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Vol. XV, Part I.

**PUEBLO RUINS OF THE GALISTEO BASIN,
NEW MEXICO**

BY
N. C. NELSON

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PUEBLO RUINS OF THE GALISTEO BASIN, NEW MEXICO.

By N. C. NELSON.

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PLANS.

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- II. Pueblo Largo.
- III. Pueblo Colorado.
- IV. Pueblo Shé.
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INTRODUCTION.

This paper is a report based upon field investigations carried out in New Mexico mainly during the summer of 1912 and made possible through funds provided by Mr. Archer M. Huntington. The choice of the Galisteo basin as a desirable locality for research was made only after the completion of a cursory survey of the three hundred mile stretch of the Rio Grande drainage lying between El Paso and Santa Fe. Less than six weeks were devoted to this preliminary work, which in consequence was far from exhaustive. Some unrecorded archaeological sites in the form of caves, rock-shelters, camping grounds, and groups of pictographs were found,¹ however, in the regions about Las Cruces and Elephant Butte, but these places revealed no facts of special importance that need be considered at this time.

Several groups of more or less well-known pueblo ruins were examined in the vicinities of Magdalena, Bernalillo, and Cochiti, on the west side of the Rio Grande,² but the most extensive and on the whole the best preserved remains were found at a considerable distance east of this river. These latter sites fall into four localized groups, the first and southernmost being the supposed Piro or Tompiro pueblos³ lying in the broken mesa country twenty to thirty miles directly south of Willard and the salt lakes of the Estancia Valley. Five of these partly historic but long ruined pueblos are known locally as Gran Quivira, Montezuma, Pardo, Colorado, and Blanco. Only the first and the last named places were examined. The second group lies to the west of Willard and consists of six or more ruins scattered along the east base of the Manzano Mountains, mostly north of the Abõ pass or canyon. Among these are the historic Piro pueblo of Abõ and the equally well known Tigua pueblos of Quarai, Tajique, and Chilili.⁴ Some small house sites, caves, and collections of pictographs are also to be found here. Farther north, in the rugged country immediately east and north of the Sandia range, lies a third group of ruins, regarded as some of the prehistoric

¹ A small pueblo ruin was also located, by reports, between the Rio Grande and the Caballos Mountains. Its presence is of some interest in view of Bandelier's opinion that the Pueblo range did not extend much below San Marcial.

² Pueblo Kotyiti, located on Potrero Viejo seven miles northwest of Cochiti, was completely excavated late in the season. This historic village, according to Spanish records, was built and occupied by Keresan Indians during the rebellion of 1680-92 and was destroyed by Diego de Vargas in 1694. Nothing of unusual interest was brought to light, but the results, such as they are, will be published elsewhere.

³ See article "Piros" by F. W. Hodge, *Handbook of American Indians*, Bulletin 30, Bureau of American Ethnology, Part 2, p. 261.

⁴ See separate pueblo articles by Hodge, *op. cit.*

and early historic homes of the Tanos. There are nine or ten of them, the principal ones, so far as now known, being San Pedro Viejo, near the source of the Arroyo San Pedro, and El Tunque, located about 13 miles downstream, close to the northeastern extremity of the Sandia Mountains. The fourth and last group and the one in which our present interest centers consists of eight large Tano ruins, strung along the borders of the Galisteo basin, an eroded treeless depression lying about twenty to thirty miles northeast of the above-mentioned Sandia range and nearly the same distance south of Santa Fe. With one exception these eight ruins are distributed on the banks of as many different streamlets that unite near the little Mexican town of Galisteo to form Galisteo Creek, perhaps the principal eastern tributary of the Rio Grande in New Mexico. Viewed from Galisteo, the largest and most important ruin, Pueblo San Cristobal, is located six miles to the east; three of the pueblos, viz., Largo, Colorado, and Shé, lie from five to eight miles to the southeast; Pueblo Blanco lies seven miles to the southwest; and Pueblo Galisteo or Tanos, as it is called locally, lies one and a half miles to the northeast, close to the Santa Fe Railroad and somewhat central in the basin. Immediately beyond the Galisteo basin proper, on a southern tributary of Galisteo Creek and six miles west of Galisteo, we have Pueblo San Lazaro, and seven miles to the northwest, on a northern tributary, is Pueblo San Marcos, close to the Cerrillos peaks.¹

For some unknown reason, but probably in part on account of their relative modernity and also their less picturesque and romantic setting as compared with the cliff-dwellings, these Rio Grande pueblo remains have hitherto received little scientific attention.² Adolf Bandelier indeed visited a few of the sites and reported most of the others as long ago as 1882,³ and we have besides a number of descriptions, mostly fanciful, of Gran Quivira, or as it is called in recent scientific literature, Tabira. Thus, of the eight large Galisteo pueblos, Bandelier examined only four and it is safe to state that at least three of the remaining half were never before seen by an archaeologist.

The great size of the Galisteo pueblos was most impressive. Their proximity and accessibility as a group could hardly be duplicated anywhere in the Southwest. Hence, when the owners of the various ruins, with but one or two exceptions, expressed their willingness to permit excavation there was little room for choice. Four, and possibly five, of these pueblos were known to have been seats or visitas of Franciscan missions during the

¹ See map, p. 36.

² The great amount of labor involved in contrast to the meager collections to be obtained from this type of ruin may also have played a part in their neglect.

³ See Fifth Ann. Rep., Arch. Inst. of America, Boston, 1884.

seventeenth century, while the actual foundation of each one of the eight settlements could safely be referred to a time prior to the arrival of the earliest Spanish explorers. Here, it appeared, was an opportunity to prosecute a piece of research work in the most scientific manner, namely, by working back from the known to the unknown. There was at hand a very considerable amount of published ethnologic data on the Southwest, and investigations of the present Pueblos by Dr. Herbert J. Spinden of the Museum staff and others were in progress. It seemed possible in the light of these earlier findings and with the assistance of modern ethnologists to arrive at sound conclusions regarding the culture, character, and inter-relations of the early historic Rio Grande villagers of the sixteenth and seventeenth centuries, and that much accomplished, the elucidation of the problems presented by the Pueblos of prehistoric times should be an easier task. Work was therefore begun on the Galisteo pueblos.

