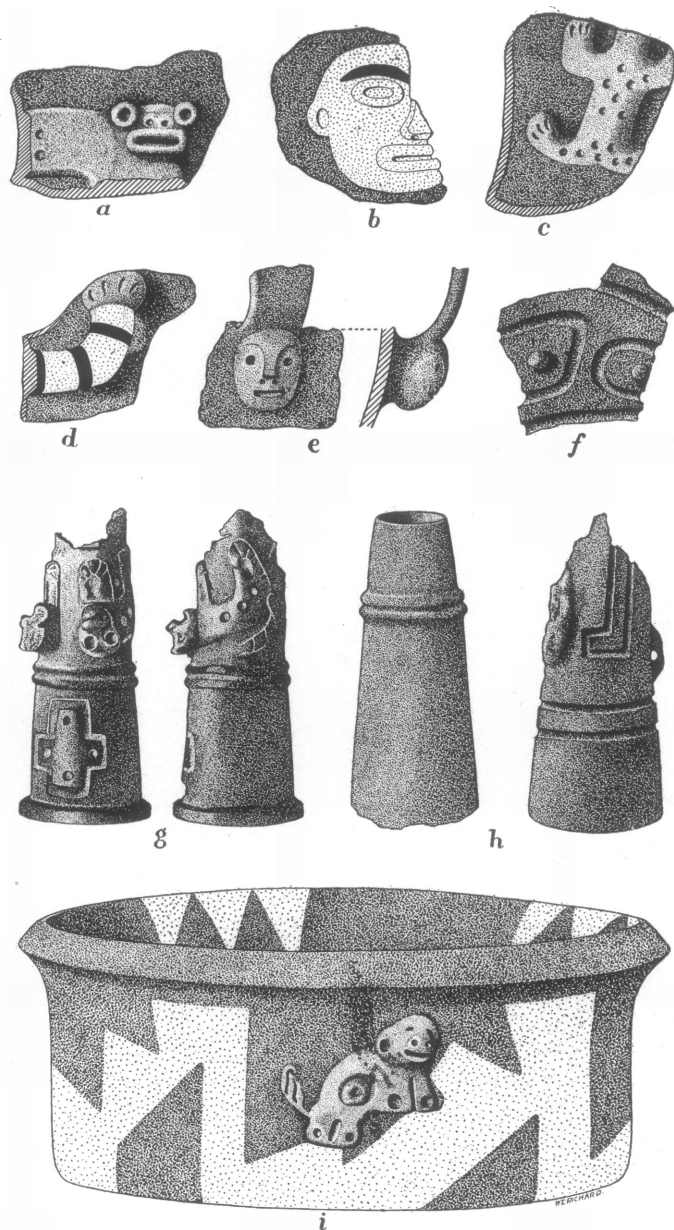


Fig. 28. Painted and Modeled Ware, Chiripa Type. *a*, *c*, red ware with relief modeling, from Chiripa; *b*, *d*, black, yellow-on-red ware with relief modeling, from Chiripa; *e*, red ware handle with modeled head, from Chiripa; *f*, red ware with engraving, from Pariti, Trench 1; *g*, front and side view of black ware modeled tube, from Chiripa; *h*, broken pieces of a red and a black ware tube, from Pariti, Trench 1; *i*, reconstructed yellow-on-red ware bowl with modeled animal, from Chiripa.

slightly convex sides and presumably the same flat base. Still others represent an open bowl with convex sides, a wide flaring rim and a curved side to base contact. Several rim pieces, all apparently belonging to open bowls, have a short vertical loop rim to body handle. One group of fragments, probably from the same vessel, shows a projected flat base, convex sides, and possibly a slightly constricted orifice. One loop handle fragment has a modeled human head at the base, but does not indicate the shape of the vessel. On the whole, considering the extensive collection of Chiripa painted ware from this site, there is only negligible variation of the typical vessels.

An exceptional piece of a black ware clay tube (Fig. 28g) was found just outside the doorway of House 2. This is a hollow tube about 12 centimeters long and 4 centimeters in diameter, finished at one end with a projecting rim, and roughly broken off at the other. It is decorated with a cross on the top half, set off with wide engraved lines, and with a circle punched into each of the four bars of the cross. Below this is a raised double ridge. At the base (broken) end are two pumas with low relief bodies and modeled high relief heads. The two heads are together, while the bodies encircle the tube in opposite directions. The inside of the tube is covered with soot. It may be the spout mouth of a bowl, although there is no proof of this. A suggested use was as a blow tube for the fire, such as those still used by the Indians. A fragment of a similar clay tube was found in one of the bins of House 2.

Non-Ceramic Artifacts. Bone artifacts are abundant in the Chiripa levels. The commonest implements are end scrapers (Fig. 29k, m) and punches. The typical end scraper is made from a deer or llama metatarsal, slightly polished, somewhat convex in cross-section, with a curved, broad worked scraping end. Some scrapers have the articulating end left on the bone for use as a grip. A variant is an end scraper with the blade cut, or worn, obliquely (Fig. 29p). Other end scrapers are made from various bones, finished principally on the blade end. Many pointed bone tools are represented in the collection. A flat polished tool, pointed at one end, is common. It is too delicate to serve as a punch, but may have been used as a shed stick in belt weaving. Other pointed tools are probably punches or awls, ranging from completely polished awls (Fig. 29g) to ulna and other bones with polished points. One pierced bone needle (Fig. 29f) and one long flat spatula (Fig. 29n) were found. A long highly polished flat bone knife (?) with rounded ends sharpened to blades was discovered on the floor of House 1, as well as fragments of others (Fig. 29n). With the first one was a long flat

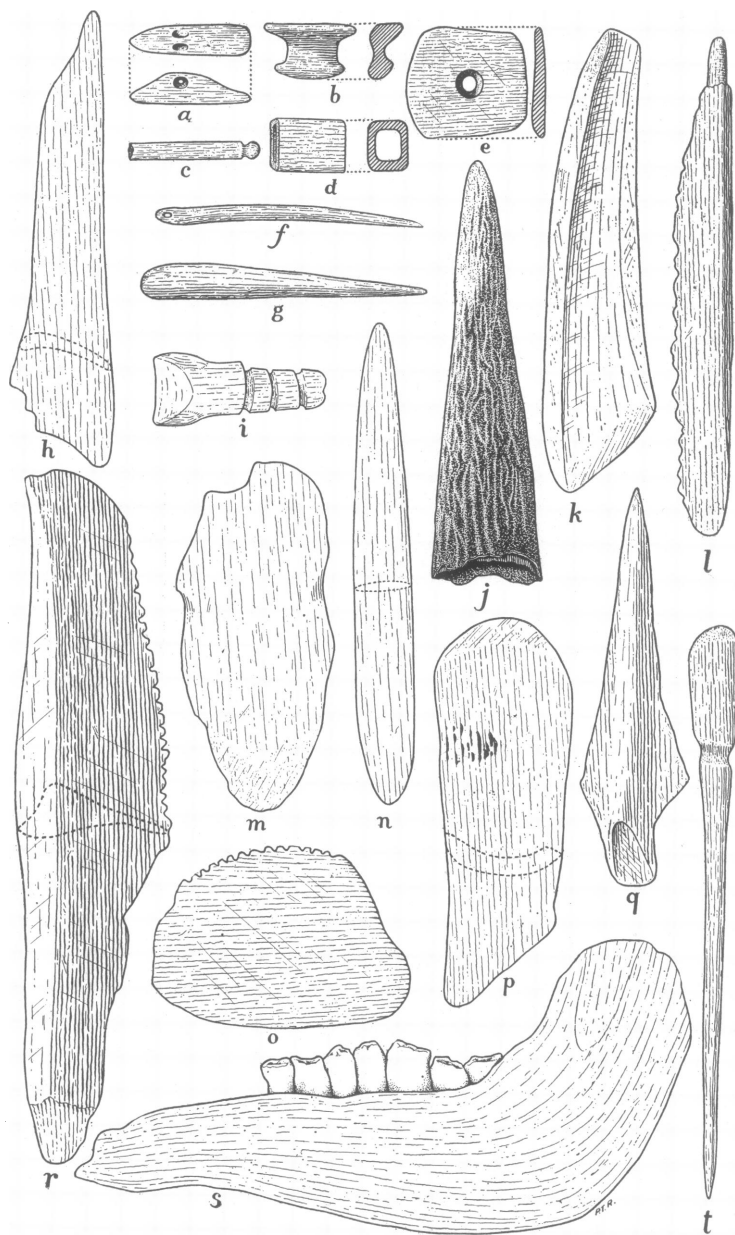


Fig. 29. Chiripa Type Bone Work from Chiripa. *a*, bone bead; *b*, labret; *c*, black needle; *d*, tubular bead; *e*, drilled pendant; *f*, drilled needle; *g*, bone awl; *h*, polished knife; *i*, notched metatarsal; *j*, antler tip point; *k*, end scraper; *l*, serrated bone; *m*, end scraper; *n*, polished bone spatula; *o*, flat bone with serrated edge; *p*, convex end scraper; *q*, ulna awl; *r*, serrated knife; *s*, jaw bone scraper; *t*, notched bone point.

bone, slightly concave longitudinally, which suggested a scabbard or guard for the knife, although it may itself be a tool (Fig. 29h). It also has an exceptionally fine polish. Several bone knives have their longitudinal cutting edges partly serrated (Fig. 29r, l, o). Miscellaneous bone artifacts include a hollow drinking tube, an elongated pierced bead (Fig. 29a), a short tubular bead (Fig. 29d), and a bone labret (Fig. 29b). Besides these, there are numerous slightly worked bones which can hardly be classified as specific tools.

Stone artifacts are fairly numerous, but not of particularly great significance. Among them are two grooved bolas, four flat hand grindstones, four muller-shaped grindstones, and one chipped hoe or scraper. Two large metate grindstones and a T-shaped polished ax were found on the floor of one house. Stone and lapis-lazuli beads were uncovered in one of the graves under the floor of House 2. Two small squared blocks of red sandstone, a small round polished stone, and a partially shaped green polished stone, were in the pre-mound stratum.

Metal objects were rare. In one House 2 grave, a series of wrapped copper beads were obviously used together with shell, bone, and stone beads as anklets. Other graves contained narrow strips of undecorated gold bands, roughly cut from larger pieces, as well as some plain weave cloth.

Several small painted clay bricks in House 2 were painted green, white, and red on different sides. None of these was found in position, so their precise use is unknown.

POSITION OF CHIRIPA TYPE

The Chiripa type material is isolated at this home site. In other words, strata are found containing only Chiripa material. A house type, unique in many features, burial style, and ceramic, bone, stone, and metal artifacts are all identified as Chiripa culture. Furthermore, it has been stated repeatedly that the Chiripa type stratigraphically and therefore chronologically, precedes Decadent Tiahuanaco. At the other limit, the evidence is lacking. No distinction can be made on the basis of the collections between the Chiripa house levels and the pre-mound stratum. The pre-mound stratum represents a period of casual dwelling sites and much wash from the higher surrounding land. The pottery fragments are rare, but the painted ones are of Chiripa type. The pre-mound stratum rests on undisturbed ground. Consequently, nothing can be said about the lower limitation of Chiripa type at this site.

The Iturralde collections and the pits excavated outside of the mound

indicate that other types of pottery are represented in this region, ranging from a suggestion of Early Tiahuanaco, through Classic and Decadent Tiahuanaco to Inca and post-Inca. However, neither my three pits, nor the more extensive local collection is conclusive enough to segregate this material farther. More will be said on the position of the Chiripa material, however, in the following section on the excavations at Pariti.

PARITI

Situated in the southern pocket of Lake Titicaca is the small island of Pariti, owned by Sr. Pablo Pacheco. Its eastern side is protected by hills making it moderately warm and fertile and other parts support terraced cultivated fields. The impression is that the island has long been inhabited as a small, but desirable spot. In casual excavating for house building and agricultural improvements, Sr. Pacheco has encountered a variety of archaeological objects, including pottery and gold work of Classic Tiahuanaco type. No ruins are in existence today, but numerous cut and dressed stone blocks and slabs have been found. Sr. Pacheco remembers a small statue which was discovered on the island and later destroyed.

In June of 1934 I excavated eight trenches on the Island of Pariti, all on its eastern side around the general region of the plantation house. This was not only the most logical place for digging, but also the locality in which finds had been made previously. Five of my trenches (Nos. 1, 2, 6, 7, 8) were cut on the terraces northwest of the plantation house and just west of a small knoll on which a chapel once stood. This section is a shoulder with a small bay to the north and to the southeast and consequently an important spot from the point of view of island topography. The remaining three trenches were located in the fields around the plantation houses, No. 3 to the south of it, No. 4 to the southeast, virtually on the lake level, and No. 5 to the northeast.

No structures were encountered in these trenches; the collections resulting from the excavations are, however, important. Consequently, the trenches will be briefly described and the collections analyzed as a whole.

PA-1. A trench 6 by 1.80 meters was dug on the upper terrace of the section northwest of the hacienda. The top 50 centimeters contained only three sherds, one of which was Decadent Tiahuanaco, and three small dressed stones. Plowing and rebuilding of terraces probably accounts for this barrenness. From about 60 centimeters to the undis-

turbed clay at 1.50 meters was a dwelling site refuse layer of unmixed Chiripa yellow-on-red type pottery.

PA-2. A trench 7.70 by 2.00 meters was cut on the terrace below PA-1. Two burials at 80 centimeters depth, one at each end of the trench, were the only discoveries. Otherwise, not even a sherd was found to the undisturbed level at 1.10 meters.

PA-3. A trench 5.50 by 1.75 meters was excavated in the field just south of the hacienda. Disturbed ground continued to 1.30 meters, but nothing was found.

PA-4. A trench, 19 by 1.50 meters (east end), 2.25 meters (west end section), varying in depth from 1.00 meter at the east to 1.60 meters at the west end, was located southeast of the hacienda, on the lake level terrace. Many Decadent Tiahuanaco sherds were found.

Tomb A. 14.50 meters from the west end of the trench was a stone-lined, paved, and covered tomb containing the bones of a young child and six semi-Decadent Tiahuanaco type bowls. Similar tombs had been found in this field by previous excavators.

1. One-handed vase, 7 centimeters high, 4 centimeters wide at the rim, 6 centimeters wide at the center, and 3.5 centimeters wide at the base, with a step design in black, white, yellow-on-red.

2. Constricted mouth, high shoulder jug, 10 centimeters high, 5 centimeters in diameter at the rim, 9 centimeters at the center, and 6 centimeters at base, with scallop and circle design in black-on-orange around the shoulder.

3. One-handed, constricted neck pitcher, 11 centimeters high, 5.5 centimeters in diameter at the rim, 8 centimeters body diameter, and 5 centimeters base, with black, yellow-on-red design of steps, dots, and parallel lines on the upper body and outer rim.

4. Open, flaring-sided cup (Shape E)¹, 8 centimeters high, 16.5 centimeters rim diameter, and 9 centimeters base, with black, white, yellow-on-red step design.

5. Kero-shaped goblet (Shape A) with a single raised band around the center, 15.5 centimeters high, 15.5 centimeters rim diameter, and 8.5 centimeters base diameter, with black, white, yellow-on-red design of alternating colored vertical wavy lines on the upper half, horizontal bands around the center, and Decadent type heads around the lower half.

6. Hollow base, two-handed libation bowl (Shape B), 11 centimeters high, 17 centimeters in rim diameter, and 15 centimeters base diameter,

¹*This Series*, vol. 34, 407, for shapes.

with black, yellow-on-red design of condor tail feather type around body, and the typical circles around the base.

Tomb B, 8 meters from the west end, was stone-lined, and contained the base of a broken olla, but no bones.

PA-5. A trench 10.50 by 1.50 meters, was on a high terrace north-east of the hacienda, with a variation of the depth of 1.30 meters at the west end and 50 centimeters at the east, due to the slant of the base rock. Cut stones were found near the surface and the sherds were largely of Classic Tiahuanaco type, although so badly mixed, that the impression was that of disturbed burials. No burials were encountered, but isolated human bones confirmed the idea of disturbance.

PA-6. A trench, 9.20 by 1.70 meters, was near PA-1. The top meter and a half contained Chiripa type refuse material, although, as in PA-1, the top 50 centimeters contained very little material of any kind. A burial was found from 1.40 to 1.60 meters depth in the northern end of the trench. It was neither covered by stones, nor did it show any signs of intrusion. On the contrary, the Chiripa level continued apparently unbroken over the burial. The burial was accompanied by twenty-three small gold vessels, incised bone paint tubes, small beads, and fragments of green, red, white, and blue paint. These artifacts, especially the incised designs on the bone tubes, are all of Classic Tiahuanaco style. Unfortunately, no pottery accompanied the burial. However, Sr. Pacheco said that a gold cup, five gold masks, and two Classic Tiahuanaco bowls accompanied by seven skulls, had been found just north of this burial. From all evidence revealed in the excavating, the burial and its accompanying artifacts are stratigraphically below the Chiripa level. The burial rested on undisturbed soil.

PA-7. A trench, 7.20 meters by 2.00 meters, perpendicular to the north end of PA-6, was made in the hope of confirming the above stratigraphy. Chiripa type material was found in all parts of the trench, to 1.10 meters depth at the east end, and 1.50 meters depth at the west.