It is not to be supposed, of course, that the field has been exhausted after six months' labor or that the theoretically or even practically possible has been attained and will be set forth in this report. The mechanical work was made as complete as time and circumstances permitted. But no one ruin was entirely excavated, desirable as that would have been, because even if all the season's effort had been concentrated on the smallest site, the time and means at hand would not have accomplished the purpose. It goes without saying that something valuable could have been learned by such intensive work, but, all things considered, that does not seem to be the great desideratum in the Southwest. The results presented, beyond the mere descriptive details, are therefore in most respects fragmentary and incomplete. Seven of the eight pueblos were excavated to the extent of determining beyond reasonable doubt their historic or prehistoric nature. This entailed the clearance of six separate buildings, the smallest of which contained five rooms and the largest seventy-two rooms, besides the excavation of from one to fourteen more or less scattered chambers in all the other buildings of each pueblo. Altogether 430 ground floor rooms were cleared; but inasmuch as the debris ranged from 1 foot 6 inches to 10 feet in depth and represented in most instances the tumbled masonry of buildings of more than one-story height, the total number of rooms excavated could properly be much increased. Out of these excavations 2385 artifacts of stone, bone, shell, and pottery were obtained; to which might be added 2233 fragmentary artifacts, mostly of stone and exclusive of potsherds. In addition, there were found 257 specimens of the nature of fetiches, comprising quartz-crystals, unused pebbles, oddly shaped concretions, and fossil fragments. Lastly, there were 82 specimens of a less definable nature, such as samples of various kinds of ore, coal, and chalk-like substance. The majority of

the finds, it must be said, consisted of metates, manos, rubbing stones, and the like, common and bulky forms that could not be removed, so that only 1443 actual catalogue entries were made in the field.¹ Something like 23 bushels of potsherds, representing various kinds of incomplete vessels, were unearthed; and from the excavated rooms there were removed about 18 bushels of animal bones, fully three-quarters of the whole amount being taken from buildings occupied in historic times and representing domestic animals. Charred maize was found in all of the ruins, though only once in large quantities. One kiva was cleared and four or five partially excavated, likewise a watch tower. Several trial pits and trenches were dug, some building corners were laid bare to facilitate plotting the ruins, and excavations were made in a number of the refuse heaps both for artifacts and human skeletons. Of the latter 162 finds were recorded, but of that total only 65 more or less complete individual remains were sufficiently well-preserved to admit of shipment. Photographs were taken of all general and special features as the work progressed. Each room was measured and the cleared buildings were plotted on a sufficiently large scale to admit of minor details such as doorways, fireplaces, bins, etc., being shown. Numerous tracings and photographs were taken of the most interesting and typical pictographs in the locality. Finally, in the late fall of 1913, after a very dry summer and when grass and weeds were dead or blown away, i. e., under the best possible conditions, the ruins were mapped with all the care consistent with the nature of the undertaking.

A few words may be added regarding the plan and scope of the work here begun. As there is every prospect that the investigations of the American Museum may continue for some time, it is deemed advisable to reserve treatment of the artifacts and other special as well as general features until such time as most, if not all, of the Tano ruins have been partially excavated. This may require two or three years. The present paper will therefore be limited to a description of the Galisteo ruins and the work done upon them. Reports of a similar nature may follow from time to time as the investigation progresses, and then, when the accumulated data cover the entire Tano territory, and possibly some of the neighboring localities, detailed consideration will be given to all phases of the subject. Meanwhile, in order to work into the situation, as it were, and to discover what some of the archaeological problems really are, it has seemed advisable to preface the report with a

¹ After furnishing a few duplicate specimens to some of the owners of the excavated ruins, and making up also a small representative collection for exchange with the Santa Fe Museum, the collections from the Galisteo pueblos to date comprise a total of 1354 entries, besides 82 entries covering miscellaneous collections of potsherds, animal bones, and various surface finds.

brief historical introduction. Though Bandelier performed a great task for the Southwest archaeologist when he in a very scholarly way reviewed the historical data for the region, his general account does not go far enough in certain minor particulars referring to the specific locality here under consideration to serve our needs. The other introductory subject, viz., the environmental aspect of Pueblo culture, while important and interesting, has already been sufficiently treated by Bandelier, Hough, Hewett, Harrington, and others, and may therefore be passed over very briefly.

There remains to acknowledge the Museum's obligation to the owners of the various ruins, namely, Messrs. J. N. Gonzales of Galisteo, Maurice Gomez of Santa Fe, Enrique Varella of Kennedy, and the Hon. Benjamin F. Pankey of Santa Fe. No less than four of the Galisteo basin ruins are located on the large ranch (formerly known as the Eaton Grant) of Senator Pankey, a gentleman who not only gladly permitted excavation but who assisted and encouraged it in every way possible.

The maps and groundplans were drawn by Mr. S. Ichikawa, of the Museum staff, and the tabulated data have been prepared by my wife, who has also assisted in the final preparation of the manuscript.

June, 1914.

HISTORICAL INTRODUCTION.

EARLY EXPLORATION.

The Galisteo pueblos appear on the historical horizon as early as 1540 when Europeans entered New Mexico for the first time under the leadership of Francisco Vazquez de Coronado. This splendidly appointed expedition having failed in its main object,—the search for gold,—the vast country explored in the north remained little more than a memory for forty years, when missionary zeal at last opened the way for permanent occupation. Then followed five more or less important entradas in rapid succession and finally in 1598 the actual colonization of New Mexico began.

Coronado was himself indirectly responsible for the later course of events, in that he left two Franciscan friars with a few mostly native followers in New Mexico when he retired from the country in 1542. These missionaries soon became the first martyrs to the Christian cause and the reports which some of their followers brought back to Mexico inspired several individual friars of the same order to enter the far country to continue the work. Evidently little came of these single-handed efforts, as we have neither names nor dates concerning them, but they were not fruitless. In 1581, Friar Augustin Rodriguez, with two brothers of his order, set out for New Mexico under the protection of twelve volunteer soldiers commanded by Francisco Sanchez Chamuscado. They entered the country for the first time by way of the Rio Grande and after some weeks of exploration up this river and through the country to the east the soldiers returned to Mexico alone, leaving the determined friars unprotected among the Village Indians. The precarious situation of these men, alone among unfriendly natives, led to the slightly more pretentious entrada conducted by Antonio de Espejo the following year. Espejo was too late to rescue the friars, but he re-explored practically all the parts of Arizona and New Mexico known to Coronado, became enthusiastic about the country and returned by way of the Pecos River to Mexico to negotiate for royal permission to colonize. Other wealthy men also applied for contracts to settle the new country and several years were consumed by the Crown in considering these propositions which in the end came to nothing. Meanwhile a private colonizing expedition under the command of Castaño de Sosa set out for the north in 1590. He led about two hundred followers up the Pecos River and then crossed to the Rio Grande by way of the Galisteo basin, where he named some of

the pueblos as we know them today. The audacity of entering New Mexico without royal license could not go unpunished, however, and so while investigating the possibilities of the Rio Grande country a military force commanded by Captain Juan Morlete arrived to put Castaño in chains and to return him with his entire following to Mexico. The last¹ and the least important expedition of the series occurred about the year 1595, when Captain Francisco Leiva Bonilla after a successful military raid along the northern border of Mexico decided, contrary to orders, to enter New Mexico and the buffalo plains beyond in search of Quivira. Reliable particulars are not available regarding this venture, but it seems clear that practically the entire force was massacred by Indians at some point south of Quivira, i. e., roughly speaking, somewhere in east central Kansas.² All but the last two of these expeditions visited the Galisteo region and several official reports as well as diaries and personal narratives³ have come down to us, giving more or less definite information as to the state of affairs in that quarter during the greater part of the sixteenth century. By far the most important of these documents is Castañeda's account of the Coronado expedition which remained in the Southwest for nearly two years and various members of which crossed and recrossed the Galisteo basin many times.⁴ It is proper to state that this history was composed more than twenty years after the return of the expedition. But the author had accompanied Coronado and his wealth of definite details compels us to take him at his word that he possessed copious notes. Perhaps he had access also

¹ There is on record a hint of still another rather formidable expedition having been sent from Mexico to Cibola, as the earliest known region in the north was called. The reference occurs in what appears to be an unofficial letter written by one Bartholomew Cano of Mexico to one Francis Hernandez of Seville, and is dated May 30, 1590. The author of the epistle shows himself poorly informed about New Mexico, however, and as no historian has mentioned any such expedition it presumably never took place, even though projected. Hakluyt, III.

² See Twitchell, R. E., "Leading Facts of New Mexican History," Vol. I, p. 298, et. seq., also Trans. Kansas State Hist. Soc., Vol. X, pp. 78, 92-93.

³ Winship, George Parker, "The Coronado Expedition," Fourteenth Ann. Rep., Bur. Amer. Eth., Washington, 1896; or "The Journey of Coronado" in "The Trail Maker" series of A. S. Barnes & Co., New York, 1904.

Testimonio dado en Mejico sobre el Descubrimiento. . . . Fr. Augustín Rodríguez, 1582-3. In Pacheco, Co. de Doc. Ined. XV, 80-150.

Espejo, Antonio de, Relacion del Viaje, etc. In Pacheco, Col. de Doc. Ined. XV; also Hakluyt's Voyages, III.

Castaño de Sosa, Memoria del Descubrimiento. . . . de Nuevo Reino de Leon, 1590. In Pacheco, Col. de Doc. Ined., IV, 283-354; idem. XV, 196-261.

⁴ It is assumed here that Coronado's route to Quivira by way of Zuñi, Acoma, Bernadillo, and Pecos, as determined by the labors of Bandelier, Winship, Hodge, Davis, Simpson and others, is correct. F. S. Dellenbaugh, in "Notes on the Location of the Tiguex" (N. Y., 1905), states as his opinion that Coronado crossed New Mexico on a line much farther south; but, after spending two seasons in the country between Santa Fe and Gran Quivira, I am unable to find a route across the uninviting country separating the Rio Grande and Pecos rivers so easy and natural as the one by way of Galisteo. Besides, it fits Castañeda's description in all essential particulars.

to the original official reports. His essential veracity is vouched for at any rate by no less than six brief parallel accounts written by other members of the expedition.¹ But while these seven narratives agree on all main points as to the order of events, the route, the character of the country and of the native inhabitants, it is to be admitted that they are not clear and consistent in many minor particulars, so that we have in the end to fall back mainly on Castañeda for the fullest and most definite statements of fact regarding the Galisteo and related pueblos.

Castañeda (Part II, chapt. 5) writes:—

I wish. . . to give an account of Cicuye (i. e., Pueblo Pecos) and some depopulated villages which the army saw on the direct road which it followed thither, and of others that were across the snowy mountains near Tiguex (i. e., Bernalillo).

He then describes Cicuye in detail, and continues:—

There is a village, small and strong, between Cicuye and the province of Quirex (the Keresan pueblos on the Rio Grande directly to the west), which the Spaniards named Ximena, and another village almost deserted, only one part of which is inhabited. This was a large village, and judging from its condition and newness it appeared to have been destroyed. They call this the village of the granaries or silos, because large underground cellars were found here stored with corn. There was another large village farther on, entirely destroyed and pulled down, in the yards of which there were many stone balls, as big as 12-quart bowls, which seemed to have been thrown by engines or catapults, which had destroyed the village. All that I was able to find out about them was that, sixteen years before, some people called Teyas had come to this country in great numbers and destroyed these villages. . . . The only thing they could tell about the direction these people came from was by pointing toward the north. . . .

There are seven other villages along this route, toward the snowy mountains, one of which has been half destroyed by the people already referred to. These were under the rule of Cicuye.²

¹ These parallel accounts have been translated and incorporated by Winship, *op. cit.*, and are entitled:

- (1) Translation of the *Traslado de las Nuevas*.—Anon.
- (2) This is the Latest Account of Cibola and of more than Four Hundred Leagues Beyond.—Anon.
- (3) Translation of the *Relacion del Suceso*.—Anon.
- (4) Translation of the Narrative of Capt. Juan Jaramillo.
- (5) Translation of the Report of Capt. Hernando de Alvarado.
- (6) Translation of the Letter from Coronado to Mendoza, Aug. 3, 1540. Also, Translation of a Letter from Coronado to the King, Oct. 20, 1541.

The first title covers Coronado's Journey only as far north as Cibola or Zuñi, while all the others have more or less to say about the route to the plains, though titles 2, 4, and 5 alone make specific mention of pueblos in what must be supposed to be the Galisteo country. It is to be regretted that some of these accounts, like Castañeda's, were not written until after the return of the expedition. Unfortunately too, there appears to be lost a certain letter of Coronado's mentioned in his letter to the king of October 20, 1541, cited above, and in which the newly discovered provinces on the Rio Grande are said to be described. It is greatly to be hoped that this letter may yet be found in the Spanish archives.

² Castañeda is not alone in failing to recognize the Tanos as a distinct group. Captain Alvarado, who was the first man to cross the country between Bernalillo and Pecos, in his

In other words, Castañeda says that in going from Pueblo Pecos westward or southwestward to the Rio Grande they passed first of all, in what we must suppose to be the Galisteo basin, three pueblos, the first (presumably) of which was small and strong; the second, a large village, was new but mostly destroyed and almost deserted; and the third was entirely destroyed. They called the first Ximena, the second Pueblo de los Silos, and the third was characterized merely by the presence of some round boulders lying in the yards.¹ Then, farther on towards the Sandia Mountains, there were near the army's route seven more villages, one of which at least was seen in passing because it is described as being half destroyed. These far from satisfactory statements seem to be corroborated by at least one of the anonymous narrators,² who says that during a four days' journey from Bernalillo to Pecos three villages were passed. We quote:—

The first [village] has 30 houses; the second is a large village destroyed in their wars and has about 35 houses occupied; the third about [Ms. illegible?]³ These three are like those of the river in every way. The fourth is a large village which is among some mountains. It is called Cicuic, and has about 50 houses⁴ with as many stories as those at Cibola.