PA-8. A trench 9.50 by 2.00 meters was dug 8.00 meters north of PA-7 on a terrace of the same level. A depth of 1.70 meters was attained before we reached an apparently undisturbed level. The ground was full of rough stones, from old terrace walls. Despite its situation on the same general level, this terrace is apparently not contemporaneous with the one to the south. No Chiripa material is represented, but instead the cut revealed a mixture of Inca and Decadent Tiahuanaco type sherds, as well as miscellaneous material. No stratigraphy is represented.

THE COLLECTION

The Chiripa Material. Three of the trenches (Nos. 1, 6, 7) contained Chiripa type material. In each one of these the Chiripa level started about 40 to 50 centimeters below the surface and continued to about 1.50 meters. In Trenches 1 and 7 the Chiripa material continued to the undisturbed level, but in Trench 6 it was superimposed over one burial associated with Classic Tiahuanaco artifacts. In all three trenches, the Chiripa material was unmixed with other types and is, in this respect, isolated. The first 50 centimeters below the surface in these trenches was relatively barren, possibly due to plowing and rebuilding of the terraces for agricultural purposes. However, cut stone blocks and three fragments of Decadent Tiahuanaco type pots were found in this upper level and imply stratification, although the material is insufficient to prove it. Considering, however, the definite superimposition of Decadent Tiahuanaco on Chiripa at the Chiripa site itself, the sequence appears as a logical one.

The Chiripa material from Pariti conforms, in almost every respect, to the Chiripa type material already described. Little need be added here. Brown plain ware cooking olla sherds are again the dominant type, with rim fragments indicating the same kind of vessel. Several fragments with vertical flat loop rim to body handles were found here, however. The yellow-on-red is also the dominant type of painting, its only variation being in the black and yellow-on-red, as at Chiripa. Most of the fragments come from the circular, flat base, vertical-sided open bowls, so distinctive and typical of Chiripa ware. The convex-sided variety is found at Pariti. Two fragments from constricted mouth vessels, with a raised collar ridge around the neck, represent a new type of painted jar. One raised collar fragment was decorated with incisions. Modeled relief decoration again occurs in association with the painted ware vessels. The figures are virtually the same as those at Chiripa. One red polished fragment combined relief with engraving. Two broken clay tubes were found in Trench 1 (Fig. 28h). One is of red ware, 15 centimeters long, 3 centimeters in diameter at the rim, and 4.5 centimeters in diameter at the broken end. The only decoration is a raised double ridge. Three fragments of a black ware type, very similar to the one described from Chiripa were also found. The decoration is by the medium of relief modeling and engraving with a broad point. Bone work is less common than at the Chiripa site. Four typical bone end scrapers were found, however. No metal or stone artifacts were found



Fig. 30. Gold Objects and Incised Bone Tubes of Classic Tiahuanaco Type, from Pariti. *a-l, o*, small gold objects, Pariti, Trench 6; *m, n, p, q, r*, spread drawings of incised bone tubes.

in association with the Chiripa material, nor were there any indications of houses or burials.

There is no doubt that the material from Pariti is the same as that from Chiripa. The types are consistent, even in fine details. Consequently, finding this material on Pariti establishes the Chiripa style as something more than a local type. In Pariti the Chiripa level is stratigraphically above a Classic Tiahuanaco grave and below a Decadent Tiahuanaco level, thus establishing its chronological position. In the American Museum Collection made by Adolph Bandelier a complete bowl (B-2605) from Cusijata, near Copacabana, is a splendid example of this Chiripa type vessel, with a yellow-on-red step design and vertical sides. This permits the suggestion that the Chiripa type will be found in other parts of the Titicaca region, although any indication of an extension beyond this region is so far unknown.

The Classic Tiahuanaco.

Material resembling the Classic style of Tiahuanaco was found in the grave of Trench 6 (Fig. 30) and in Trenches 4 and 5. With the exception of the grave material, which included no pottery, the Classic was mixed with Decadent Tiahuanaco, although both trenches (Nos. 4 and 5) were badly disturbed. No complete bowls were found, but the sherds indicate the shapes, design, colors, and finish. Classic Tiahuanaco bowls, as well as gold objects, have been found on Pariti by Sr. Pacheco (see Fig. 31).

The finds associated with the burial in Trench 6 consist of twenty-three small gold objects, seven (including fragments) incised bone paint tubes, many beads, and fragments of red, blue, white, and green paint. The gold objects are mostly small and simple (Fig. 30a-l, o). Five



Fig. 31. Classic Tiahuanaco Gold Cup, Pacheco Collection, Pariti.

pairs of small cups suggest thimble-like finger ornaments. The base diameter of each was less than the rim. In one pair the sides flared out at the rim, but the other four pairs had straight sides. Two pairs were plain, two had a double groove just below the rim, and one pair had a double groove and a row of four simple puma heads incised around the upper half. The measurements of these cups are given, by pairs, as follows:—

Pair	Sides	Height cm.	Base Diameter	Rim Diameter	Decoration
1	flaring	3.7	2.0	2.8	plain
2	straight	3.0	1.7	2.3	double-groove
3	straight	2.6	1.1	1.9	plain
4	straight	2.6	1.1	1.8	double-groove
5	straight	2.8	1.2	1.9	heads and groove

A single cup of the same type, but without decoration, measured 2.0 centimeters high, 2.8 centimeters base diameter, and 3.4 centimeters rim diameter. A plain straight-sided toy dish measured 1.9 centimeters high, 1.8 centimeters base diameter, and 3.9 centimeters rim diameter. Another was similar to the last, but with a flare rim, 2.2 centimeters high, 2.2 centimeters base diameter, 3.0 centimeters rim diameter. A toy gold bowl measuring 1.6 centimeters high, 2.8 centimeters base diameter, and 3.5 centimeters rim diameter had the rim bent out at right angles for a 3 millimeter width. A final toy bowl differed from the others in having convex sides and measured 1.0 centimeters high, 0.8 centimeters base diameter, and 2.3 centimeters rim diameter. One small gold vessel was shaped like a tall vase with a constricted neck and a slight flare rim. It measured 3.5 centimeters high, 1.5 centimeters base, 1.5 centimeters rim diameter, and 2.0 centimeters in body diameter. The last of the toy containers was shaped like an angular-bodied bowl with constricted neck and wide flaring flat rim. Its total height was 3.0 centimeters, base diameter, 0.8 centimeters, rim diameter, 3.0 centimeters, and body diameter at the angle, 2.3 centimeters.

Three thin gold discs measured 3.3, 3.3, and 4.2 centimeters in diameter, respectively. These were slightly depressed from one side; like toy plates and decorated with concentric incised circles. The two smallest discs had six decorative circles and the largest had eight.

Another gold disc, 2.8 centimeters in diameter, had a 0.5 centimeter wide strip handle attached to one side, giving the appearance of an olla cover. The handle was looped and attached at both ends to the disc by means of small gold rivets which had been passed through a hole which pierced handle and disc and were then hammered flat on each end.

A thin gold pin shaped like a plume with three branches was found (Fig. 30o). It was 10 centimeters long. The pin part was flat, not rounded, and 2.8 centimeters long. The base of the plume was rounded and the three projections were cut out of the thin gold. The base of the plume was 3.0 centimeters wide and the top of the plume, 4.0 centimeters. At the end of each of the three branches had been hammered a conventionalized front view face, with a mouth, two eyes, and a nose.

The last piece of the gold collection was a cup, 5.5 centimeters high, 4.1 centimeters in base diameter and 5.5 centimeters in rim diameter (Fig. 30j). The sides flare out slightly to form the rim. Two grooves encircle the cup just below the rim. On one side a human front view face was hammered in low relief. The mouth was a round cornered rectangle, the eyes were two circles. The nose projected and had concave sides. Cheeks and forehead were modeled slightly in relief. The whole face was framed by a simple incised outline which probably represented a headdress. The gold work suggested Classic Tiahuanaco, but too little is known of the nature of Tiahuanaco gold objects to make the identification certain. The incised bone paint tubes, however, can be called Classic Tiahuanaco with much more certainty. The tubes are small, cut sharply at both ends, and have sides which flare out slightly at one end. The hole runs clear through, making their use as paint tubes questionable. Most of them were found filled with paint, however. Since the designs vary, it seems best to describe the tubes individually (Fig. 30m, n, p, q, r).

1. A complete tube, 3.6 centimeters long, 1.1 centimeters in base diameter, 1.8 centimeters in rim diameter. The bone is colored green on the outside. Around the base end is a band of interlocking bent lines filled with white paint. Around the rim end is a band of three sets of steps and triangles, filled with red paint.

2. A complete tube, 3.7 centimeters long, 1.1 centimeters in base diameter and 1.8 centimeters in rim diameter, with a design identical with No. 1.

3. A complete tube, 4.0 centimeters long, 1.1 centimeters in base diameter, and 1.8 centimeters in rim diameter. A band of interlocking bent lines encircles both the base and the rim end. In the center is a design of two condor heads, simply executed and with tri-bar crowns. One head is separated from the other by an incised bar-like loop. The incised lines are filled with red.

4. A partly broken tube, with red paint inside, which measures 4 centimeters in length, 1.1 centimeters in base diameter, and 1.7 centi-

meters in rim diameter. Around the rim end is a band of four sets of steps and triangles. Encircling the base half of the tube is a puma figure, with Classic Tiahuanaco head, two feet in profile, and a segmented body which ends in a condor tri-part tail. From the neck of the puma a band extends towards the front and ends in a four finger hand clasping a staff. The thumb of the hand seems to have the Tiahuanaco extended nail. The lower end of the staff terminates in a condor head.

5. A partly broken tube, with white paint inside, which measured 4.2 centimeters long, 1.2 centimeters base diameter, and 2.0 centimeters rim diameter. Bands of interlocking bent lines encircle the base and rim ends. In the center is a single front view human face, with a trident headdress. The face is squared with simple linear features. The headdress has a bar above which project three plant-like objects, typical of Tiahuanaco design. The incised lines are filled with red, but the eyes and mouth of the face are filled with white.

6. A badly broken tube, filled with red paint and colored green outside, measured 2.9 centimeters long, 1.1 centimeters base diameter, and approximately 1.8 centimeters in rim diameter. Around the base and rim end are bands of simple interlocking steps. In the center are two condor heads, simply incised, with plain bar crowns. The two horizontally placed heads are separated by oblique bars. All incisions are filled with red paint.

7. Two fragments of a tube which apparently had the same design as No. 6.

Condor, puma, human crowned head, step, and interlocking designs all imply Classic Tiahuanaco affinities, especially when executed in the typical manner. There are, however, some differences which suggest that the style is not related to the Classic Tiahuanaco at its height. These will be discussed with the pottery found in Trenches 4 and 5 which shows the same slight differences.

However, whether it be pure or no, the grave is certainly identified as Classic, as contrasted to the true Decadent Tiahuanaco, and serves, in that sense, to give a lower limit for the chronological position of Chiripa.

In addition to the material associated with the grave in Trench 6 the ceramics of Trenches 4 and 5 are also related to the Classic Tiahuanaco. No complete bowls were found, although the sherds represented many pieces of the same bowl. The typical shapes represented correspond with those found at Tiahuanaco in the Classic period. One of the most typical is the open flaring rim bowl (Shape C)¹ with convex body, flat

¹See *This Series*, vol. 34, 407 for Tiahuanaco shape designations.

projected base, and the design painted only on the wide inner rim. Pumas are the most common motive on this shape bowl, although condors are also found, and some geometric designs. The designs are painted in three or four colors on a red background, namely black, white, yellow (and gray)-on-red. They are well executed and represent complete figures, although with some variations which do not commonly occur at Tiahuanaco. Kero-shaped goblets (Shape A) are also found, representing both Classic and Decadent Tiahuanaco styles. Painted, hollow base libation bowls (Shape B) with designs of tail feathers and circles about the base were also among those from this trench. The lozenge-shaped vase (Shape D) is found with puma and geometric designs. The flaring-sided cup is only sparsely represented (Shape E), and then has a simple wavy line or a scroll design. Other shapes are found which assist but little in the identification of the material. The high shouldered, constricted mouth, two-handled jug (Shape m)¹ is found with some frequency with geometric, puma, and condor designs. The miniature flaring-sided open bowl (Shape k), a globular narrow-necked jug (like Shape i), and an angular-bodied vessel (like Shape h) complete the list.

The shapes are obviously of the Classic Tiahuanaco pattern. The colors are typical. The technique of fabrication and of design application is skilful. The designs themselves are representative of the Classic Tiahuanaco. However, these puma figures are modified with a wing, a folded snout, a turned-down tail, and other details which distinguish them from those figures as observed at Tiahuanaco itself. This, together with the gold and bone work from the grave, gives the impression that the contents of this trench represent either a late Classic Tiahuanaco, or a close derivative of the Classic.

The Decadent Tiahuanaco. True Decadent Tiahuanaco material is not abundantly represented in my excavations on Pariti; a sufficient number of fragments are found on the surface, however, and whole pieces present in previously excavated material establish its presence. Decadent Tiahuanaco fragments were found in the strata above the Chiripa type (that is the first half meter), in Trenches 1 and 6. Trenches 4 and 5 contained Decadent material mixed with the Classic. This could not be separated stratigraphically due to the jumbled and doubtless previously disturbed nature of the terrain at these places. One tomb (PA-4A) in Trench 4 had six bowls of semi-Decadent type, as previously described. The painted hollow base bowl and the general qual-

¹*This Series*, vol. 34, 407 for shape designations.

ity of the design, however, distinguish this group from the Decadent found at Chiripa. Finally, in Trench 8 some Decadent fragments were found mixed with Inca. It appears probable that further excavation would isolate Decadent Tiahuanaco as a distinct phase of habitation on Pariti, post-Chiripa and pre-Inca.

The Inca Material. Inca fragments were found on the surface and mixed with Decadent Tiahuanaco in Trench 8. Aryballoid and bird handled ladles are represented. There are at present no visible remains of Inca buildings, nor other evidence of extensive habitation. Directly east of Pariti on the Island of Quehuaya are the remains of an extensive Inca village from which the small island of Pariti could have been easily controlled. The Quehuaya ruins are not described in this report, but illustrations may be found in Posnansky's account.¹

SUMMARY

The excavations on Pariti suggest the following chronological sequence:—

1. Classic Tiahuanaco with local variations. It is quite possible that a local decline of the original style occurred on Pariti. One grave is stratigraphically under the Chiripa type.

2. Chiripa type. This is represented by isolated levels of refuse material about one meter thick. From all evidence it represents a distinct phase on Pariti, following the local Classic Tiahuanaco style. At least it is unmixed with Tiahuanaco material.

3. Decadent Tiahuanaco. A reappearance of Tiahuanaco influence following the Chiripa phase, as at the Chiripa site itself.

4. Inca period. Inca culture is at present mixed with Decadent Tiahuanaco in some places, but has not been isolated.

PAJCHIRI

The island on which these ruins lie is one of the largest in the southern section of Lake Titicaca and contains seven distinct plantations, namely, Cumana, Cuyavi, Patapatani, Tirasca, Cascachi, Pajchiri, Coana. The island itself has no special name, although it is most often referred to as "Cumana." It is mountainous, with many cultivable valleys on all sides. Roughly speaking, it is quarter moon-shaped. At the southeastern corner a built up road bridge, said to be of Inca construction, connects it with the mainland. This bridge, called the *puente de Yayas*, of rough stone construction, is at present about three hundred

¹Posnansky, 1912.