On comparing our two quotations and bearing in mind that the two accounts are given in reverse order they will be found to agree, at least as

official report (Winship, op. cit., p. 243), mentions seven villages, partly depopulated and partly destroyed, and he evidently considers the regions which they occupied as belonging to the province of Tiguex. His opinion on this point lends substance for the suggestion that he may have passed south of the Sandia Mountains and may have seen or heard of seven Tigua villages on the borders of the Salines, but that is unlikely. The fact that Alvarado saw precisely seven places makes it at first seem plausible that they were Castañeda's seven villages in the snowy mountains, but that also is difficult to believe, as he could hardly have crossed the Galisteo country without seeing some of the settlements there. It is therefore not at all improbable that Alvarado's seven villages correspond to the seven large ruins now located in and about the Galisteo basin. The word Tanos does not even occur in the Coronado narratives, although we easily recognize the modern equivalents of such terms as Chia, Tiguex, and Quirex; and one is inclined to wonder whether the "Teyas," said to have come from the north, may not have been a misapplied term for the Tewas.

¹ Winship, op. cit., p. 104, note 2, says that the second pueblo, i. e., Pueblo de los Silos, was by the historian Mota Padilla called Coquite. Hodge, in his edition of Castañeda, p. 356, note 3, says the same; but on p. 358, note 10, of the same work, and likewise in the *Handbook of American Indians* (Bul 30, Bur. Amer. Ethn., part II, p. 686) he inclines to the opinion that Coquite was the third pueblo. Bandeller, on the other hand, at least in "The Gilded Man," p. 217, identifies the Coquite of Mota Padilla with Cicuye or Pueblo Pecos, and E. R. Twitchell, in "The Leading Facts of New Mexican History" (1912), Vol. I, p. 243, takes the same view. To judge from the lengthy quotation (note 257) furnished by Twitchell, the identification of Coquite with Pecos is correct.

² Winship, op. cit., p. 193; or, 14th Rep. Bur. Amer. Ethn., pp. 567, 570.

³ Cf. Bandeller's translation and source, *Papers Arch. Inst. Amer., Am. Series IV*, p. 120.

⁴ What this precise author may mean by *houses* is not clear. If he means separate buildings, then the pueblos could not have been collections of large community structures such as characterize the Tano ruins of today; and if he means households or separate family compartments he is contradicted in regard to the population of Pecos by Castañeda (Part II, chapt. 5), who says that Cicuye or Pecos could muster nearly five hundred warriors.

far as they go. The second author merely leaves out of his narrative any reference to the fourth pueblo which Castañeda says was entirely destroyed.¹

IDENTITY OF CORONADO'S GALISTEO PUEBLOS.

Now to establish the identity of these three or four pueblos among the many ruins today scattered over the old Tano territory is next to impossible. In evidence of the difficulty it may be pointed out that Bandelier in the course of his Southwest investigations, and for no obvious or stated reasons, completely reversed his interpretation of the Coronado chroniclers with reference to the subject. Thus, in his earlier writings² he accepts Castañeda's epithet "snowy mountains," quoted above, as applicable to the group of peaks and ranges dominated by the Sandia chain, close to Bernalillo; he evidently also believes that Castañeda (see the same quotation) enumerates and describes the pueblos in the order in which they occur from Pecos towards the Rio Grande, i. e., from east to west, and quite naturally therefore identifies Ximena of the Spaniards with San Cristobal of today. But in his Final Report³ he identifies the same "snowy mountains" with the southern extremity of the Sangre de Cristo range, immediately east of Santa Fe; he reverses Castañeda's order of description and somehow identifies Ximena with Pueblo Galisteo and ends up by declaring himself unable to account for the "seven villages towards the snowy mountains." The identification of Ximena with Galisteo may be correct, and it is so accepted by Hodge, Winship, and other writers,⁴ but the fact can hardly be considered as established on the basis of Bandelier's second interpretation of the Coronado records. The precise identity of Ximena is perhaps no vital matter, but the subject as a whole is important, as will appear later, and we therefore ask indulgence for re-examining the original data.

Castañeda informs us (Part II, chapt. 4) that the headquarters of the Coronado expedition was in the province of Tiguex on the banks of a large swift river which flowed through a spacious valley two leagues wide. There

¹ The other chroniclers are less definite about the number and nature of the pueblos along the Bernalillo-Pecos section of the route. As pointed out already, Alvarado saw seven villages partly depopulated and partly in ruins. He might probably have seen two or three times that number had he looked. Jaramillo recalls only two villages along the route, but his memory fails him on a good many points, though he might easily have passed across the Tano country without seeing any more.

² See "Historical Introduction to Studies among the Sedentary Indians of the Southwest," *Papers of the Arch. Inst. of Amer., Am. Series I* (1883), p. 23; also "The Gilded Man" (1893), p. 221.

³ *Papers of the Arch. Inst. of Amer., Am. Series IV* (1892), pp. 120-122.

⁴ Hodge, *op. cit.*, p. 356, note 2; Winship, *op. cit.*, p. 104, note 1.

were twelve native villages in this province, some on one side of the river and some on the other, and the Spaniards occupied one of them (Part I, chapt. 12). This particular village we are led to infer (Part I, chapt. 18) stood on the right or west bank of the river. On the east side of the river was a "very high, rough, snow-covered mountain chain" (Part II, chapt. 4). This mountain chain was *near* to Tiguex (Part II, chapt. 5), and across, i. e., on the farther or east side of it, there were some villages. And finally we are told in three different places (Part II, chaps. 4, 5, and 6) that there were seven of these villages — "four on the plain and three situated on the skirts of the mountain."

For explicitness our historian leaves nothing to be desired thus far. All recent investigators agree that the "large river" could have been none other than the Rio Grande; and nearly all, as previously indicated, are satisfied that the description of Tiguex fits no place so well as the vicinity of the present town of Bernalillo. That Bernalillo *is* the place seems, moreover, established to a certainty by the statement of one of the anonymous chroniclers, who says ¹ that the river camp was in the 36th degree of latitude, a reckoning which errs by little more than thirty minutes. This location agrees also very well with the distance and direction of Cicuye or Pecos. Jaramillo expressly tells us that Cicuye was to the northeast of Tiguex;² and the distance between the two points we are informed repeatedly by different narrators was from twenty to twenty-five leagues, or a journey lasting from four to five days.³ The situation of Pecos is also fixed by one of the anonymous writers ⁴ as being fifteen leagues east of the Rio Grande. These roughly paced distances accord so closely with the actual facts as to surprise us and we may therefore consider Bernalillo and Pecos as two points in the Coronado route fixed beyond dispute. There remains only to decide on the road most probably taken by the Spaniards in going from one place to the

¹ Winship, op. cit., p. 210.

² Winship, op. cit., p. 229.

³ This, it is true, makes the average daily journey of five leagues or 13.15 miles, seem rather short; but if it be remembered that the Spaniards traveled with pack animals, that the very few watering places were not perhaps most conveniently located, and that they may have stopped to parley at the three or more Indian pueblos along the route, the rate is not at all slow. As a matter of fact Castañeda in Chapter 1 gives us indirectly the highest official opinion to the effect that five leagues per day was all that could be expected for any lengthy journey in New Spain. Castañeda alone sticks to the idea that it was a five day's journey from Tiguex to Cicuye (Part I, chaps. 12 and 19). But as he seems always to have traveled with the main army, which drove and guarded a good many sheep and cattle and thus had possibly to travel more slowly than the ordinary pack train, there is nothing suspicious about his statement. It is also conceivable that the cattle were taken by a less rough but more circuitous route along the Rio Grande to the mouth of Galisteo Creek and thence up that stream bed towards Pecos, but that assumption is weakened by Castañeda's statement in our quotation that the army went to Cicuye by the *direct* road.