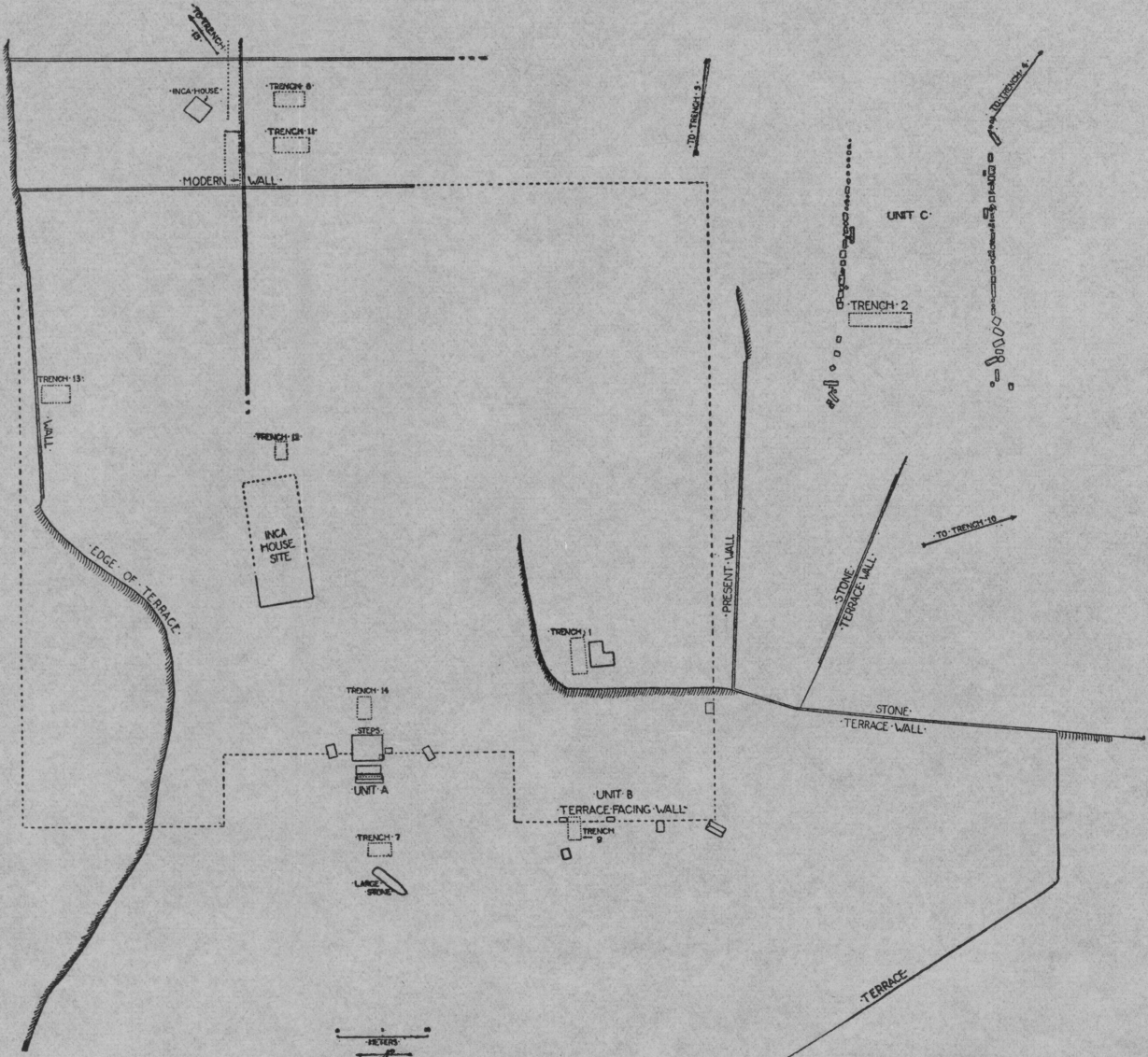


Fig. 32. Groundplan of Pajchiri Temple showing Actual Remains and Indications of Original Temple Plans and Excavated Trenches.

meters long and three meters wide. From the island end of the bridge a trail continues and crosses the mountain from Cumana to Pajchiri at the southwest corner of the island. The Pajchiri section includes a fertile valley which runs from north to south back from the lake; on the east side of this valley, about thirty-eight meters above the present lake level, are the cut and dressed stone ruins of a temple (Fig. 32). Back of the ruins is a prominent outcrop of stone which was once fortified; to the south of the ruins is another high hill which was likewise fortified. To the east of the ruins is another deep and fertile valley, paralleling the first, and separated by a narrow ridge. West of the temple a trail leads around the shore of Cumana Island and is said to be connected by another road bridge to the island of Quehuaya. In front of the ruins, to the south, is a sheltered bay filled with *totor*a reed whence balsas depart for many points on the lake.

To my knowledge the only published reference to this site is Max Uhle's note¹ of a ruin called "Thaaq'ani," on the western end of Cumana Island, although it has undoubtedly been known to local archaeologists. Its location was given to me by Doctor Fritz Kuebler, Director of the Colegio Alemán in La Paz.

The temple is composed of open, once stone-faced terraces, facing west, and was entered, from the west, by a set of cut stone block steps. Today, erosion and destruction by the hand of man has defaced the temple so that the original plan is partially conjectural. If the steps are considered central, as the nature of the eroded terraces suggest, then the facing stones of the north half have disappeared. At present the remains of the temple can best be described in units. Unit A includes the stairway; Unit B, the south terrace facing wall; Unit C, a parallel row of cut stones to the southeast of the terraces; and finally, miscellaneous stonework around the ruins (Fig. 32). It must be borne in mind, however, that Units A and B, at least, are parts of a single temple.

Unit A consists, at present of three long narrow slabs of cut and dressed red sandstone arranged like steps leading up to a flat dressed slab of the same stone (Figs. 33, 34, 35). On each side of the top platform stone is an upright squared pillar, one of dark sandstone, and one of basalt. The long axis of the steps is north to south and consequently oriented with the front terrace wall of the south section (Unit B). The unit as a whole is set back from the line of the terrace (Unit B), so that the front edge of the platform, or top step, is about seven meters east of that line, although parallel to it.

¹Uhle, 1912a, 476.

The top platform stone, which measured 3.40 by 2.90 meters by 28 centimeters thick, has been propped up in recent years by treasure seekers, but the back edge is probably more or less in the original level position. The three steps measure as follows:—

	Length	Width	Thickness
Top step	3.00 m.	1.10 m.	27 cm.
Middle step	3.05 m.	51 cm.	23 cm.
Bottom step	3.25 m.	70 cm.	25 cm.

The bottom step is firmly fixed in the ground, probably in the original position, and is overlapped by the middle step by 30 centimeters, but does not contact firmly with it. The top step rests directly on the middle one, but with little overlap. The general impression is that the top two steps have been disturbed from their original positions.

The top step is 55 centimeters in front of the platform slab. The tilting of the platform slab has made it 10 centimeters above the top step at the north and one meter above it at the south, although the center is only 55 centimeters above. This discrepancy in the relationship of the top step and the platform is too great to be explained merely by disturbance of position. The top slab has probably never been slid back, i.e., uphill, and the general level of the center front (55 centimeters above the top step) conforms to the general terraced temple. The evidence points to a fourth and perhaps a fifth step which are now missing. The top step has a distinct strip about 43 centimeters wide along the front surface which is weathered more than the back part. This suggests that the front has been exposed as an open step while the back part was protected by another stone or step. According to present measurements the fourth step would have had to be 1.20 meters wide (wider than any of the actual steps) and over 50 centimeters thick. Thus, the assumption of a fifth step, which would help fill in the gap of 1.20 meters in width and with an average thickness of about 25 centimeters (like the present steps) would nicely build up the 50 centimeter height. Around the steps at present are pieces of red sandstone dressed blocks, badly broken up, measuring 26 centimeters in thickness. Around other parts of the ruins the red sandstone blocks are still being split up for building materials.

On each side of the top platform of Unit A is a dressed stone block. The one to the south, of dark sandstone, still stands upright (88 by 56 by 86 centimeters to the ground), and the north one of basalt has fallen (measuring 85 by 40 centimeters by 1.54 meters long). They probably



Fig. 33. Steps of Pajchiri Temple.



Fig. 34. Side View of Steps of Pajchiri Temple.

mark the front edge of the temple terrace. To the north, the terrace has weathered away and no further direct evidence of the temple facing wall is visible, but to the south a connection is made with the facing terrace (Unit B) not only by general alignment, but also by another fallen basalt pillar (87 by 46 centimeters by over 1.30 meters long). The upright block to the south of the platform is the only one that is still in undisturbed position; its top probably marks the level of the temple terrace (as do the uprights of Unit B). If the platform stone of Unit A were lowered from its disturbed position to the level of the top of this upright, the bottom of the platform would be 60 centimeters above the top step, which dips slightly at this south end. This is an interesting addition to the evidence for the existence of two more steps which would nicely fill this gap.

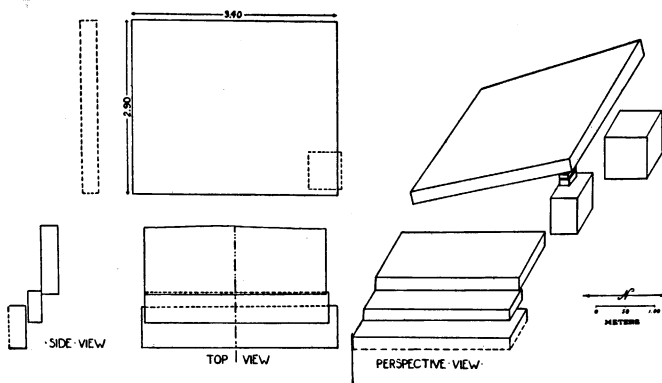


Fig. 35. Top, Side, and Perspective View of Steps, Unit A, Pajchiri Temple.

Back of this set of steps is a slightly rising plain. Here stones have been heaped into mounds in the course of clearing the ground for modern cultivating. House sites and walls, probably of Inca construction, occur, but have no direct relation to the steps and terrace. To the north, the plain is eroded by the incutting gullies. To the west, in front of the steps, the valley side descends rapidly in a series of agricultural terraces. Excavation at the base of the steps revealed no pavement or further structure, nor did a pit at the inner edge of the platform stone. A few meters directly in front of the steps is a long roughly oblong block of red sandstone, apparently unworked. To the south, however, the plain of Unit A continues, faced on the west by the stones

of Unit B, which are, as already stated, directly aligned and connected to Unit A.

The main feature of Unit B, then, is a row of upright dressed basalt pillars which once formed the facing wall of a terrace (Fig. 32). The terrace itself has eroded away, leaving the uprights standing free. At present five pillars of cut, dressed, and notched basalt form a line north to south. East of this row at each end is another pillar. Of the seven pillars still remaining of the terrace facing wall, three are still standing and the original position of the others can be determined. Starting with the pillar east of the north end of the wall the measurements follow:—

B1. A standing upright, 47 centimeters by 68 centimeters by 1.12 meters (to ground). Two rectangular niches are cut out of the top of this squared pillar, leaving a narrow ridge, suggestive of typical Tiahuanaco stone cutting. This pillar is 8.95 meters from the fallen terrace pillar stone of Unit A.

B2. An upright pillar forming the northwest corner of the terrace wing, 58 by 85 centimeters by 1.56 meters (to the ground). This pillar is 3.83 meters west of B1. It is finished on the north and west sides and only roughly cut on the other sides, which emphasizes the idea of a corner facing terrace pillar.

B3. A pillar broken into two parts. The base is still in position, 4.60 meters south of the cornerstone, B2. The base measures 89 by 52 by 50 centimeters from break to ground. The top part is 3 meters to the west and measures 82 by 40 by 93 centimeters long to the break. The calculated height of the pillar before it was broken is 1.43 meters to the ground.

B4. An upright pillar, 4.46 meters from B3, measuring 48 by 82 centimeters by 1.20 meters to the ground. It slants forward (west), but the base is still in line with the other stones.

B5. A fallen pillar 4.75 meters south of B4, measuring 50 by 77 centimeters by 1.24 meters total length. The base still marks the original position in the wall.

B6. A fallen pillar, now 5.20 meters south of B5, but out of position to the south, was probably the southwest cornerstone of the facing terrace, since, like the other corner, only the south and west sides are finished. The cross-section of the stone is pentagonal, the finished sides measuring 56 and 92 centimeters, and the unfinished three 51, 62, and 10 centimeters. The stone is 2.08 meters in length. The top is cut flat with a niche out of the inside front.

B7. Twelve meters east of the cornerstone B6 is a partially covered

fallen pillar 80 by 22 centimeters by 1.00 plus meters long. This is roughly in line with a facing terrace of the south side of the plain behind the front stone wall.

This wall section of Unit B is nothing more than the remnants of a solid stone facing wall of a terrace. Evidence for this idea is furnished by the fact that the stones slant or fall outward, that the corners are definitely prepared, that the pillars are finished on the outside only, and that the present terrace (now about twelve meters behind the wall) is at a level which corresponds to the step level of Unit A. Excavation between the present uprights revealed no trace of the connecting wall. However, the houses of Inca and modern construction on and around the temple ruins are built of cut stone, apparently taken from the ruin, which, with the erosion factor, would account for the disappearance of small stones. Some of the missing uprights of the facing may be accounted for too, because several pillars of the same workmanship may still be seen in various parts of the valley below. Indeed, it is reasonable to assume that a corresponding terrace with a cut stone facing was originally located to the north of the steps of Unit A, although there is no direct evidence except the rough symmetry of the terrace plain, especially when seen from across the valley. However, in the facing wall of Unit B itself, the uprights are more or less proportionately placed at intervals of between 4 and 4.50 meters. On the basis of this measurement, plus general observations of the site itself, one concludes that formerly there was another upright in a line east of B1, connected by still another with the two south of the platform of Unit A. Also, that in the south terrace facing of Unit B there were two uprights between the southwest cornerstone B6 and the fallen upright 12 meters to the east of it, B7. In other words, the southern half of the temple (considering the steps as the center) possibly had a facing wall composed of thirteen upright pillars instead of the nine which are still visible. Judging by the steps and platform, the terrace was about 1.50 meters high, an estimate confirmed by the height of the pillars still standing and the height of the present terrace.

Near the west edge of the present terrace, back from the center of the facing wall, is a large flat stone 2.65 meters by 2.82 meters and 30 centimeters thick, with a notch cut from the southern corner 1.20 meters by 1.25 meters, giving the appearance of an L. This is cut and dressed basalt and bears no visible relation to the rest of the structure.

The terrace plain continues back in a gentle rise until it is interrupted by more recent walls and heaps of stone. The south edge of the plain is

distinguished by another 1.5 meter terrace of rough stone facing some large and some upright. This is not exactly oriented with the front wall terrace and has the appearance of an old terrace facing rebuilt in later times.

South of the terrace and plain of Unit B is another flat plain ending in a steep series of terraces to the west, but undefined to the east and south. On this plain are a number of miscellaneous stone constructions described here as Unit C.

The chief feature of Unit C (Fig. 32) is a double row of cut stone, about 30 meters long, roughly parallel; 15.60 meters apart at the east end and 17.70 meters apart at the west end. The north row runs east three degrees south, and consists of eighteen large squared stones, some on edge and some fallen, interspersed with smaller stones. The south wall has twenty-nine large stones and smaller ones arranged in a similar manner. If this was once a building or temple its nature is now obscured, as the walls are not high enough, nor carefully enough constructed to suggest any architectural feature. Perhaps this is an arrangement of stones taken from the temple proper at some later date.

To the west of this parallel row of stones is a partially curved terrace wall composed of eleven or more large flat, dressed stones, which has recently been badly broken down. At the western edge of the plain of Unit C are at least eight squared and finished stones forming an irregular row from north to south.

All around the ruins, and in the valley below, are cut stones not definitely related to the buildings. East of Unit A, in the heaps of stones cleared from the fields are cut blocks, some with niches. In the wall to the north of the plain of Unit A are other cut blocks. Inca houses on the ruins and scattered about the valley have doorways made of two cut stone slabs, although the house walls are of rough piled stones, implying that the door stones were taken from the ruins. In the valley to the north of the ruins is a series of several sandstone blocks in line which may have been a small building. At the foot of the valley, near the lake shore, are two upright pillars, one 90 by 43 centimeters by 1.45 meters (to the ground), and the other 60 by 52 centimeters by 1.25 meters (to the ground) with a notch cut out of the full length of one side and a ridge projecting from the other side.

Eighteen test pits were excavated about these ruins and the valley without revealing any new structural features nor any significant pottery series. The temple has all the appearance of a Tiahuanaco structure, Dressed and notched basalt and sandstone pillars are set at intervals in

wall construction. Sandstone slabs are used in a stairway. The open, stone-faced terrace type temple is itself of Tiahuanaco style, especially if it were as symmetrical as the present plan suggests. Yet, excavation produced practically no Tiahuanaco type pottery sherds. The surface collection contained six pieces with Decadent type puma head and tail-feather designs and four pieces of a flaring rim open bowl of Decadent Tiahuanaco type, but the majority of the sherds are Incaic. So too with the test pit material, which is, with one or two dubious exceptions, Incaic and Chullpa. Most of the sherds from the excavated pits come from the first half meter below the surface. Below this is a hard packed, streaked clay which is not definitely undisturbed but which contains virtually no fragments. It is illogical to state definitely that there are no Tiahuanaco artifacts at this site, but in twenty-two widely distributed cuts very little was found. The period of Inca habitation was a long one, continuing to Spanish times, judging by the numerous house sites and the association of iron rings with some of them. Wash and deliberate destruction has done much to erase the evidence of the period to which this temple belonged, but still the picture is not satisfactorily completed.

As a matter of record a short résumé of the various pits excavated is given here. Because the name Cumana is better known than the local site name of Pajchiri, the material is referred to by the letters CU-.

CU-1. A trench 4 by 1.5 meters was excavated on the north side of the large L-shaped stone in the center of the terrace of Unit B. A shallow grave was found in the first half meter and four sherds in the first 20 centimeters, but no other artifacts, although the pit was dug through white streaked clay to a depth of 2.20 meters and a side cut was made under the flat stone itself.

CU-2. A trench 7 by 1.5 meters was dug between the two parallel walls of Unit C. A few sherds were found in the first half meter; then the solid clay was encountered. The whole pit was excavated to 1.00 meter depth and one part to 1.30 meters depth. Out of twenty sherds two were painted with plain black lines.

CU-3. A trench 6 by 1.5 meters was cut along the modern wall, 75 meters northeast of Unit A steps. Seven burials, three children and four adults, were scattered in the first 20 centimeters of depth. Three of these were flexed, one in an upright position, and four had artificially deformed skulls. None was accompanied by artifacts of any kind. In the extreme west end of the trench at 40 centimeters to 1.00 meter depth was a 90 by 60 centimeter stone-covered hollow tomb containing a flexed

adult skeleton, a copper *topo*, and a modern type Chullpa bowl. In the east end of the trench at 65 centimeters to 1.30 meters depth was another stone-covered, hollow tomb, 90 centimeters in diameter, containing rotted bones and three round stone balls.

CU-4. A trench 3.5 by 1.5 meters was excavated on the plain south and east of the parallel wall of Unit C. A hard clay was encountered at 60 centimeters depth, while the black top soil, containing some sherds went to 30 centimeters depth. Of the thirty-one sherds found, all but two were plain or polished plain, and the exceptions were black-on-red Inca designs on fragments of shallow dishes.

CU-5. A trench 4 by 1 meter was cut at the extreme east edge of the plain of Unit A, just west of the Chullpa stone tower. The first half meter was a solid fill of stone with some sherds and an iron buckle. The trench was uncompleted. Of the forty-one sherds, thirty-five are plain or polished plain, five are painted geometrical Inca designs, and one a black and yellow-on-red might possibly be Tiahuanaco style.

CU-6. A trench was made in the northeast corner of the plain of Unit A, just three meters east of CU-3. At 60 to 70 centimeters depth a paved pathway was found, made of small flat stones about 30 centimeters square and 5 centimeters thick. These were laid in uneven rows to form a path 1.30 meters wide and at least 5 meters long, although it probably continued under the modern wall to the east. The west end was disturbed. The pathway ran exactly east to west and just two meters away was the foundation of an Inca house with two cut sandstone blocks for the doorway. While the path is well-constructed the stones are not cut, finished, or coursed, and it is probably of Inca workmanship, although no pottery was found to confirm this assumption.

CU-7. A trench 2.50 by 1.50 meters was dug west of the steps of Unit A, beside the long rough stone. The trench was excavated to 1.40 meters depth through hard clay with no finds.

CU-8. A trench 3.40 by 1.40 meters was excavated straight east of the steps of Unit A, at the east edge of the plain next to a modern wall and pile of stones. In the northeast corner of the trench was an upright cut basalt block, 65 by 40 centimeters by 1.10 meters. West of this was a large squared stone, 50 centimeters square by 12 centimeters thick, on edge. South of the upright was a large cut lava stone 55 by 20 by 60 plus centimeters long. Other rough stones were found. A dark streak ran across the pit at 1.00 meter depth. The top humus was 95 centimeters thick and the pit was excavated to 1.40 meters. Fourteen sherds were found, of which one was painted with a black line on red and a shape

suggesting a Tiahuanaco kero-shaped cup base, and a plain red sherd suggested a wide rim, open flaring bowl.

CU-9. A trench 2.5 by 1.5 meters, running east from the south side of the terrace facing stone B3, was excavated to 1.50 meters depth through pure clay. Tests showed no traces of connecting walls between uprights B1 and B2, nor between B3 and B4.

CU-10. A trench, 3 by 1.30 meters was made on the rising slope south of the parallel walls of Unit C, and excavated through 60 centimeters of humus to a base of clay and stone. Of thirteen sherds found only one was painted black-on-red, linear.

CU-11. A trench 4 by 1.75 meters was cut parallel to CU-8 and 3.60 meters west of it. The humus extended to 90 centimeters and the pit was excavated to 1.30 meters in the north half, with no finds.

CU-12. A trench 2 by 1.30 meters was made just east of the second Inca house east of the steps of Unit A. In the east end of the pit were two burials, side by side, but in distinct graves, at one meter depth. The first was flexed on the right side with the head west. The second was in the same position and accompanied by two *topos* and a flat piece of copper. Although no pottery was found, the burials are considered Incaic.

CU-13. A trench 3 by 2 meters was made on the extension of the plain to the north of Unit A, near the edge. Undisturbed soil was found at 60 centimeters.

CU-14. A trench 2.50 by 1.50 meters was excavated 1.70 meters west of the top platform stone of Unit A. The pit was continued to 1.50 meters depth through hard clay. Sherds were found, mostly near the surface. Of twenty-six sherds only five are painted, black-on-red; two are definitely from Inca platters.

CU-15. A trench 5.40 by 2.00 meters extended another 1.5 by 1.5 meters in the southeast corner, was excavated on the hillside northeast of the ruins. A cut stone was in a modern wall along the edge of the terrace near this pit. Lots of Inca sherds and some animal bones were found near the surface, but a solid undisturbed area was reached at 70 centimeters. Of 335 sherds, 292 are varieties of plain ware, 40 are painted in Inca styles (geometric designs, cream white slips, modeled bird heads, shallow plates, and aryballoids), two are black, white-on-red designs possibly from kero-shaped cups, and one is a questionable part of a modeled puma collar. Thus the mass may well be called Incaic.

The next three trenches were excavated across the valley to the west of the ruins. Here were a number of house foundations of Inca con-

struction. One such house site, partially excavated by the Mayor Domo of the plantation, measured 2.25 by 2.50 meters, inside, with two cut stones forming the doorway. On top of a knoll to the west of the ruins were found more Inca house foundations. A pit at the northeast corner of this knoll hit bed rock at about 10 centimeters. On the opposite corner of the knoll was a circle of a double row of stones about five meters in diameter. Excavation here struck bed rock at 20 centimeters.

CU-16. A trench 4 by 1.5 meters east of the knoll and just east of the partially excavated house site, was carried to a depth of 1.10 meters uncovering many sherds. Of seventy-three sherds found, sixty-four were varieties of plain ware; the nine painted ones were either simple linear designs or geometric Inca patterns from shallow plates.

CU-17. A trench 4 by 2 meters excavated about 50 meters west of CU-16, uncovered a wall of three stones on edge, with another wall of single stones meeting it at right angles. Of thirty-nine sherds found, thirty were plain, and nine painted, mostly with typical Inca designs, but one with a flaring bowl of Chullpa type.

CU-18. A house site, four meters east and down hill from the partially excavated one before mentioned, measured 3.25 by 2.20 meters. Since it is built on the hillside the floor has been leveled by cutting into the hill for the back wall. The side walls are made of small stones, but the doorway is of cut stone. The inner measurements are 2.25 by 1.80 meters. On the north side, within the house, is a double wall with the intervening sections covered with flat stones, as if intended for a canal. 179 sherds were found; of these all but eleven are plain wares, and the painting is simple Inca style.

In final analysis, the selected pieces picked up on the surface show, out of 125 samples, seventy polished wares, fifty-four painted, of which ten have possible Tiahuanaco affiliations, twenty-seven are definitely Incaic (aryballoids and shallow platters) seventeen are Chullpa (birds and simple linear), and one is a modeled llama foot.

LUCURMATA

SITE

The plantation of Lucurmata is located on the shores of Lake Titicaca, east of the peninsula of Taraco and about six miles east of Chiripa. It adjoins the better-known plantation of Huacullani. The lake flats are wide at this point and a change of a few feet in the lake level makes considerable difference in the shore line. South of the flats the land

rises to the hills behind, except where the intermittent streams cut the irregular valleys. However, the stream beds, lake flats, and some of the foothills provide an abundance of agricultural land.

The hill called Wilak'ollu stands out on the lake flats as a landmark for miles around. It is a natural hill of irregular contour, completely surrounded by low land. One knoll to the west appears to have been fortified at one time; it still has several large cut and dressed slabs about halfway up around its sides, several of which appear to be in line. From this knoll the line of the hill curves to the east and slightly north to another flat-topped knoll. This large area, partially artificially flattened, is the site of the principal temples. From here the hill curves to the north.

Although this site is probably known to local workers, the only reference to it that I have found in the literature is that of Max Uhle,¹ who visited and photographed what was visible of it about 1894. He states that Lucurmata had several dozen dressed stones on a plain, 15 to 20 meters above the lake level. The lake was a five to ten minute walk away from the ruins, according to Uhle, and on its shore were three carved statues of Tiahuanaco style. It is interesting to note that today (1934) the lake is at the foot of the hill and two of the statues mentioned are on a low island. Such is the variation in lake level in different years.

The only previous excavation at the site, so far as I could discover, was a series of test pits made by the owner, Sr. Ambrocio Viganó, about 1931. These uncovered several stones and a pavement.

THE HILL TOP

The principal temple site is the flattened hill top previously mentioned (Fig. 36). This is roughly T-shaped, about 121 meters long, approximately east to west, although recent wash has cut about fifteen meters into the western end at the center. The eastern end or base of the T is 56 meters wide and the western end 104 meters wide. The eastern end has a steep drop to lake level. The southern edge is also clearly delineated, although the drop is only to the saddle dip which connects to the east with the possibly fortified knoll and rises again to the south, only to descend to the plain level. In this dip, agriculture is still practised and remains of house sites are found. To the west, the hill top drops steeply to lake level, as it does on the east. The northern boundary is harder to distinguish, as the slope is gradual, and the hill itself curves to the north. The northern edge is judged by the lines of

¹Uhle, 1912a, 476.

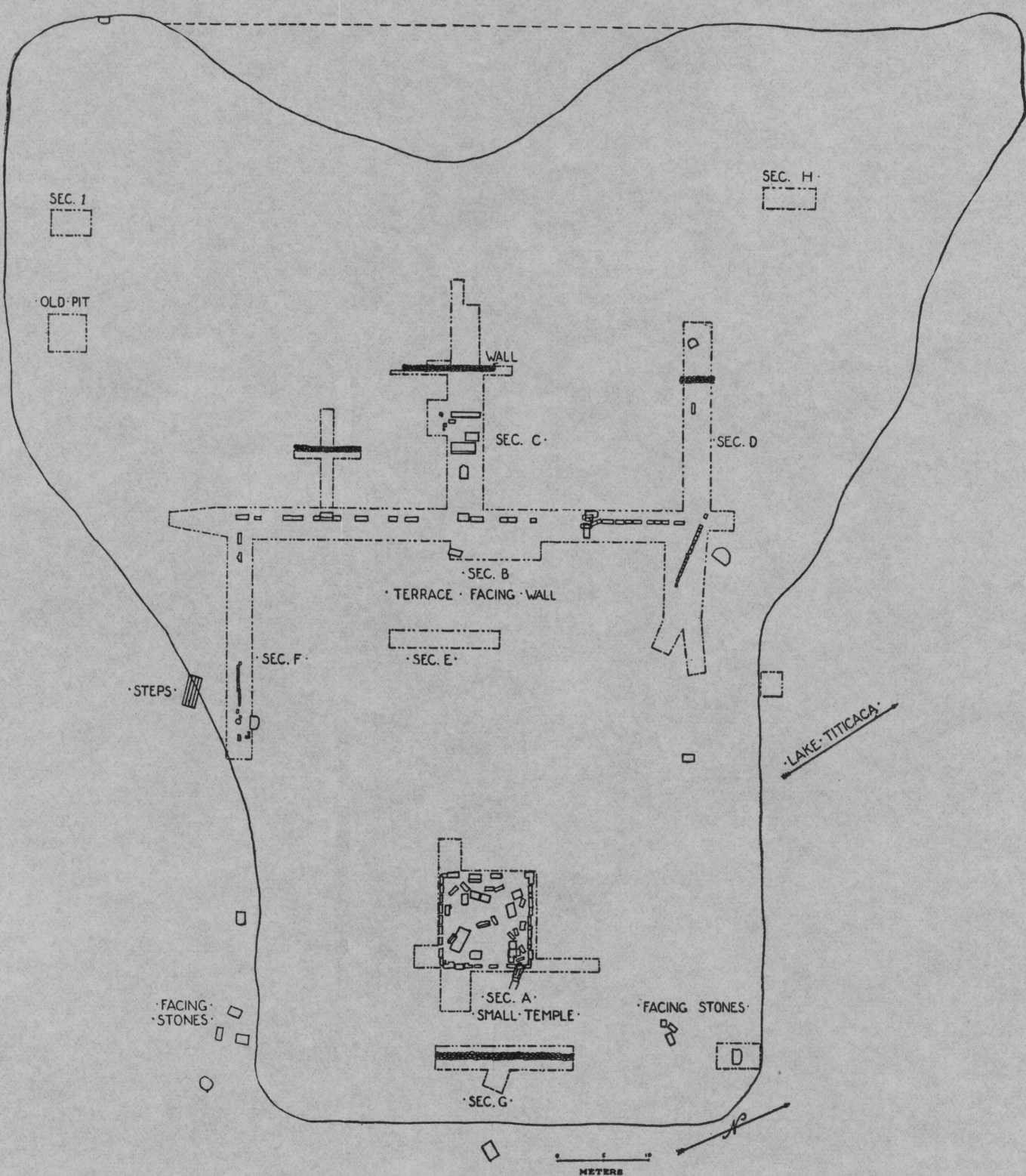


Fig. 36. Groundplan of Lucurmata Temple, showing Excavated Sections, Terrace Facing Wall, and Small Temple.

cut stone which still remain as part of the temple. The flat hill top itself is highest at the western end and slopes slightly to the east.

Around the edges of this flattened hill top and partly fallen and scattered down the slope are many large cut and dressed stones which suggest that the edge of the hill was once faced with stone. On the western rim two small stones are still in position near the edge, one with a fitting ledge measuring 1.00 meter by 50 centimeters by 10 centimeters; at the foot of the hill on this western side are several large blocks which may have been dragged down by the Indians. On the southern border six stones are still visible on the slope just below the plain level. The first, approximately where the stem of the T meets the bar on this side, is a set of three steps cut from a single block of basalt. The bottom step is 40 centimeters wide and 30 centimeters high; the middle step is 42 centimeters wide and 18 centimeters high; and the top step 40 centimeters wide and 15 centimeters high, backed by a rough section 18 centimeters wide. Over-all measurements of the set give a total length (along the steps) of 2.95 meters, a thickness (front to back) of 1.40 to 1.50 meters, and a total height of 66 centimeters. It is impossible to judge the original position of these steps in the temple. At the present time the steps have fallen partially down the slope. Perhaps they were never finally placed. 24.50 meters east of the set is a single slab, rounded on one end, 90 centimeters wide, 33 centimeters thick, and 1.55 meters long. At the southeast corner is a group of four fallen stones (Fig. 36) which measure as follows:—

Width	Thickness	Length
1.00 m.	35 cm.	1.50 m.
96 cm.	53 cm.	1.78 m.
65 cm.	42 cm.	1.33 m.
1.45 m.	20 cm.	1.45 m.

On the eastern edge of the hill top two large stones may still be seen. The first, just over the edge, about the center of the eastern side, measures 1.06 meters wide, 58 to 65 centimeters thick, and 2.00 meters long, and has a slight projection on one end. The second is a large slab, now tumbled almost to the base of the hill on the center of the eastern side. It measures 1.70 meters wide, 28 centimeters thick, and 3.30 meters long, and has a 20 by 70 centimeter notch cut from one corner. Finally, five stones are visible along the northern edge. The first, approximately at the center of the northern side, is semicircular, 1.45 meters wide, 35 centimeters thick, and 1.92 meters long. The second, to the east of the first, and in a rough line between the first and third,

measures 70 centimeters wide, 48 centimeters thick, and 1.25 meters long. The third and fourth stones are together in the northeast corner and in general line with the first two. The third is broken in two, with a fitting groove along its side, but the original measurements are 85 centimeters wide, 49 centimeters thick, and 1.46 meters long. The fourth measures 67 centimeters wide, 53 centimeters thick, and 1.35 meters long. A test pit excavated near these last two uncovered a fifth stone, 4.35 meters to the north, which measures 90 centimeters wide, 20 centimeters thick, and 1.40 meters long.

In total, then there are still fifteen stones around the edges of the flat hill top, all well cut and dressed, and some elaborated with fitting notches and grooves, suggesting a facing or part of a structure. At varying spots around the base of the hill on the plain are other cut stones, undoubtedly from the ruins.

Previous to excavation several sections suggesting temples were visible on the flat hill top, in addition to the stones around the edge already described. Running roughly north to south, a little west of the center of the plain, was a row of eleven stones at intervals, with their tops barely appearing above the surface, suggesting a pillar wall construction of Tiahuanaco type. Sr. Viganó had dug a pit about at the center of this wall and revealed a gate-like structure consisting of an upright and horizontal stone, to the west of which, at a higher level was a large squared pillar with a block projecting from one end, a set of two steps, and indications of a pavement. In line with the gateway and pavement, 48.80 meters east, were two upright pillars representing another gateway, sufficiently uncovered to reveal rather elaborate stone cutting. The tops of these two pillars were barely above the ground surface level, suggesting that excavation would reveal much more material. Consequently, in May, 1934, we started excavating just east of these two isolated uprights. The work soon revealed that the eastern uprights were the corner of a small temple which apparently was complete in itself and had no direct connection with the cross row of uprights to the west. This temple was therefore completely excavated and is described as the Small Temple, or Section A. The cross row of uprights was excavated, revealing a facing terrace wall, Section B. A partially paved section, back from the center of this wall, was cleared as Section C. Then the excavation was continued in the center of the hill, at each end of the facing wall, east of the small temple, and in each corner of the hill (Sections D-I, inclusive). Several pits and trenches, described as Section J, were made in the hill to the north of the ruins.

Pits in the dip to the south of the ruins are grouped as Section K, and the various test pits around the hacienda house, well to the north of the hill, are called Section L. The description of the excavation by sections follows.