⁴ Winship, op. cit., p. 205.

other. But before doing this let us revert to the original point at issue, the question of the identity of the "snowy mountains" and the seven villages in them.

There is some reason why Castañeda might have distinguished the high dome-like peaks east of Santa Fe as snowy mountains. In 1912 they were covered with snow early in October, but there were also big patches of white on the Sandia range.¹ Our author has not left his choice in doubt, however. He explicitly says, as has been pointed out, that his snowy mountains were east of and *near* Tiguex. His description of them as "a very high, rough mountain chain" admirably characterizes the Sandias as seen from Bernalillo, but it is not a fitting picture of the Santa Fe Mountains from any point of view. In and about these snowy mountains, he repeats, were seven villages. When therefore, in our second quotation from him, he proceeds to describe the pueblos between Cicuye and Quirex, we are compelled to accept his suggestion that he intends to enumerate and describe the pueblos in the order in which they occur from Cicuye towards the Rio Grande. This understood, the pueblo called Ximena must come first at the east end of the series and the snowy mountains with their seven villages must come last at the west end of the series. That Castañeda was certain about this arrangement is shown in Part II, Chapt. 6, where, in giving a list of the Pueblo provinces ranging from west to east, he places the seven villages in the snowy mountains *before* Ximena. Bandelier's difficulty in accounting for the "seven villages" is thus easily disposed of as he himself reports no less than eight ruined pueblos in the rough country between the Sandia and Ortiz Mountains,² and our own investigations add one if not two more sites to the list.

The question of the route taken by Coronado in going from Bernalillo to Pecos has also been considered and in a general way settled by Bandelier. His first opinion³ was that the expedition passed south of the Sandia range and of the Galisteo basin, directly west to the Rio Pecos and up that river to Pueblo Pecos; but later he concluded⁴ that the line of march lay north of the Sandia and across the Galisteo basin, a supposition which has every reasonable argument in its favor. To have gone south of the Galisteo depression would have made the journey excessively long, besides necessitating

¹ The highest point in the Sandia chain reaches an altitude of slightly over 10,400 feet. Baldy, the highest peak northeast of Santa Fe, is 12,623 feet high, with Lake and Thompson peaks on the south attaining somewhat lesser elevations. The flood plain of the Rio Grande valley itself in this latitude is 5000 feet above sea level.

² Papers of the Arch. Inst. of Amer., Am. Series IV, pp. 108-115.

³ Historical Introduction, etc., Papers of the Arch. Inst. of Amer., Am. Series I, p. 18, note 1.

⁴ Papers Arch. Inst. of Amer., Am. Series IV, p. 121. See also a somewhat confused account of this section of Coronado's route in "The Gilded Man," p. 220, et seq.

a march of forty to fifty miles across a waterless plateau. The army, on the other hand, might reasonably, on account of the accompanying cattle and sheep, have passed up the Rio Grande to the mouth of Galisteo Creek and then have followed that stream bed eastward; but that too would have been a circuitous and by no means easy road.¹ Minor detachments of the expedition had previously crossed the Tano country on several different occasions and we may reasonably suppose that various routes had been tried out and that the army followed the best and most direct one, precisely as Castañeda says. Familiarity with the topography aids materially at this point. Nevertheless, to lay down the exact line of march so as to determine beyond all doubt which of the seven or eight Galisteo pueblo ruins were found inhabited in 1641 is quite impossible, inasmuch as the expedition might have passed three settlements on either one of the two very possible routes across the Galisteo basin.

Coronado most probably moved up the Rio Grande to the vicinity of Algodones, then turned northeastward somewhere along the present trans-continental automobile road to the Arroyo del Tunque and followed that stream bed up to Pueblo Tunque, where there is a good permanent spring.² Pueblo Tunque is very likely the one of the "seven villages" seen by Castañeda and said by him to be half destroyed and by another writer to have "thirty houses." From Tunque it was possible to strike northeast for the nearest point on Galisteo Creek, or else directly east past the north base of the Ortiz Mountains, straight for Galisteo Creek at Ortiz station; but a road less rough and one affording good grazing, though a little longer, led up the Arroyo del Tunque three or four miles and then directly eastward across a low divide between the Ortiz and San Pedro Mountains on to the extreme southwestern corner of the Galisteo basin, where lie the ruins of Pueblo Blanco.³ From here the army could have crossed the basin in a northeasterly direction to Pueblo Shé on the other side, continued along the base of the eastern hills either directly to Lamy and Apache canyon or around to the east, past Pueblo San Cristobal and then up the San Cristobal canyon and across the wooded mesa to Pecos. On this latter supposition Pueblo

¹ On the Galisteo Creek route the Spaniards could not have passed four pueblos as Castañeda says they did. They might perhaps have passed a village now known as Gipuy, the old home of the Queres of Santo Domingo, located on the banks of Galisteo Creek one and one-half miles east of Domingo station; also Pueblo Galisteo and Pueblo San Cristobal, but not Pueblo San Lazaro, without making a detour. It is, however, barely possibly that they might have seen the old Tano pueblo called Tze-nat-ay, at La Bajada, to the north of Gipuy and on Santa Fe Creek. This would make the four sites required, but after all they would not be distributed in accordance with the stated notion of Castañeda.

² Bandelier, Final Report, Part II, p. 121, suggests that Coronado reached Tunque by way of Placitas, but that is a rough and unnatural route.

³ This pueblo is called Largo by Bandelier. The reason for changing the name will be considered later.

San Cristobal might be regarded as Castañeda's Ximena, Pueblo Shé would be the village referred to by him as new and large but partly destroyed, and Pueblo Blanco would be the village said to have been entirely destroyed. There are two superficial circumstances, however, which suggest another transit of the Galisteo basin. In the first place the prehistoric part of Pueblo San Cristobal is very large¹ and the natural position cannot be said to be strong, so that it is probably not the Ximena specifically characterized by Castañeda as "small and strong." The second point is more interesting because of a positive nature. It will be remembered that Castañeda in referring to the westernmost of the three Galisteo pueblos (see quotation), i. e., the one totally destroyed, remarked about some curious stone balls lying about in the yards and supposed by him to have been in some way employed by attacking enemies in destroying the village. While at work in the Southwest and before becoming fully conversant with Castañeda some such stone balls were noticed at Pueblo San Lazaro, not in the yards of the ancient pueblo to be sure, but along the base of the sandstone escarpments in the vicinity. No particular attention was paid to them at the time, but later, on reading Castañeda, these peculiar spherical concretions at once came to mind, as they were observed nowhere else. The coincidence is not in itself sufficient to establish the identity of Castañeda's third pueblo, seen on the road from Pecos towards the Rio Grande; nevertheless, it appears to be about the only positive hint or clue that we have pointing to Coronado's line of march.