THE SMALL TEMPLE, SECTION A

On the eastern end of the flat hill top is a small square temple measuring 9.50 meters on the inside (Figs. 37, 38). The two uprights which were the only indication of the temple before excavation are a gate-like

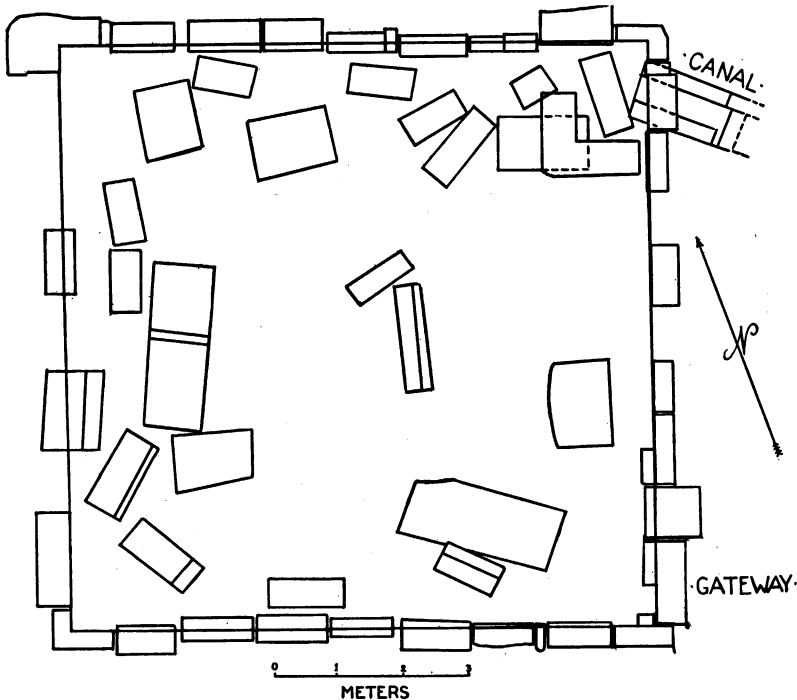


Fig. 37. Plan of Small Temple, Section A, Lucurmata.

arrangement in the southeast corner. As stated before, these two upright pillars were in line with the gate-like upright in the cross wall on the hill top to the west so that with respect to this wall the small temple is off center to the north.

A total of fifty-six building blocks and slabs was uncovered in the excavation of this temple; thirty-three were still in position in the four walls and twenty-three in the center of the temple. All are well cut and

finished granite and basalt rocks, with the exception of a red sandstone pillar in the center of the temple. The two pillars forming the gateway in the southeast corner are the only uprights, the rest of the stones in the walls are squared horizontal blocks. These walls at present consist of a single row of stones from about 50 to 75 centimeters in height. The east and west walls have several blocks missing, as though they were never completed, or at least have no corresponding stone in the center. Judging from the miscellaneous collection of stones in the center, as well as from the height of the gate-like pillars, it is probable that it was intended to have another tier on top of the side wall of the temple still in position.



Fig. 38. General View of Small Temple, Lucurmata.

The floor of the temple was an irregular clay bed at the level of the base of the walls (Fig. 38). It is from 1.60 to 1.70 meters below the present ground surface. Several factors led to the conclusion that the temple was constructed as a semi-subterranean, stone-faced building, although it was difficult to decide whether it was always so far below the surface. First, this being a hill top, there is not enough higher ground in the vicinity to account for wash burying a surface temple, although the western end of the hill is higher than the eastern and the wash would be sufficient to fill a semi-subterranean building. Secondly, the walls of the temple are aligned on the inside only. The interior is always fin-

ished for a smooth face, but the varying thickness of the wall stones makes the outside quite irregular. Following this same theme, the irregular thickness of the stones used in the wall would hardly seem a suitable foundation for a second tier of stones, unless backed by solid ground as in a semi-subterranean temple. Thirdly, all stones, except those still in position in the wall, were within the temple, and even some of those in the wall leaned inward. Fourth, a canal, probably for drainage, was found in the northeast corner of the temple running through the wall at floor level (Fig. 39). However, it must be noted that this canal, although leading out from the temple at a depth of 1.70 meters was not stone covered. On the other hand, further excavation outside of the temple at this point produced no evidence of the continuation of the canal, so that there may be some question as to the actual function of this structure. Finally, excavation of trenches outside the walls on all four sides of the temple encountered a barren clay at one meter below the surface and absolutely no evidence of an old ground surface at the depth of the temple walls outside.

The stones of which the temple was constructed merit some detailed description. Starting with the east wall are the two upright, elaborately cut blocks which form a gate-like structure at the southern corner (Fig. 40). The first of these, actually forming the corner, is a basalt block, 1.30 meters long, 72 centimeters wide at the northern end, and 1.80 meters high at one part, with a notch cut out of the southwest side, 20 centimeters deep and 65 centimeters long. The northern half is cut like a pillar, projecting 40 centimeters above the southern half, with a raised band about 15 centimeters wide and 18 centimeters from the top. The band is plain and the stone above is worn, but there still remain vertical grooves which may have represented a plume-like decoration. The northern face of this pillar end (i.e., facing the gateway entrance) has a series of step ledges cut out of the side, as if demarking three steps each 26 centi-

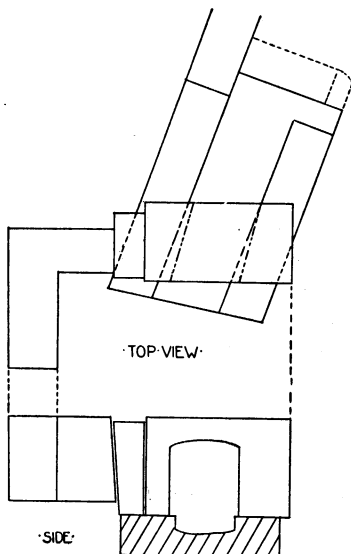


Fig. 39. Top and Side View of the Canal on the Northeast Corner of the Small Temple, Lucurmata.

meters deep and high (Figs. 41, 42). On the outside (i.e., east) of this stone, the surface is flat, except for a shallow notch cut into the face just below the pillar-band in the upper northern edge. On the inside edge (west), however, the notch previously mentioned clearly demarks the pillar of the northern half. The southern half continues as part of a regular wall. A horizontal groove divides this half into two equal parts. The lower one is plain, but the upper is marked by a projecting horizontal ledge across the top, 17 centimeters wide; below it is an inset, step-sided niche. A projecting base ledge, 33 centimeters wide, runs the entire width of the stone on this eastern side.



Fig. 40. Inside Gateway Stones, Small Temple, Lucurmata.

The second elaborately cut basalt block which forms the northern part of the gate-like structure is in line with the first, 98 centimeters to the north, and forms a part of the east temple wall. As viewed from the top it is a block 1.10 meters long, 50 centimeters wide at the southern end, and 1.25 meters high in one part, with a notch 20 centimeters deep and 50 centimeters long, cut from the northwest side. Although proportionately smaller than the first stone it is its counterpart. The southern half is a pillar, projecting 27.5 centimeters above the northern half, with a raised band almost at the top edge. Again the outside (i.e., east side) is plain, and the southern end, facing the entrance, has a



Fig. 41. Detail of South Gate Stone, Lucurmata.

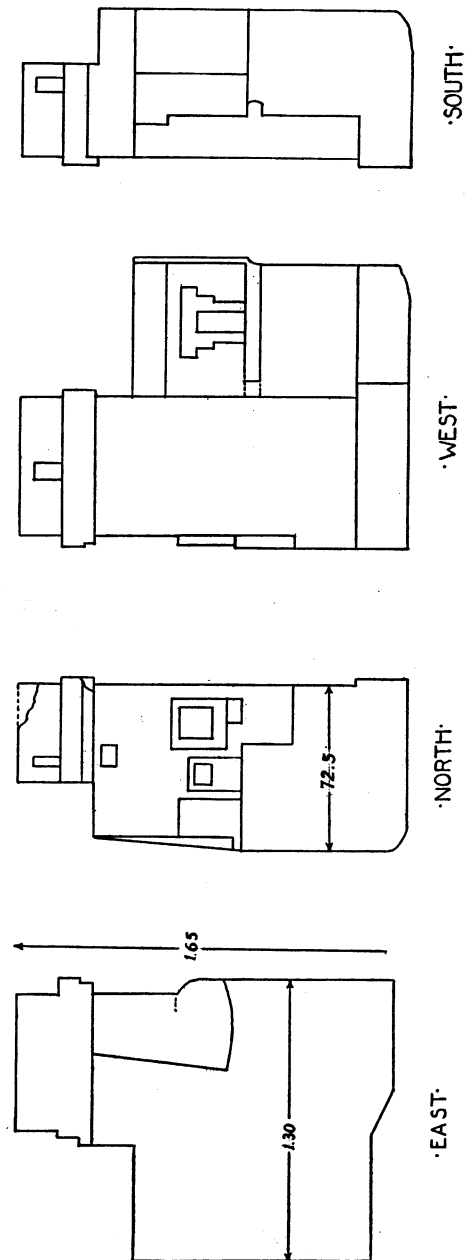


Fig. 42. Detail of Four Sides of the South Gateway Stone of the Small Temple, Lucurmata.

raised ledge indicating two steps. The inside (west) has a notch cut from the front, clearly demarking the pillar part. The northern half, like that on the first block, is bisected with a horizontal groove and decorated with a raised ledge along the top and an inset, step-sided niche below. Although it was associated with no other stones, a deep notch, which looks like a fitting joint, is cut out along the base of the outside (east) of this block.

The two stones just described are far more elaborate than the others in the temple and suggest a more complex structure than this relatively simple temple. Between the two uprights is a squared flat slab, 98 by 75 by 30 centimeters, now tilted down to the east, but probably once horizontal, as part of the entrance. However, whether tilted, horizontal, or upright, it bears no relation to the demarkations of steps on the inner ends of the uprights. The wall continues north of the gateway with a horizontal block, 85 centimeters long, 37 centimeters thick, and 85 centimeters high, which roughly contacts the northern end of the upright. The next wall stone, of about the same size, is in line, but not contiguous to the others, having an unfilled space of 89 centimeters width to the south of it and another 94 centimeters wide to the north. None of the center stones seems to have been extracted from these spaces. The rest of the wall is solid, formed of four stones, including the corner.

In this east wall, is a block, 90 centimeters long, 50 centimeters wide, and 65 centimeters high which is carefully fitted to the northeast corner-stone by means of a thin wedge-shaped slab. Through this block has been cut an opening which, with a U-shaped base slab, forms a canal leading out from this corner of the temple, angling slightly to the south and dipping eastward. The opening through the wall block is about 45 centimeters square, open at the base, and runs through it obliquely. The base stone of the canal, also set at an angle is a single slab 1.50 meters long, 97 centimeters wide, and 25 centimeters thick, with a canal groove 41 centimeters wide and 11 centimeters deep, cut along the long axis. Outside of the temple wall the slab base and additional paving continued for about one meter, but without evidence that the canal had been covered. A trench made to the east, in line with the canal, did not reveal any further continuation.

The northeast corner of the temple is formed by a single stone cut with a right-angled turn, 63 centimeters long on the eastern side, 85 centimeters long on the northern side, 30 to 35 centimeters thick, and 50 centimeters high. In the upper northwest end of this stone, a block 9

centimeters wide, 10 centimeters high, and 35 centimeters long, has been inserted into a corresponding notch cut from the wall stone.

The north wall is formed of ten contacting cut stones, varying considerably in size, height, and thickness, but consistently aligned on the inside. The length ranges from 20 centimeters to 1.23 meters, the height from 42 to 75 centimeters, and the thickness from 23 to 63 centimeters. In spite of rather careless matching of size some consideration was given to fitting, as a thin sliver only 6 centimeters wide, 40 centimeters deep, and 50 centimeters high is wedged between two large blocks to make a tight contact.

The west wall is the most incomplete of all, being formed of three blocks set at intervals between the right-angled cornerstones of the north and southwest corners. The first stone, 1.50 meters long, 57 centimeters thick, and 78 centimeters high, actually contacts the southwest cornerstone and has a horizontal fitting notch cut from its southern end. An interval of 1 meter separates it from the next stone to the north, a large slab slanting inward. Another interval of 1.25 meters separates the second from the third block and then a space of 2.47 meters is found between that block and the northwest corner. The northwest cornerstone is a large block, finished square on the inner sides to form a right-angled corner. The outer sides of this block are not carefully finished, so that the over-all measurements are 1.51 meters along the northern edge and 93 centimeters along the western. Although the total thickness at the southern end (west wall part) is 82 centimeters, only the inside 55 centimeters of this is squared, the other part being left rough, since it was outside the finished wall.

The south wall is solid, composed of ten stones in all. Like the others, it is aligned on the inside only, and stands at about half the height of the upright in the southeast corner. The tops of the stones are uneven (Fig. 43), but there is no such discrepancy as observed in the north wall. Eight blocks of about the same size average 1.07 meters long, 41 centimeters thick, and 74 centimeters high. Of the other two stones in the wall, one is a 16 centimeters wide fitting wedge, and the other forms the cornerstone in the southwest, a right-angled stone, 1.01 meters on the south side, 61 centimeters on the west side, about 30 centimeters thick, and 52 centimeters high. The wall stone in the southeast corner overlaps the gate upright and has a slight projection which makes an irregular contact. The corner is not well fitted and is technically inconsistent with the careful finish of the gate upright.

In the center of the temple, on and slightly above the level of the

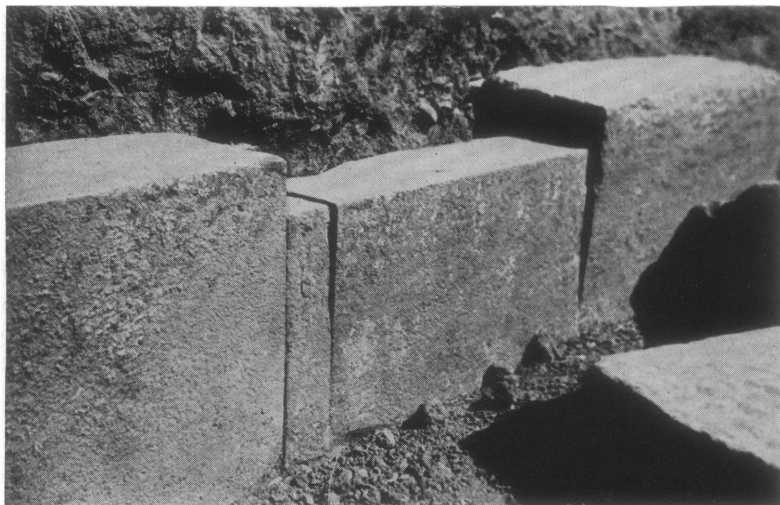


Fig. 43. Detail of South Wall, Small Temple, Lucurmata.



Fig. 44. Cornerstone with Decorative Niche, Small Temple, Lucurmata.

floor, were found twenty-three cut and dressed stones, of which thirteen were blocks, nine slabs, and one a red sandstone pillar. Six blocks are well finished and of about the same size, averaging 1.10 meters long, 52 centimeters high, and 40 centimeters thick. All have a raised ledge along the front face, 17 to 18 centimeters wide, and 2.5 centimeters high. Below this ledge the blocks are all decorated with an inset, step-sided niche. On all these blocks the niches are exactly of the same size and are placed in the same relative position below the projecting ledges. One of the blocks was cut to fit a right-angled corner (Fig. 44). It is noteworthy that the ledge and niche of the non-pillar halves (i.e., the wall sections) of the gateway uprights have the same measurements and proportion as those on the blocks. In other words, the upright gate stones and these blocks might have formed a double-tiered wall, with a raised ledge projecting along the top and decorated at intervals with inset niches. Four more blocks found in the center had the raised ledge, but no niches. The set averaged 1.08 meters long, 53 centimeters high, and 50 centimeters thick. Aside from these, there were three more blocks, a plain squared block, a unique small squared one (25 centimeters square and 63 centimeters long), and a block with a projecting ledge 27 centimeters wide and across the narrow end of the stone.

Six squared slabs of about the same size average 1.28 meters long, 87 centimeters wide and 22 centimeters thick. A similar slab is 2.32 meters long. Still another is 2.72 meters long, but 1.45 meters from the south end a groove 10 centimeters wide and 8 centimeters deep suggested that the slab was intended to be divided. One slab, 22 centimeters thick is cut into L shape, measuring 1.46 by 1.38 meters on the outer angle and 86 by 80 centimeters on the inner, thus leaving a width of 60 centimeters.

Finally, approximately in the center of the temple, was the one exception, a red sandstone pillar, 1.75 meters long, 50 centimeters wide, and 27 centimeters thick. This rested on its edge, slightly below the average floor level, surrounded by sherds and disturbed soil, in contrast to the yellow clay of the actual floor. The upper edge of the stone was badly worn, but the lower edge, like the sides, was well finished. On the flat sides, at each end was a pecked area, 16 centimeters wide at one end, and 27 centimeters wide at the other end. There was no indication of carving. This stone differs both in material and shape from the others in the temple. Perhaps it was a simple statue.

A final impression of this temple is that of a building constructed of stones taken from some other structure. Most striking is the contrast

between the excellent stone cutting and finishing, equal to the Classic Tiahuanaco in many respects, and the technically poor construction of the walls. The two elaborate uprights that form the gateway were never originally intended for that position in this temple. Fitting joints and projections on these uprights have no function in their present position. The outjutting ledges demarking steps suggest greater elaboration than this temple shows. In fact, the gate uprights and the ten ledge and niched blocks in the center of the temple suggest a decorated wall of a far more complex structure. There is again considerable discrepancy in the size of the stones used in the lower walls of this temple. All are well finished, but certainly were not intended to be placed side by side in a wall. Individual stones in the walls, such as the northwest cornerstone, have joints which fit into nothing. Furthermore, the walls themselves are incomplete, and there are not enough stones in the center to complete them. Examination of the center stones shows finished slabs and blocks, such as the wide, L-shaped slab, which have no conceivable position in this temple. Perhaps these were being cut for fitting into this temple, as the long partially grooved slab suggests. In any event, stones, already finished and perhaps used as building blocks, were brought from some other structure, rather than cut intentionally for this temple. Finally, blocks of the same size are found in the cross-wall to the west, to be described next. In short, the temple, semi-subterranean in structure, probably represents a late phase of re-building.

TERRACE WALL, SECTION B

West of the Small Temple, Section A, at the center of the hill flat, the tops of eleven stones barely projected above the surface. A trench excavated along the eastern side of this row revealed a terrace facing wall, 49 meters long, composed of thirty cut and dressed stone blocks. Six were sections of steps, ten horizontal wall blocks, still in position, and fourteen upright wall blocks, all but two of which were still in position, although many leaned eastward (Fig. 45). The stones of this wall are described as Section B of the excavations.

The horizontal blocks used in the wall construction are about the same size as those in the Small Temple, the ten averaging 1.09 meters in length, 43 centimeters in thickness, and 71 centimeters in height. The twelve uprights still in position average 84 centimeters in width, 42 centimeters in thickness, and 1.27 meters in height. The uprights are placed at irregular intervals and the horizontal blocks aligned along the base of the wall. The whole wall is aligned on the east side only, pre-

sending a smooth face. While many of the stones are finished and squared on all four sides, others are left rough or rounded on the back, or western side. The wall runs north 27 degrees east.

The stone facing wall is backed on the west side with a rubble wall (Fig. 45) of rough stones and clay about 50 to 70 centimeters wide and 50 centimeters high. The backing wall reaches to within 50 centimeters of the present ground surface, which, as before mentioned, practically covered the facing wall, but the top part above the backing wall seems to be top soil wash. At least a cross-section perpendicular to the facing



Fig. 45. View of Facing Wall, Section B, Lucurmata.

wall to the west shows a mixed clay fill, definitely distinguishable from the top soil, which starts at the top of the rubble wall and rises 60 centimeters in four meters. Wall, backing wall, and clay fill rest on a relatively undisturbed yellow clay. In other words, it is possible that the top part of the facing wall may have been partially exposed above the surface at one time, as a part retention, part enclosure wall. To the east of the stone wall, the undisturbed yellow clay was at 90 centimeters to 1.10 meters depth, while the dirt above was a mixed wash. The old surface line runs horizontally east from the base of the wall for several meters at least. However, practically no sherds were found in the fifty by two meter cut along the wall, except in one or two concentrated places.

Three sets of steps or gateways were part of the terrace wall structure of Section B. One set, badly destroyed, is in the exact center of the terrace. The bottom step still remains in position, 1.40 meters in width, 48 centimeters in thickness, and 90 centimeters in depth. The squared slab is placed horizontally at the level of the base of the wall, with the long edge along and in line with the east facing of the wall. A large squared block still forms part of the wall and the side of the gate or steps to the north, measuring 1.60 meters in length, 48 centimeters in thickness, and 1.20 meters in height. A double notch has been cut from the upper southern corner of the west side of this block which is typical of the gate stone uprights. In this case a notch 7 centimeters wide, 11 centimeters deep, and 48 centimeters long was cut out of the upper corner of the block along the top edge of the west side. Below this, following the vertical inner edge of the upright, a shallow section 2 centimeters deep has been cut, starting at 16 centimeters width, where it contacts the first notch, and widening to 24 centimeters at the base, 30 centimeters below. This double notch is found in the same position on the uprights to the north of each of the three sets of steps, and a similar double notch was noted on the gateway upright to the south of the entrance to the Small Temple. This is on the east side of the stone, so that when the entrance is viewed from the outside (the east in the Small Temple), the notch is again in the correct position. The other steps of this central stairway, if any, have been removed. Three meters to the east of the stairway was found a fallen upright, 97 centimeters wide, 35 centimeters thick, and 1.90 meters long, which may be the upright which should flank the south side of the steps. At least it bears no other relationship to the temple. Furthermore, this is the part of the wall which had been previously partially excavated. It is interesting to note that the center of the horizontal step is exactly 24.50 meters from each end of the facing wall. Also that the inner edges of the north and south set are about 14.50 meters from the center of this central step, thus showing that a definite precision is still observable in spite of much destruction.

The south stairs consist of two steps flanked by two uprights which lean to the east at present. The bottom step measures 1.38 meters wide, 42 centimeters thick, and 54 centimeters deep, aligned with the base of the wall on the eastern face. The second step is 1.38 meters long, 32 centimeters thick, and 54 centimeters deep, so placed above the first as to leave an actual step width of 38 centimeters. A ledge projects from the back edge of the top step for fitting. Thus the total height of the two steps is 74 centimeters which is 56 centimeters below the top of

the wall level at this point. This is further confirmation of the deduction made from the mixed clay fill and the rubble backing wall, that the original surface level behind the wall left the stones partly exposed. To the north of the stairways is an upright, 95 by 35 centimeters by 1.30 meters high, having the typical double notch cut out of the upper inner corner of the back side. On the south side is another upright 92 by 44 centimeters by 1.15 meters high, with a deep rectangular notch cut out of the upper corner of the inner west face, and a cross notch cut out of the upper south end for fitting.

The north steps are badly jumbled and show signs of previous disturbance, since the undisturbed layer dips at this point to a depth of 2.20 meters, and the stones have fallen in. To the north is an upright, tipped to the south and east, 92 by 50 centimeters by 1.04 meters high. The double notch is slightly discernible, but not clearly cut out like the others. South of this upright is a pile of four blocks measuring as follows:—

	Width	Thickness	Length
	cm.	cm.	m.
Pillar at bottom of pile, at depth of 2.2 meters	85	48	1.50
Horizontal block, like wall stones above	78	54	1.38
Block with notch from one corner	52	30	1.20
Plain block on top	85	32	1.47

It is quite possible that the squared pillar now at the bottom of the pile, was once the upright that flanked the south side of the stairs. A fitting notch from one side of the block makes it more similar to the upright on the south side of the south stairs. The horizontal block above it is the size of one of the wall blocks and may have fallen in from the side wall at the same time that the upright did. In this event, the two remaining slabs would represent the actual steps, corresponding to the south stairway.

West of the wall upright near the center was a burial at 50 centimeters depth, flexed on the right side, with head south, facing east, but without artifacts. East of the wall, at 70 centimeters depth, was a colonial Spanish egg-cup-shaped glaze ware piece, accompanied by part of a common orange dish. South and east of the wall, at 50 centimeters depth, two puma bowls in fragments were found. Finally, west of the wall, at the north end, at 80 centimeters to 1.00 meter depth, was a deposit of three broken puma bowls and a burnt black banded kero-shaped goblet. East of the wall at the same point was a black ware banded

kero-shaped goblet, with copper oxide, llama bones, and the head of a copper *topo*, but no trace of burial.

SECTION C

Directly west of the center of the facing wall, Section B, was a series of stones, apparently part of the structure, which were excavated and are here described as Section C (Fig. 46). Most of the stones had been partially uncovered by previous excavation. These stones represent steps and pavements, on a level 1.10 meters above the central step of the facing wall, or about 30 centimeters above the top of the facing wall. The first stone is 4.70 meters west of the facing wall and the rest over 7 meters. The cross-section of a cut west of the center of the facing wall, described in Section B, showed that a mixed clay fill formed a rising slope and actually forms the base of the paved section above.

The first stone, 4.70 meters west of the center of the facing wall, is a block of basalt, 1.20 meters long, 1.10 meters wide, and 50 centimeters thick, with a 30 by 58 centimeters section projecting 32 centimeters from one end. At present the block lies horizontally with the projection to the west. Further west, at 7.50 meters from the facing wall, is a rectangular slab with a step cut from the long eastern edge. The slab measures in total 2.60 meters long (north to south), 1.25 meters wide (east to west), and 30 centimeters thick, with the step along the eastern edge 40 centimeters wide and 15 centimeters deep. A notch 22 by 47.5 centimeters is cut from the northeast corner of the step. This slab forms part of a disturbed pavement, now represented by two large slabs and four small blocks. Contacting the stepped slab at the northwest corner is another, 1.32 meters by 1.04 meters, by 13 centimeters thick, which fits on to a projecting ledge from the western edge of the steps. Still further west, 10.80 meters from facing wall, is a long-paving slab, 2.90 meters long, 50 centimeters wide, and only 15 centimeters thick. This is cracked, at present, but still in position. The four small stones are on the south edge of the other stones, perhaps in disturbed positions. All are under half a meter in size. Two roughly in line, have a groove or canal cut lengthwise, 5 centimeters wide and 1 centimeter deep. There is every evidence that the pavement once covered a greater area. In general, it is from ten to thirty centimeters below the present ground surface. The previous excavator claimed to have uncovered many small stones of this kind. However, though our excavations covered a considerable area at this point, we did not find any other stones of the pavement.



Fig. 46. Stones of Section C, Lucurmata.



Fig. 47. Rough Stone Wall, Section C, Lucurmata.

A trench, continuing west from the pavement, encountered a north to south waterworn stone wall, 15.75 meters west of the facing wall (Fig. 47). This wall is about 50 centimeters wide and high, starting about 15 centimeters below the ground surface. Perhaps it marks the base of an adobe wall or another terrace facing. It was traced for a ten meter length and then apparently disappeared, although a similar wall, at about the same line was found in the trench cut west from the north end of the facing wall. A cross-section, east to west, which includes this wall, shows the base of the wall to be 15 centimeters above the level of the stone pavement to the east. The disturbed clay fill which started at the top of the backing rubble wall of the terrace facing and continued upward to form the base of the pavement section, continues to the base of this wall. The clay fill is always covered with some top soil, and maintains a thickness of over a meter. It rests on the relatively undisturbed clay. About 1.5 meters west of this stone wall the fill virtually disappears and the undisturbed clay rises sharply to within 30 centimeters of the surface. So it is quite likely that the stone wall marks the edge of a temple level, just as the elaborate cut stone facing wall does below, or at least the wall served to prevent wash. A cut made back from the south steps of Section B (west) uncovered a similar stone wall, 7.40 meters to the west and 14 meters long. It was of waterworn stone and measured about 50 by 50 centimeters, starting 20 centimeters below the ground surface.

About 1.20 meters west of the paved section were three finds in a north to south row. The first consisted of three small vessels and a puma bowl, the second of a fragmentary puma bowl, and the third of a small bowl. Five meters west of the waterworn stone wall were five skeletons, all extended east to west, face down, with heads west. These were from 15 to 40 centimeters deep, unaccompanied by artifacts. Three of the skulls were deformed.

FURTHER EXCAVATION

In spite of the great promise of this hill top when first seen, the excavations already described more or less covered the ostensible leads and suggested no areas for further excavating. The facing wall, Section B, ended abruptly and no further traces of it were revealed by a continuation of the trench. Section C was incomplete, but extension of the excavation in all directions disclosed no more of the pavement. Trenches were made east and west from the ends of the facing wall; test pits and trenches were made at various sites on the hill; and some tests were

made at other promising points in the region surrounding the temple hill. Since the main parts of the excavation were designated by section letters the same plan was continued to incorporate the various test trenches and pits.

SECTION D

A wide trench was made east and west of the north end of the Section B facing wall. Sixteen meters to the west a row of stones, or wall base, crossed the trench from north to south and in the same line as the wall described as west of the pavement of Section C. This rough stone wall base is 50 centimeters wide, one row deep, and 20 centimeters below the surface. The cross-section at this point shows that the mixed clay fill stratum below the top soil dips from 65 centimeters, four meters west of the wall base to 85 centimeters depth as it passes under the wall base, and raised to 40 centimeters depth, three meters east of the wall base. Two and a half meters east of the wall base (13.50 meters west of the end of the facing wall) was a red sandstone slab, 80 centimeters long, 22 centimeters thick, and 75 centimeters high, on edge, north to south about 30 centimeters below the surface. Six meters farther west, about 20 centimeters below the surface, is a cut basalt block, 1.16 meters long, 50 to 62 centimeters wide and 22 centimeters thick. These were the only stones found; in their isolated positions they can really suggest no continuation of the temple structure, although this is a logical place for the remnants of another facing wall.

The cut to the east of the north end of the facing wall revealed a pathway or runway of flat stones, starting 1.55 meters north of the end of the facing wall and continuing with a slight curve and a downward slant to the northeast. The path contains sixteen stones, varying slightly in size, but conforming to the average size of 48 centimeters long, 38 centimeters wide, and 9.5 centimeters thick. Each stone has a shallow depression or canal 20 centimeters wide cut along one side, and the stones are placed end to end so that this canal is aligned. In two places stone wedges have been inserted between slabs to make a firmer junction. The path has a total length of 8.65 meters, but is without beginning or end. The western end is a meter higher than the eastern. The first stone on the west is separated by over 70 centimeters from the others. Three of the slabs are of sandstone and the rest of basalt.

Above this pathway were three roughly cut stones unaligned and bearing no relation to the pathway itself. The first was 65 by 30 by 40 centimeters, the second was 43 by 36 by 26 centimeters, and the third

50 by 39 by 20 centimeters. In this section a puma bowl in fragments was found at 75 centimeters depth and a plain olla, containing a painted kero-shaped goblet and a plain orange two-handled incense bowl at 50 centimeters depth. In one part, at 85 centimeter depth, was a heavy layer of slate chips.

SECTION E

A trench 12 by 1.85 meters was made to the east of the facing wall, at the center, to trace any possible continuation, paving, or other structure at this point. The main excavation of Section B had been widened to four meters on the east side at the center, revealing only one of the wall stones. This trench was twelve meters east of the wall and parallel to it. Several shallow modern burials were found, accompanied by a glazed ware cup, a crucifix, and a plain orange colored bowl. The yellow base clay was found at 90 centimeters.

SECTION F

This trench was cut to the east from the south end of the facing wall, Section B. A rubble wall of rough stones and clay continued for 24.35 meters east by the end stone of the facing wall. It was 50 centimeters to 1.00 meter wide, 50 centimeters high, and 30 to 50 centimeters below the surface. It is similar to the wall which backs the facing terrace. Part of this wall was faced on the inside (i.e., north) with small cut sandstone and lava blocks, badly disturbed and no longer continuous, although twenty small stones were still more or less in line and three were out of position. Three of these are slabs of some size, one measuring 1.16 meters by 25 by 50 centimeters, the second, 1.75 by 21 centimeters by 30 to 40 centimeters, and the third, 1.55 meters by 95 by 20 centimeters. Nineteen of those remaining are about the same size, averaging 37 by 24 by 17 centimeters. This wall ends abruptly and does not connect definitely with the end of the facing wall. Nor does it account for the set of steps along this slope of the hill not washed partly down the hill.

SECTION G

Mainly to determine the continuation of the canal in the northeast corner of the temple, a cut was made to the east of the small temple of Section A, 4.50 by 1.25 meters, starting eight meters east of Section A, on the line indicated by the canal. A rough stone wall was encountered in this trench at 1.40 meters depth; consequently, the trench was revised to uncover this wall, so that it extended to 15.50 meters north to south

and 2 meters wide. The ends of this wall were still not reached, but enough of it was revealed to give some idea of its nature. It is of rough stone, 70 to 90 centimeters wide, 1.20 meters to 1.70 meters high, and from 1.10 to 1.40 meters below the ground surface. It is apparently a retaining wall used in building up this end of the hill. The clay covering it, virtually to within 20 centimeters of the surface, is apparently undisturbed, or at least contains no artifacts. It was impractical to trace the wall to its limits as the excavation was tedious and the returns low.

We were left in doubt as to the continuation of the canal, and the relation of the retaining wall to the temple. West of the retaining wall the disturbed top soil dipped to 1.40 meters depth at a point in line with the temple canal. Also a hole went through the retaining wall at this point, two meters below the ground surface, and 80 centimeters above the base of the wall. However, no trace of stonework on either side of this hole in the retaining wall was found which would prove that it represented the continuation of the canal.

SECTION H

A pit was made in the northwest corner of the mound at the highest point, where one or two small cut stones were noticed on the surface. This pit was 6.00 by 2.25 meters and 1.20 meters deep, but contained neither artifacts nor signs of structures. A yellow clay was found at 50 centimeters.

SECTION I

A similar pit was made in the southwest corner of the mound, 4.25 by 2.50 meters and 1.30 meters deep, but again without success in finds. Near this trench, nine meters to the east, a deep pit had been previously excavated with some indication of a retaining wall of rough stones, although this could not be definitely determined. Sr. Frederico Buck said that burials had been found in this southwest corner of the mound, although none were suggested by my excavation.