Pueblo San Lazaro is so located that Coronado would hardly have passed it by taking any one of the two or three rather difficult routes leading north of the Ortiz Mountains. To see the pueblo he would have had to make a special detour to the south from Galisteo Creek. But if the expedition came, as seems most likely, by way of the pass between the Ortiz and

¹ In this connection it may be well to point out that the author of the *Relacion del Suceso* (Winship, op. cit., p. 205) in speaking of a village larger than all the rest, which he calls Cicuique (supposed to be the Cicuye of Castañeda, i. e., Pueblo Pecos), says that its buildings have four or five stories and the village has *eight large courtyards*. Also, Jaramillo (Winship, op. cit., pp. 228-29) when referring to the villages situated on the Rio Grande tributaries mentions, among others, this same Cicuique, which he says has two-story houses. It is true Jaramillo may have learned from the Indians, as did Castañeda, that the Pecos River flowed into the Rio Grande, but he seems to distinguish between the stream on which Cicuique is located and the river Cicuique, three days' march from the pueblo. It will be noted that the two writers are not agreed as to the height of the buildings of Pueblo Cicuique, partly, no doubt, owing to the fact that Jaramillo wrote after his return to Mexico and had only his memory to rely upon. Still he ought to have remembered the trend of the stream passing one of the three to him most notable pueblos, and one wonders whether these two writers did not perhaps by mistake apply the name for Pueblo Pecos to Pueblo San Cristobal, a village the ruins of which show today even more than eight large courts whereas Pueblo Pecos itself does not seem to have had that many. The evident confusion here may possibly be cleared up some day when the pueblo of Pecos is evacuated.

San Pedro Mountains, it could, after crossing that divide, instead of continuing east to Pueblo Blanco as first suggested, have turned to the northeast and have come down on Galisteo Creek at Ortiz station by way of the Arroyo del Chorro. In making this turn the army would have passed Pueblo San Lazaro about two miles south of Galisteo Creek. A short distance above this point the creek in question splits up into several branches which may or may not show running water at all times of the year. The San Cristobal branch has a nearly permanent flow but it continues directly east and is not the easiest route for Pecos. The Galisteo branch turns to the northeast and passes the ruins of Pueblo Galisteo about two miles above its confluence. From here the stream channel can be followed past what is now Lamy Junction up into Apache canyon to the Glorieta divide, from which another passable canyon may be followed directly southeast to Pueblo Pecos, the route being practically that followed by the Santa Fe railroad all the way from Ortiz to Decatur.

If now we identify Castañeda's totally destroyed village as Pueblo San Lazaro of today, and his half destroyed village, called by him Pueblo de los Silos, as Pueblo Galisteo, we are still at a loss for his village named Ximena. Ximena is described as small and strong, a characterization fitting neither Pueblo San Cristobal nor Pueblo Galisteo, if situations and present indications of the size of the ancient ruins are to be taken into account. But if Ximena is to be identified with either San Cristobal or Galisteo it must be with the latter, because one of the smaller buildings of Pueblo Galisteo is located on a high and easily defended rocky spur. There are, however, certain traces of minor settlements on the banks of Galisteo Creek between Pueblo Galisteo and Lamy. Those sites nearest Lamy, i. e., within a mile or so southeast of the station, appear to be very ancient and were probably so in 1540; but farther down the stream, about two miles above Pueblo Galisteo itself, there is a place (recently abandoned by Mexican settlers) called Colorado, which shows some signs of having been a former Indian habitation. It was a small village and it may also be said to have occupied a strong position in the sense that it lay out in a broad barren plain. To furnish proof that this site is Ximena is not possible; it may have been merely a collection of summer houses belonging to the people of Pueblo Galisteo. Still the place comes nearer to fitting Castañeda's description than either San Cristobal or Galisteo, which pueblos Bandelier chose at different times as the possible Ximena.

In short, after all has been said that can be said, we are not able with certainty to identify the three Galisteo pueblos which Castañeda partially describes for us. At best we may say that Pueblo Tunque, Pueblo San Lazaro, and Pueblo Galisteo are so distributed and bear certain faint marks

such as to suggest their identification. Ximena may conceivably be Pueblo San Cristobal, but all the circumstances point to some other small site, perhaps near Lamy, on the more direct and natural route to Pecos. On the whole, the most satisfactory result to be obtained from a study of the Coronado records is the more or less indirectly conveyed impression that the large Galisteo pueblos, with two or three exceptions, were already abandoned and in ruins before the middle of the sixteenth century, and that the bulk of the Tano population was, perhaps only temporarily, concentrated in the mountainous country on the extreme southwestern border of their old territory. Bandelier comes to about the same conclusion in his *Final Report*,¹ and he strengthens his case by citing a Keresan folk-tale to the effect that before the arrival of the Spaniards there swept in from the plains some enemies called Kirauash who ravaged the Pueblo country as far west as the Rio Grande. Castañeda, it will be remembered, says that the Teyas destroyed the Galisteo pueblos sixteen years before, i. e., about 1525. The opinion is ventured by Bandelier that Castañeda erred about the identity of these destroying enemies, that they were not the Teyas but the Querechos, probably identical with the legendary Kirauash and in reality Apache. However that may be, there is little room for doubt that Castañeda knew of all the inhabited Galisteo pueblos, excepting perhaps San Marcos, which was somewhat off the route and well hidden. The country in question was crossed by various parties of the Coronado force at least nine different times and probably by different routes, so that it is not unlikely that nearly all of the present known Galisteo ruins were seen, or at least heard of, by some members of the expedition. Alvarado's report² that he saw seven depopulated and destroyed villages in these parts strongly points to the fact that he at least had circled the entire Galisteo basin. We may therefore close this part of the investigation by repeating that the Galisteo pueblos, with two and possibly three exceptions, appear to have been already abandoned prior to 1540, and that as nearly as we can judge the former inhabitants had retreated to the rough country lying between the Ortiz and Sandia Mountains.

GALISTEO PUEBLOS MENTIONED BY LATER EXPLORERS.

If now the records of the succeeding explorers were in the same readily accessible shape as those relating to the Coronado expedition, they would call for an equally critical examination in order to determine what took

¹ *Papers Arch. Inst. of Amer., Am. Series IV*, pp. 115-123.

² *Winship, op. cit.*, p. 243.

place in the Galisteo country before the introduction of the Spanish régime in 1598. As it is, such treatment must be left to some future date and we shall have to content ourselves with a brief summary of current facts and opinions on the subject.

The second expedition to enter New Mexico, in charge of Captain Chamuscado and Friar Rodriguez, appears to have found Coronado's Tiguex. From near that place the party crossed the Rio Grande and followed one of its branches eastward to the buffalo plain, finding three villages along the way, whose inhabitants told them of eleven more settlements.¹ There seems to be nothing in the way of our believing that the three observed villages were Castañeda's two Galisteo pueblos together with Pueblo Pecos, but we receive no hint as to where the other eleven villages may be, unless it is from the next succeeding explorer.