SECTION J

A total of six pits and trenches was made on the slopes of the hill to the north of the flat hill top and the ruins. These are grouped together here under Section J.

Ja. The first pit, 2.50 meters square, was made six meters north of Section D in the hope of discovering traces of a side temple wall, but without results.

Jb. A test pit, 4.00 by 2.00 meters was made in the field to the north of the ruins. The first half meter showed a 20 centimeter clay wash from the ruins above. The rest was a clay mixed with a black carbon section and a few sherds. The second half meter contained considerable black dirt, ash, and sherds. In the southwest corner of the trench, was a circular pit, 1.00 meter in diameter and running from 80 centimeters to 1.80 meters depth. From 1.20 meters down it was surrounded by undisturbed clay. The pit was filled with black dirt, ash, bones, sherds, and bone tools, but no burial. The sherds are of Decadent Tiahuanaco style, but are not abundant enough to show stratification.

Jc. A similar trench to the north of the one just described revealed very few sherds and was not completed.

Jd. A small trench excavated by Sr. Viganó, the owner of the land, was located at the edge of the hill directly north of the Section B facing wall. The mouth of a small drainage canal was discovered, made of rough stone, lined and capped. The inside opening measured about 20 centimeters square and the canal was 65 centimeters under the surface. It ran to the southeast, but its extent was not determined.

Je. A trench was made on the northern point of the hill where burials had been reported. The trench furnished a few plain sherds and one recent burial.

Jf. Another pit on this northern part of the hill yielded no results.

SECTION K

South of the ruins the hill declines sharply and then flattens out in a saddle dip in which three pits were made.

Ka. At the eastern end of the dip, southeast of the ruins, a pit 5.00 meters square revealed a house floor at 1.40 meters depth with stone side walls. The walls are of rough and dressed stone and are about 30 centimeters wide and high. They probably represent the base of adobe walls. One room about 3.00 by 1.90 meters is indicated, with a small side room, 1.45 by 1.20 meters (all inside measurements). Ash and pottery in considerable quantity were found on the floor. The cut stones were probably taken from the ruins, as they are not well enough placed to suggest special cutting.

Kb. A pit was made in the dip to the south of the mound 2.00 by 2.50 meters next to an upright cut stone which stood 50 centimeters above the surface and was a part of a rough stone wall. It measures 40 by 50 centimeters and is 1.05 meters high. The wall was only about 15 centimeters high and ran north to south. It may have been the remains

of a house wall, but it was not promising enough to merit further excavating.

Kc. Another small pit was excavated in the dip without results.

SECTION L

Several pits were made in the vicinity of the plantation house, something over a quarter of a mile to the south of the mound. These are on the lake flats still used for agriculture and indicate extensive habitation.

La. Two adjoining pits, 4.00 by 2.00 meters and 3.00 by 1.50 meters, were excavated in a barley field directly south of the hill, and just north of the automobile road from Lacaya to Taraco. These pits reached yellow clay at 1.50 meters depth, but in spite of their shallowness a tremendous quantity of sherds were found, many of good quality Tiahuanaco types. However, no remains of house or temple sites were revealed.

Lb. Two small pits were made west of the hacienda house, with meager results, although part of a puma bowl was found at a shallow depth.

Lc. Finally, a pit was made just southeast of the hacienda house, but here we struck undisturbed soil very shortly.

THE COLLECTION

The material found at Lucurmata in the excavations was not completely analyzed in the field. There was, however, no indication of good stratigraphy which might show different periods of occupation. Bone, stone, and metal artifacts were virtually absent so the collection is composed of potsherds. Complete bowls were not found. Lucurmata hill has been used for burial in recent times, as indicated by small crosses marking the graves and the association of recent glaze pottery, but no trace of the cemetery contemporaneous with the ruins was discovered. Puma bowls in many pieces were found along the facing wall of Terrace B and in some of the pits not on the hill. There were also some fragments of excellent pottery, of small vessels with convex sides and elongated bodies, indented at the sides to give an 8-shape to the rim. On the whole, however, the excavations around the hill top yielded very little material.

The small temple of section A contained a considerable quantity of fragments, but no complete bowls. In the top half, from the surface to one meter depth, were large numbers of orange and brown sherds, from cooking ollas, representing bowls with plain bases, flat loop handles, and

straight or wide flare rims. Other plain sherds were black, yellow, or buff. Polished red and brown sherds were found. The painted pieces included parts of kero-shaped and flaring-sided cups of Decadent Tiahuanaco type in black-on-red, black, white-on-red, and black, white, yellow-on-red. Also included in this top section were parts of puma bowls.

The lower half of the temple excavation, covering the original temple floor, also contained many sherds. The few plain fragments were orange and black, with straight projecting bases, flare rims, some constricted necks, and wide and narrow perpendicular loop handles. The large majority of the sherds were, however, parts of modeled animal libation bowls. In one lot almost 87 percent of the pieces were from these bowls. Puma, condor, and llama bowls were represented in many styles. Both plain and painted bowls were present, with and without collars and modeled ears. Unfortunately, the identification of modeled bowls is not sufficient to classify them according to the chronological sequence. Certainly some of these were well enough made to be included in the Classic Tiahuanaco group, but others were cruder.

The ceramics of Lucurmata all conformed to the Tiahuanaco types. The stone work is most certainly of Classic Tiahuanaco type, and much of the ceramic artifacts are too, although a more thorough analysis of the whole collection is required for final statements.

STATUES NEAR LUCURMATA

Max Uhle found three stone statues and other stones on the shore of the lake northwest of the hill of Lucurmata. The rise of the lake has altered this shore line, but two of the statues may still be seen on a low island, northwest of the hill. The water between the island and the shore is quite shallow so that the balsa canoes are poled with ease. The Indians said that cut stones leading to the island were visible when the water was clear, and many of these were indicated with the poling stick. The two statues now isolated on the low island are probably from the ruins.

The first statue is of dark basalt and in a good state of preservation. It is definitely in Tiahuanaco style with the arms straight at the sides. The general measurements are as follows:—

Height	1.50 m.		
Width at headband	33 cm.	Thickness at headband	30 cm.
Width at shoulders	52 cm.	Thickness at chest	25 cm.
Width at waist	40 cm.	Thickness at waist	30 cm.
Width at base	40 cm.	Thickness at base	35 cm.

Grooved and possibly designed plumes stand 11 centimeters high above a plain projecting headband 8.5 centimeters wide which does not extend across the back of the head. The face below the headband is 32 centimeters long and 28 centimeters wide and has a single step ledge across the forehead and perhaps down the side. The features are eroded, but suggest a plain eye with a tear band, a wedge-shaped projected nose, an elongated rectangular mouth, and a projecting chin. On each side of the head are two chain tresses ending in condor heads. The ear is a rectangle, with a notch cut from the front center, and incisions on the inside. The shoulders are well rounded. The back is flat from head to waistband and is now without decoration. The chest is flat and decorated with two bands of heads in a collar chain under the chin and curved grooves like ribs from the collar to the waistband. The waistband is 9 centimeters wide in back and decorated with incisions. The arms are at the sides with the hands over the waistband and bear suggestions of wristbands. Each hand has five proportioned fingers. The legs are separated by a groove in front and in back and are rounded and decorated. The design, although worn, suggests a pattern of simple faces and discs, like the pants of the "Fraile" at Tiahuanaco, and a band decorated with interlocking bent lines. The feet are rounded, with no toes indicated; the base is short and square.

The second statue is of a white conglomerate, badly weathered, and is now in three pieces. However, the style appears to be about the same as the companion piece. The following measurements show the close similarity in size:—

Height	1.25 m.		
Width at headband	35 cm.	Thickness at headband	20 cm.
Width at shoulders	45 cm.	Thickness at chest	15 cm.
Width at waist	40 cm.	Thickness at waist	25 cm. (ca.)
Width at base	35 cm.	Thickness at base	25 cm.

Both of these statues, notably the first, which is so much better preserved, are examples of the Tiahuanaco style, "Classic Monolithic Statue."¹ It is impossible to determine their exact relationship to the Lucurmata temples, but the relative proximity and the general distribution of cut stones from the temples in the region, certainly suggest that all belong to one unit.

LLOGHETA

At the sides of the valley above La Paz, near the district called Sopocachi, and within a half hour's walk of the center of the town, is a

¹Bennett, 1934, 464.

low mound covered with fragments of pottery. The mound is located on the property of Mr. Felix Salvatierra. We excavated a trench along this mound, 7 by 1.25 meters. The mound appears to be an accumulation of dwelling site refuse, but the material is badly disturbed. No complete vessels were found. At the north end of the trench, we encountered a stone lined and covered grave at 50 centimeters to 1.20 meters depth, containing a human skeleton covered with a llama skeleton, but no accompanying artifacts. Previous cuts around the mound indicate the presence of other burials.

Undisturbed earth was reached at a depth of 1.60 meters at the north end of the trench, but some refuse pits attained a depth of 3.00 meters before an undisturbed area was reached. The ground in this section is badly cracked by erosion and land slides are common. The cracks ran through the mound and with the aid of the heavy rains carried material to considerable depths. Refuse material was found in all parts of the mound and was segregated by half meter levels in our excavation. We could not determine just how this mound was accumulated. Surface sherds in the vicinity indicate that it was a general region of habitation.

THE COLLECTION

Quantities of artifacts and fragments were collected from the various levels of this trench and represent Tiahuanaco culture throughout. No Inca forms were found. While a considerable variety of types is represented, no stratigraphy was apparent. Most of the sherds are from Decadent Tiahuanaco type vessels. Of these the kero-shaped goblets (Shape A, varieties)¹ and the open, flaring-sided cup (Shape E) are the commonest. Decadent designs of human heads, puma heads, winged puma head, condor heads, bird, step, diamond, scroll, perpendicular, wavy, band, and chevrons were the most frequent. Mixed with these ordinary Decadent ceramic types were some of fine finish and four-color on red polychrome. However, the characteristic Classic shapes were not found, so it is somewhat dubious whether that period is really represented in this mound. Modeled puma bowl fragments, including the square collar variety are present. Fragments of hollow base bowls indicate only plain ware types. Modeled animal heads on rims or vessels as well as some of the modeled effigy bowl handles so common in the Cochabamba region are found. Three fragments of tripod bowls were uncovered, two slightly bulbous and one straight-legged. One

¹*This Series*, vol. 34, 407.

spout from a vessel was among the collected material. All of these fragments are arranged in no specific order throughout the four levels.

Fourteen bone end scrapers of the common type were found. Two of these had the articulations left as handles, the others were plain. Stone artifacts showed more variety. Pieces of a circular and a square ring stone were found, the latter on the surface. A T-shaped polished ax was uncovered in the second half meter. Triangular and rectangular slate knives, as well as slate end scrapers, were common. Two stone scrapers, sharpened at one end, and two plain whetstones occurred in the second meter. Other stone finds within the mound were five stone balls or grinders and three chipped obsidian blades. On the surface, numerous stone and slate knives and scrapers were observed.

The Llogheta site contributes very little beyond indicating the distribution of Tiahuanaco material in the La Paz area. No chronology can be deduced from the collection. If anything, the site is Decadent Tiahuanaco possibly mixed with secondary influence of the Cochabamba region. More detailed conclusions are not justified.

CONCLUSIONS

The work in the Highlands consisted mainly of excavating at heretofore undescribed sites and thus increasing the scope of information about the Tiahuanaco civilization. The description of each site gives a detailed account of the finds, their kind, and position. There remains for the concluding chapter, then, principally a résumé which stresses the further distribution of Tiahuanaco periods, and the most important results of this season's work.

No further distribution for the Early Tiahuanaco was revealed. In our survey excavations outside the main mound of the Chiripa site, particularly at the place designated as the old plantation house location, fragments which resembled the Early Tiahuanaco style were found, but in badly mixed ground. Furthermore, the private Iturralde Collection at Chiripa contains one incised incense bowl of Early type. However, these scattered finds permit no new conclusions about this Early ware.

Some Inca sites were noted and photographed, but no work was done at them. We examined the Inca village on the Island of Quehuaya, another on Paco Island, and some Inca walls on Inkja. Inca pottery and houses were found at Pajchiri on Cumana Island, as well as the connecting bridge of Yayas. Inca pottery was also found on Pariti Island. Most of these sites have already been mentioned in the literature.

The major contributions of the field-work of the season concern distribution and relations of the Classic and Decadent Tiahuanaco, and the discovery of a new type, the Chiripa, between these two periods.

CLASSIC TIAHUANACO

Three buildings of Classic Tiahuanaco style were examined. The first, at Lucurmata on the edge of Lake Titicaca, was excavated, revealing walls of cut and dressed basalt and sandstone blocks. Upright pillars set at intervals with cut stone fill, the technique so characteristic of Tiahuanaco, was typical of Lucurmata. One wall was a facing terrace with three sets of steps. The uprights were notched to receive fitted stones. The uprights on the side of each set of steps were notched in special fashion. Behind the wall was a set of two steps cut out of a single slab and the remains of slab paving. Fallen stones from a former facing were scattered around the edge of the flat-topped hill on which the temple was located. A set of four monolithic steps cut from a great basalt block were among this group, although the original position could not be determined. Various other cut stone blocks were found around

the base of the hill and on a nearby hill were dressed stones still in a facing line. Another unit of the ruin was a square semi-subterranean temple, 9.50 meters on a side (inside) and about 1.70 meters below the ground surface. Two elaborately cut and niched uprights formed a gateway in one corner. The walls of the temple were constructed of horizontal blocks arranged in a single tier. Within the temple were many more blocks and slabs, including a group with a projecting ledge, and inset step-sided niches which may have been intended for a second wall tier. Corners of the temple were formed by single stones cut into a right angle. In one corner a canal, with a U-shaped slab as a base, had been cut through the side wall block, probably as a drain for the temple. From the technique of placing the stones and the incongruous arrangement of the gate uprights, the general conclusion was reached that this temple belonged to a period later than the long terrace facing wall and the stone-faced hill top. In other words, it seems to have been built of stones gathered from the older ruin, rather than of stones especially prepared for its construction. The pottery analysis more or less confirmed this view and will be discussed presently.

At the site of Pajchiri, near Cascachi on the Island of Cumana, the stones of a terraced temple were examined. The most notable feature of this temple was a set of three red sandstone steps leading up to a large dressed slab. The possibility of two more steps was argued, since the slab and steps had been recently disturbed. To one side of these steps were basalt uprights of a terrace facing wall which delineated the south wing of the temple. These uprights, as at Lucurmata and Tiahuanaco, were set at intervals and probably filled in between with smaller stones. Each upright was notched to receive other stones in the original construction. Various dressed and notched uprights were found in the valley below this temple. The groundplan of the temple seemed very regular and it is quite likely that a corresponding wing once extended to the north side of the steps, making the latter a central entrance. Considerable vandalism in Inca and post-Inca times has wrought great destruction and increased the rate of erosion by removing the stones forming the retaining walls. The Inca in this region utilized the dressed stone slabs of the temple for building doorway uprights in their houses. Excavations at this site furnished little confirmation of the Tiahuanaco builders, but the style of building is unquestionable. It is interesting to note that both at Pajchiri and Lucurmata the use of basalt and sandstone as building materials occurs in a single construction, just as it does in the principal temples of Tiahuanaco.

On the south side of the Peninsula of Copacabana, near the community of Oje, is a raised terre-plein faced with cut, dressed, and fitted stone blocks. This ruin has been described by Uhle¹ under the name of Llojepaya, although the present Indians gave me the name of Chocupercas (Fig. 48). According to my hurried measurements, the main unit is 87.80 by 119 meters, although Uhle gives 145 by 160 paces. The only stonework is the facing wall on all four sides still standing, two meters high in places, and said to have been originally over three meters high. The stones are of red sandstone, carefully dressed and fitted. Upright blocks and pillars are used irregularly in the facing wall. Uhle



Fig. 48. Temple Wall at Chocupercas, Copacabana.

reports that in 1894 the ruin was 40 centimeters above the lake level and about 25 paces from it. Now, in 1934, however, the waters wash against the lower stones of the facing. The workmanship is excellent and the stonework clearly of Classic Tiahuanaco style. To my knowledge no excavations have ever been made at this site to confirm this analysis with artifacts of Tiahuanaco style.

Dressed and squared basalt and sandstone blocks, but no remains of foundations, were found on the Island of Pariti. The presence of

¹Uhle, 1912a, 475-476.

dressed blocks is not sufficient in itself to extend the Tiahuanaco building distribution, but in connection with the Classic Tiahuanaco ceramics it is more significant.

In the conclusions to my previous paper on Tiahuanaco¹ I stressed the limitations of Bolivian Tiahuanaco distribution, but this season's work has changed the picture. Besides the finds mentioned above, cut stones were found on the Island of Titicaca in 1932 and Uhle² mentions four blocks partially covered by the lake on the west side of Taraco Peninsula, not far from Huaqui. In a collection of Uhle photographs at the University Museum, Philadelphia, pictures of cut blocks near Huaillani and at Phoqoqala, near Zepita, are shown. Finally, Posnansky,³ has described a Tiahuanaco type ruin at Simillake, a small island in the Desaguadero River, eight and one half kilometers from the mouth of the river, near the community of Sojopaco. The temple or fortress consists of dressed sandstone blocks set at intervals to form a square about 52 meters on a side.