The third expedition, under Espejo's command, accomplished a great deal, but the second-hand fragment of the record most familiar to us unfortunately does not inspire confidence.² However, it seems that Espejo also found Coronado's old headquarters at Tiguex and that he identified the place as such.³ From here he journeyed east and within two days found himself in a province of eleven towns belonging to a people whom he calls Maguas or Magrinas. The region bordered on the buffalo country, was fertile, and gave evidence of being rich in mines. As little more than a year had elapsed since Chamuscado was in the country, it is only natural to suppose that Espejo's eleven towns were the same eleven towns heard of by his predecessor, and the circumstances about the mines and the distance of two days' journey or less from Tiguex suggest that probably these are Castañeda's seven villages and some additional settlements to the south, along the east base of the Manzano Mountains. At any rate, they could hardly have been Galisteo villages, because later on Espejo traveled twelve leagues east from a point farther up the Rio Grande and came to the province of the Hubates, from which place he reached the country of the Tamos, or Tanos, in one day. Rich mines were discovered in the Hubates country, which is described as having many mountains covered with pines and cedars, and must unquestionably be identified with the region of Santa Fe. In the Tamos country Espejo found three pueblos, of which Pecos was one, the other two being presumably the two Galisteo pueblos known to Castañeda and probably also to Chamuscado. There is room for difference of opinion, however, in regard to much of the foregoing, as will be made evident by

¹ Twitchell, *op. cit.*, I, 257 et seq.

² Hakluyt *Voyages*, Vol. III.

³ See Hodge, *Handbook of American Indians*, p. 313, under Puaray; also Twitchell, *op. cit.*, I, 275.

consulting the writings of Bandelier, Hodge, and others. For example, in reference to the Tano province alone, Espejo estimated the population at 40,000, and even if we allow for his evident exaggeration we are not forced to suppose that he intended to convey the idea that all the Tano people were housed in just three villages.

However that may have been, when the fourth expedition, or rather colonizing party, led by Castaño de Sosa, arrived in the Galisteo country eight years later there is some evidence of a change. Castaño came up the Pecos River to Pueblo Pecos, near which he established a temporary camp. From that place he went forward with a special expedition across the mountains and proceeded north apparently as far as Pueblo Taos, came down the Rio Grande (which he named) as far as the Queres province, and then returned to Pecos by way of the Galisteo country, where he passed and named the pueblos of San Marcos, San Lucas (later Pueblo Galisteo), and San Cristobal. Shortly after he moved his headquarters to San Marcos and a little later on to Santo Domingo. While at San Marcos some of the party one day visited another pueblo, two leagues distant, which conceivably may have been San Lazaro, but was more likely the pueblo of Tzi-gu-ma, at Cienaga to the north of the Cerrillos peaks. A few weeks later, while on a prospecting trip in what was probably the Ortiz and Sandia Mountain country, Castaño found two more pueblos, both of which had been abandoned, but the seven, and later on, eleven villages known to earlier explorers in that region are not mentioned.

In view of the facts that Castaño's expedition was recalled and that Oñate did not arrive until seven years later, it becomes interesting to know how the place names given by the former explorer came to stick, and whether after all, the pueblos San Marcos and San Cristobal of today are the identical sites so named in 1591. Prince¹ thinks they are not, whereas Bandelier² takes the opposite view. There is nothing impossible about it, however. Oñate may have had a copy of Castaño's diary with him, or he may have had a number of Castaño's followers along who could re-locate the valuable mining prospects and identify every landmark.³ Still how comes it that the names San Marcos and San Cristobal should have been retained while the name San Lucas, supposed to have been applied to Pueblo Galisteo of a later day, was changed?

Accepting Bandelier's opinion as entirely probable, we seem at first sight to be confronted with a new situation regarding the number and distribu-

¹ Prince, L. Bradford, "A Concise History of New Mexico" (1912), p. 89.

² *Papers Arch. Inst. of Amer.*, Am. Series IV, p. 93; p. 101, note 1; p. 104.

³ Twitchell, *op. cit.*, I, p. 313, says that Oñate found near Bernalillo two Mexican Indians who had been left in the country by Castaño and who served Oñate as interpreter.

tion of the Tanos. On the one hand Castaño did not see or hear of the "eleven towns" noted by two of his predecessors in the Ortiz and Sandia Mountain region, and on the other hand he found some new pueblos inhabited in the Galisteo country. But, as to the first point, we are not forced to conclude that Castaño examined the entire mountain region in the Tano territory. The fact that he mentions two and only two abandoned pueblos seems to indicate that his survey was limited or he would surely have found several more sites, either abandoned or inhabited. With reference to the Galisteo country the noted change may likewise be more apparent than real. There is no evident proof that any of the previous explorers from Coronado on down found more than two inhabited villages in the Galisteo basin proper, possibly the very two which Castañeda named Ximena and Pueblo de los Silos. Ximena originally was small but may have grown during the half century interval, and the other village, nearly ruined in 1541, may have been rehabilitated, if not enlarged. That something of the sort took place seems a warrantable inference from Espejo's statement about the great population of the Tanos-Pecos province.

When Castaño comes on the scene he names the two Galisteo settlements San Cristobal and San Lucas and adds a third village, namely, San Marcos. As has been stated before, it is not impossible that Pueblo San Marcos had existed for some time prior to Castaño's arrival, if not already established in Coronado's time. The place is situated, as it were, in the middle of a triangle, the three sides of which it was natural for the Spaniards to travel ordinarily while there was little occasion for them to cross over the center where San Marcos lay hidden.¹ Castaño, unlike his predecessors, came with a wagon train and was obliged to seek out a suitable road by which to cross from Pecos to the Rio Grande, and he could have found none better than the one over the rolling plain, say from Pueblo Galisteo around the north end of the Cerrillos uplift, on which route he would have come close to San Marcos. The antiquity of San Marcos is, however, only a suggested possibility; superficial examination of the present ruin reveals no hint of long occupancy, such as is plainly evident at Pueblo San Cristobal for instance. The additional village, not named by Castaño but said to be situated two leagues from San Marcos, we may fairly assume to have been at Cienega because San Lazaro is considerably farther away. We need not, therefore, of necessity suppose that any of the old ruined pueblos in the Galisteo basin proper had been resettled during the fifty years since Coronado's day, though at the same time we must doubtless allow that the two

¹ It is conceivable, of course, that San Marcos was one of the five Hubates villages mentioned by Espejo in 1583.

pueblos seemingly present there since 1541 had grown to some dimensions. And inasmuch as Castaño calls these two villages San Lucas (i. e., Galisteo) and San Cristobal, we may also have to admit that Ximena and San Cristobal are, after all, one and the same, in spite of the fact that no really positive proof exists to that effect.