Not all of these buildings are positively identified (by ceramics) as of Classic Tiahuanaco type. Some, however, do have the upright pillar and angular jointing so characteristic of Classic Tiahuanaco. Furthermore, it must be noted that the only block decorations found were the inset, step-sided niches at Lucurmata. Low relief friezes, like that on the Gateway of the Sun at Tiahuanaco, were not discovered. However, the extent of Tiahuanaco building style has been considerably enlarged.

Classic Tiahuanaco pottery was found in the excavations at Pariti and at Lucurmata. Pieces from Chiripa occur in the collection of Sr. Iturralde, but none was found in our own excavations. At Pariti well painted pottery with designs, shapes, and colors consistent with known Classic Tiahuanaco was found in isolated strata in one pit. Furthermore, a grave containing gold objects and incised bone paint tubes was identified as Classic Tiahuanaco by the incised designs. Other gold and ceramic objects in the Pacheco Collection from Pariti are of Classic style. This particular grave, with gold and bone objects, is important because it lay stratigraphically below a level of Chiripa type ware, and thus establishes the lower limit of this new type.

At Lucurmata the Classic Tiahuanaco pottery fragments were found, not in the temple excavations, but in the region near the mound. At the temple itself, particularly the small semi-subterranean one, the pottery consisted mostly of pieces of modeled puma incense bowls. The

¹*This Series*, vol. 34, part 3.

²Uhle, 1912a, 476.

³Posnansky, 1934, 291-297.

modeled puma bowl is possibly Classic, although too few have been found *in situ* for the identification to be completely accurate.

Now it seems probable that Classic Tiahuanaco ceramics will be found at many points around the southern part of Lake Titicaca. Few of the ruins have been thoroughly excavated. I anticipate the discovery of Classic Tiahuanaco pottery on the Island of Cumana, where the temple of Cascachi indicates its presence, although my own search was fruitless. Finally, the work at Chiripa indicates that Classic Tiahuanaco is a period distinct from Decadent, since, at this point at least, Chiripa type lies between the two. Consequently, one may anticipate finding Classic Tiahuanaco in isolated position and not necessarily in association with Decadent. The distribution of the wares of the two periods is known to be different, but Chiripa ware and its position indicates an even sharper distinction.

DERIVED TIAHUANACO

A thorough discussion of Derived Tiahuanaco style is included in the conclusions of the Lowland Bolivia section of this report (p. 402). The repetition here is brief. Derived Tiahuanaco is suggested as a name for the well-made Tiahuanaco ceramics of the Cochabamba section, exemplified by the Arani I graves. An examination of the Cochabamba pottery indicates a style different from the Classic Tiahuanaco, but superior in technique to the Decadent. The conclusion was reached that this style was Derived from Classic Tiahuanaco and chronologically was a branch at the end of that period which continued with local development in the Lowland region. This would account not only for the similarities in design and shapes, as well as for the polychrome painting and fine finish, but also for the local introductions and modifications of designs and shapes. In other words one may not find a true branch of the Classic Tiahuanaco in the Lowlands.

In the Highlands, the Classic Tiahuanaco has not been broken up into subdivisions, although some have been suggested. The buildings and statues at Tiahuanaco itself furnish material for a division of the Classic style which is confirmed in part by the ceramics, but unfortunately the association of buildings, statues, and pottery is not definite enough to establish subdivisions. The Classic Tiahuanaco material from Pariti was shown to differ in some respects from the prototype and may well represent a late phase of this period. In fact, future excavators in the Highlands may well isolate a Derived Tiahuanaco, closely affiliated with the Classic and explain its distribution to the Lowlands as a migration.

CHIRIPA

At Chiripa and Pariti was found a new type culture which incorporated a new ceramic style, a house style, refuse and possibly dwelling sites, burials, and bone, stone, and other artifacts. This material was first discovered and was most abundant at the Chiripa site and consequently has been so designated. At the name site Decadent Tiahuanaco graves in the mound were clearly intrusive into the Chiripa levels, even cutting into the house walls of the Chiripa period. At Pariti the Chiripa level was superimposed on Classic Tiahuanaco burials. Consequently, the two sites establish the position of Chiripa type as between the Classic and Decadent Tiahuanaco periods. Furthermore, the thickness of the Chiripa deposits argues for a substantial time period. While there is no basis for expressing this in years it can be said that Chiripa style existed long enough so that it cannot be dismissed as a sporadic local culture. The Chiripa type cannot be considered as a substyle of Tiahuanaco, not only because of its marked differences, but also because it is totally unmixing with other styles in its levels.

The ceramic type consists of plain brown ollas, with flare rims, generally without handles, and painted yellow-on-red, or black, yellow-on-red vessels. The painted bowls are principally open, round, flat-bottomed, with perpendicular sides which terminate in slightly outward flaring rims. Handles are again absent. Aside from minor variations in rim finish the painted vessels are almost exclusively of this one type, although a few other shapes were indicated by some of the fragments. The designs are applied with a thick yellow paint on a red background. Black is used on some vessels, as a design band, not an outline. The designs are composed of simple triangles or steps, applied to the outside of the vessels, and other simple linear designs on the inner rim. Incised lines are used as designs or to outline color bands on a few vessels. Relief modeling of animals is also employed as a decorating technique. The Chiripa ceramic style is consistent and unique.

The foundation walls of two Chiripa houses were uncovered and other house sites were located, indicating that a group of perhaps fourteen houses were arranged in a circle around the mound, with their corners contacting and their doorways facing inward. The house was rectangular with double walls, about 30 centimeters thick and 60 centimeters apart, built of small stones and adobe brick and finished on the inside with a clay plaster. The inter-wall space was partitioned into storage bins, entered from the inside of the house by decorative window niches with clay lintels. The floor of the house was of packed yellow

clay. The outer wall turned in to meet the inner wall so as to form an entry for the doorway. Both the entry way and the door sill were stone paved. The inner wall was of double thickness at the doorway. On one side of the entrance a long vertical slit suggested that the actual door was a sliding wooden panel; on the other side, a vertical groove was cut out to receive it. One house had evidence of a double paneled door. The foundation of the house walls was of small stones, the upper walls, which had fallen, were probably of pure adobe brick. Burnt twigs on the house floor suggested that the roof had been of thatch.

The floor of the house was covered with burnt refuse, pottery fragments, and bone and stone artifacts. All associated finds were of Chiripa type. Outside of the houses at Chiripa and also at Pariti thick refuse layers of exclusive Chiripa material were found. Below the Chiripa houses in the pre-mound stratum rough stone walls and ash pits suggested camp sites.

Most Chiripa burials, with the exception of those in House 2, were flexed, with artificially deformed skulls, unaccompanied by artifacts or covering stones. Under the floor of the second house, however, were discovered some well-made stone-lined and covered tombs containing flexed burials. Although no pottery was associated, the grave equipment included a few strips of thin gold, remnants of plain cloth, and bone, shell, and copper beads.

Non-ceramic artifacts were not as distinctive as the pottery, although a large quantity and variety of bone tools were associated, and some stone implements. The detailed descriptions of these artifacts has already been given.

Thus, as a result of these excavations, the Chiripa type has been isolated and described, as well as placed in the Bolivian chronological sequence. So far the distribution is limited to Chiripa, Pariti, and Cusijata, Copacabana, the latter site represented by a single bowl in this Museum. It is logical to suppose that the Chiripa type will be found in other parts of the southern Lake Titicaca region, but further distribution, or suggestions for affiliations of this style cannot be made at this time.

DECADENT TIAHUANACO

At Chiripa a semi-subterranean temple was located on top of the mound. A cross-section analysis of our trench through the mound shows clearly that the temple is superimposed on the Chiripa type levels below, that the temple level runs over the houses, that temple and

the facing wall around the outer edge of the mound are contemporaneous, and finally, that the Decadent Tiahuanaco graves are included in this stratum. The temple is roughly square (23 by 21.50 meters) and the floor is about two meters below the outer ground surface. The temple facing wall is composed of roughly finished uprights set at intervals, with a small stone connecting wall between. The facing wall of the mound is built in the same technique. This wall indicates that the mound once had a square groundplan about sixty meters on a side.

The graves associated with this level are stone-covered and bark-lined and contain flexed skeletons commonly accompanied by the broken base of a plain olla and other pieces of pottery. The ceramics, which have been described in detail, are of a Decadent Tiahuanaco style, in shape, design, and technique.

While Decadent Tiahuanaco is known to have a different distribution than the Classic, its position at the Chiripa site indicates a break between the two, in this section at least; that is, Decadent is superimposed on Chiripa, which is, in turn, shown to be post-Classic at Pariti. Thus, we can state that the Decadent Tiahuanaco at Chiripa and Pariti is not a direct continuation of the Classic in this region, but represents a new distribution. Whether a similar time gap between the two also occurred at Tiahuanaco itself cannot be affirmed.

At Chiripa the Decadent Tiahuanaco is associated with a semi-subterranean temple. This association assists in confirming my analysis of the small semi-subterranean temple just east of the monolithic stairway of Calasasaya at Tiahuanaco as belonging to the Decadent Period.¹ At Lucurmata was still another square semi-subterranean temple which was shown to be later than the large temple at that site. While similar in general appearance, and made of stones gathered from the older ruin, it was not positively identified as Decadent Tiahuanaco.

No other buildings were associated with Decadent Tiahuanaco, but pottery of this style was found at Chiripa, Pariti, Pajchiri, and Llogheta. The Chiripa pottery of Decadent Tiahuanaco style has already been discussed. At Pariti a few Decadent Tiahuanaco sherds were in the disturbed earth above the Chiripa type level. Also Decadent Tiahuanaco fragments were found in other pits without association, as well as mixed with Classic and Inca fragments. Unfortunately, the mixtures could not be considered as positively pre-Spanish, but seemed to have resulted from modern disturbance. The few Tiahuanaco fragments found in the excavations around the temple at Pajchiri were of the Decadent style,

¹*This Series*, vol. 34, 386-387.

although the remains of this temple were of Classic type. Here again was some mixture with Inca pieces. It is highly probable that the Inca invaders found populations on these islands in the lake still making a Decadent Tiahuanaco style of pottery, although no evidence for an amalgamation of these two styles was discovered. At Llogheta, Decadent Tiahuanaco ceramics were associated with a mound structure, although the exact nature or purpose of this mound could not be determined. Tiahuanaco influence has been found at other sites around the modern town of La Paz, and Llogheta is merely further evidence of the presence of Tiahuanaco people.

CHRONOLOGICAL RÉSUMÉ

In brief, the present chronological sequences in the Highlands and Lowlands of Bolivia can be presented in simple tabular form. This sequence is not intended to be final or absolute, but rather suggestive of what the present evidence indicates and future work may confirm. Classic, and perhaps Decadent, Tiahuanaco and Inca are the only direct connections between Highlands and Lowlands. The other periods and influences do not cover the two regions.

CHRONOLOGY IN BOLIVIA

Highlands	Lowlands
Inca	Inca
	La Paya-Inca
	Guaraní
	Incised
Decadent Tiahuanaco	Decadent Tiahuanaco-
	Late Arawak
Chiripa	
Semi-Classic Tiahuanaco	Derived Tiahuanaco-
Classic Tiahuanaco	Early Arawak
Early Tiahuanaco	

WORKS CONSULTED

AMBROSETTI, JUAN B.

- 1906 Exploraciones Arqueológicas en la Pampa Grande (Provincia de Salta) (Facultad de Filosofía y Letras, Publicaciones de la Sección Antropológica, No. 1, Buenos Aires, 1906).
- 1907 Exploraciones Arqueológicas en la Ciudad Prehistórica de "La Paya" (Facultad de Filosofía y Letras, Publicaciones de la Sección Antropológica, No. 3, la Parte, Buenos Aires, 1907).

BENNETT, W. C.

- 1934 Excavations at Tiahuanaco (Anthropological Papers, American Museum of Natural History, vol. 34, part 3, New York, 1934).

BOMAN, ERIC

- 1908 Antiquités de la Région Andine de la République Argentine et du Désert d'Atacama. 2 vols. Paris, 1908.
- 1923 Los Ensayos de establecer una Cronología Prehispanica en La Region Diaguita (Republica Argentina) (Boletín de la Academia Nacional de Historia [antes] Sociedad Ecuatoriana de Estudios Historicos Americanos, Volumen 6, pp. 1-66, Quito, 1923).

HUMBLA, P.

- 1925 Steinerne Querbeile aus dem Mizquetal (ozeanisch-südamerikanische Beziehungen) (Anthropos, Band 20, pp. 331-333, St. Gabriel-Mödling bei Wein, 1925).

LOTHROP, S. K.

- 1932 Indians of the Paraná Delta, Argentina (Annals of the New York Academy of Sciences, vol. 33, pp. 77-232, New York, 1932).

MEANS, PHILIP AINSWORTH

- 1917 A Note on the Guarani Invasions of the Inca Empire (Geographical Review, vol. 4, pp. 482-484, New York, 1917).

MÉTRAUX, ALFRED

- 1930 Études sur la Civilization des Indiens Chiriguano (Revista del Instituto de Etnología de la Universidad Nacional de Tucumán, Tomo 1, Entrega 3a, pp. 295-493, Tucumán, 1930).
- 1933 Contribution a l'Archéologie Bolivienne (Journal de la Société des Américanistes, n.s. Tome 25, pp. 279-291, Paris, 1933).

NORDENSKIÖLD, ERLAND

- 1906 Ethnographische und archäologische Forschungen im Grenzgebiet zwischen Peru und Bolivia 1904-1905 (Zeitschrift für Ethnologie, Achtunddreissigster Jahrgang, pp. 80-99, Berlin, 1906).
- 1911 Indianer och Hvita i Nordöstra Bolivia. Stockholm, 1911.
- 1913 Urnengräber und Mounds im Bolivianischen Flachlande (Baessler Archiv, Beiträge zur Völkerkunde Herausgegeben aus Mitteln des Baessler-Instituts, Band 3, pp. 205-255, Leipzig und Berlin, 1913).
- 1915 Incallacta, eine Befestigte und von Inca Tupac Yupanqui an-

- gelegte Stadt (Ymer 1915, Heft 2, pp. 169-185, Stockholm, 1915).
- 1917a The Guarani Invasion of the Inca Empire in the Sixteenth Century: An Historical Indian Migration (Geographical Review, vol. 4, pp. 103-121, New York, 1917).
- 1917b Die östliche Ausbreitung der Tiahuanaco-kultur in Bolivien und ihr Verhältnis zur Aruakkultur in Mojos (Zeitschrift für Ethnologie, Neunundvierzigster Jahrgang, pp. 10-20, Berlin, 1917).
- 1920 The Changes in the Material Culture of Two Indian Tribes under the Influence of New Surroundings (Comparative Ethnographical Studies, 2, Göteborg, 1920).
- 1924a Forschungen und Abenteuer in Südamerika. Stuttgart, 1924.
- 1924b Finds of Graves and Old Dwelling-places on the Rio Beni, Bolivia (Ymer, 1924, Heft 2, pp. 229-237, Stockholm, 1924).
- POSNANSKY, ARTHUR
- 1912 Gufa General ilustrada para la Investigación de los Monumentos prehistóricos de Tihuanacu é Islas del Sol y la Luna (Titicaca y Koaty) con breves apuntes sobre los Chullpas, Urus y escritura antigua de los aborígenas del Altiplano andino. La Paz, 1912.
- 1928 Breves Noticias de una Rama Cultural Tihuanacu al Noroeste de Bolivia (Annaes do XX Congresso Internacional de Americanistas, Rio de Janeiro, 1922, vol. 2, segunda parte, pp. 195-197, Rio de Janeiro, 1928).
- 1934 Los Urus o Uchumi (Actas y Trabajos Científicos de XXV Congreso Internacional de Americanistas, La Plata, 1932, Tomo 1, Buenos Aires, 1934).
- VON ROSEN, ERIC
- 1924 Popular Account of Archaeological Research during the Swedish Chaco-Cordillera Expedition, 1901-1902. Stockholm, 1924.
- SERRANO, ANTONIO
- 1933 Las Culturas Protohistóricas del Este Argentino y Uruguay (Memorias del Museo de Paraná, no. 7, 44 pp., Paraná, 1933).
- UHLE, MAX
- 1912a Review of Posnansky, Arthur, "Gufa General ilustrada para la Investigación de los Monumentos prehistóricos de Tihuanacu é Islas del Sol y la Luna, etc.," La Paz, 1912 (Revista Chilena de Historia y Geografía, Tomo II, pp. 467-479, Santiago de Chile, 1912).
- 1912b La Relaciones Prehistóricas entre el Perú y la Argentina (Actas del XVII Congreso Internacional de Americanistas, Buenos Aires, vol. 1, pp. 509-540, Buenos Aires, 1912).
- 1919 La Arqueología de Arica y Tacna (Boletín de la Sociedad Ecuatoriana de Estudios Históricos Americanos, vol. 3, nos. 7-8, pp. 1-48, Quito, 1919).