To sum up the situation: on the basis of the meager evidence at hand it seems most plausible to suppose (1) that San Marcos and perhaps the village of Cienega, as well, were pueblos founded after Coronado's visit but some time before Castaño's arrival; (2) that the two Galisteo pueblos, San Lucas and San Cristobal, had been rehabilitated since 1541; and (3) that the suggested increase of the Tano population in the Galisteo country corresponds to the similarly suggested decrease of inhabitants in the region of the much talked of seven or eleven pueblos between the Ortiz and Sandia Mountains. In other words, the majority of the Tanos who in the second quarter of the sixteenth century sought protection in the mountainous portion of their territory, had once more returned to the open plain country where lay scattered the large ruined villages of their forefathers.

Fortunately, what follows of the history of the Tano pueblos, though meager, is a little clearer and less subject to conjecture, so that we can pass over it rapidly. Meanwhile, it may be well to state that a careful study of the various accounts of these early explorers by someone thoroughly familiar with the topography in question and also with the situation of the ruins would be productive of valuable results.

THE TANOS UNDER SPANISH RULE.

The time had finally arrived when Spain could no longer delay the actual colonization of New Mexico, and the man to win the coveted right to the honors and emoluments of this great enterprise was Don Juan de Oñate. After elaborate preparations, this energetic leader entered the country at El Paso in May, 1598, and before the end of the year he had by tactful and peaceable means obtained the submission of all the principal pueblos, excepting Acoma where force was made necessary. He next divided the entire country into seven mission districts,¹ the Galisteo pueblos being grouped either with Pecos or, as Bancroft seems to think, with the Queres on the Rio Grande.² In connection with this apportionment various

¹ See Twitchell, op. cit., I, 313-14, and note 317, which is a quotation from Palacio, tomo II, Mexico, Traves de los Siglos, p. 456.

² See Twitchell, op. cit., I, p. 321 et seq., note 327, quoting condensed lists of the Pueblo tribes and settlements from Bancroft's (H. H.) "History of Arizona and New Mexico." Bancroft collected these names from the records of Oñate's conquest, chief of which is the *Obediencia y Vassalaje* in the Pacheco Docs. XVI, and also from the *Historia de Nuevo Mexico*, Alcala, 1610, by Gaspar de Villagra.

lists of recognizable tribal names appear, such as Jemez, Queres, Tewa, and Tigua, but strangely enough the designation "Tano" is not among them. Likewise, though we find such village names as Pecos, Taos, Picuris, Sia, Abo, and even the names of three or four towns ultimately identified by Bandelier as Tano pueblos and located in the Ortiz-Sandia Mountain country,¹ the Galisteo pueblos are not mentioned, that is not by their later known Indian names. San Marcos may be an exception to this statement, inasmuch as Bandelier has identified the designation "Yates," given in the conquest documents, with the present Queres name Ya-tze for that settlement.² The name San Marcos also occurs, however, and somewhere near it is mentioned Cienega de Carabajal, undoubtedly the unnamed pueblo referred to by Castaño de Sosa as being two leagues distant. San Cristobal is given but not San Lucas, the name Santa Ana being apparently substituted here for a short time.³

The legitimate inference seems to be that whether the Tanos were actually confined to Cienega, San Marcos, Galisteo, and San Cristobal, or in addition held three or four minor settlements over towards the Sandias, they were not in any sense a prominent people. Their numerical strength in 1598 can only be guessed at. No census figures became available until along towards 1630, when Fr. Alonzo de Benavides reported to the king that there were in New Mexico over 60,000 native converts living in ninety villages, each of which had its own church.⁴ He groups the settlements somewhat according to the languages spoken and says that the Tanos occupied five pueblos and numbered 4,000 souls. But whether the invariably round numbers of Benavides are conscious exaggerations or not, there is some reason for believing that he may have erred with regard to the Tanos. The difficulty lies partly in the determination of their five pueblos. San Cristobal and Galisteo, it is conceded by all investigators, were two of them. San Lazaro may have been a third, though no one has cited positive proof that this place was resettled prior to 1630, or even a much later date. The pueblo of Paako, over beyond the Ortiz Mountains, may have been a fourth settlement; as Bandelier finds it to have been inhabited as late as 1626, and

¹ These pueblos are Ojana, Quipana, Puerto (or Tuerto) and Paako. Bandelier is uncertain as to whether or not these settlements were inhabited in 1598. (See *Papers Arch. Inst. of Amer.*, Am. Series IV, p. 108, et seq.) Oñate learned the names from the Tewa at San Juan and he may not actually have seen the places.

² *Papers Arch. Inst. of Amer.*, Am. Series IV, p. 92.

³ *Papers Arch. Inst. of Amer.*, Am. Series IV, p. 101.

⁴ Benavides' Memorial was published in Madrid, 1630. See substance of this report in Twitchell, *op. cit.*, I, 342-43; Prince, *op. cit.*, p. 47; or Bul. 30, Bur. Amer. Ethn.

Twitchell, on pages 338-40, cites figures of another, perhaps an earlier report by Benavides, which gives 500,000 gentile converts, 86,000 baptized, 150 pueblos, and adds the statement that the population was rapidly increasing.

in his opinion by the Tanos, though the evidence is contradictory.¹ As nothing is known of Paako, however, after 1626, it is conceivable that the settlers, if actually Tano, were moved about that time, perhaps to San Lazaro, for protective and missionary purposes. Bandelier also suggests that Pueblo Blanco, or Largo as he calls it, may have been one of the five sites wanted, but that, we may say by way of anticipation, cannot have been the case. There remains, therefore, at least one and probably two villages to be accounted for and these are supplied by San Marcos and Cienega. Bandelier, after examining the conflicting historical and traditional testimony showing that these two pueblos were inhabited probably by both the Tanos and the Queres, finally yields to the idea that they were Tano.² Under these circumstances Benavides may unintentionally have included a large number of Queres in his 4,000 Tanos. Bandelier himself thought that number excessive.³ Consequently, if we bear in mind that the Tanos had lived for at least a generation under conditions of comparative peace and plenty and had no doubt increased rapidly, we cannot fail to discern their numerical weakness in 1598. If this is not the correct view of the situation, one is at loss to understand what had become of the Tanos in 1680 when the most liberal estimate of the population could hardly have exceeded 3,000 individuals.⁴

But whatever the distribution of the Tanos may have been in 1598 and 1630, there is no doubt that in 1680, on the outbreak of the successful Pueblo Rebellion, they were concentrated in the Galisteo country with their chief mission located at Pueblo Galisteo, that being the most central village of the group. Their relative weakness at this time is also indicated by immediately subsequent events. As is well known, the Tanos from Pueblo Galisteo and probably also those from San Marcos and Cienega (if indeed there were any) entrenched themselves in Santa Fe shortly after the retreat of the Spaniards, thus leaving San Cristobal and San Lazaro as exposed outposts. These two settlements were over ten miles apart and their positions became insecure when, soon after, internal dissension arose among

¹ Papers Arch. Inst. of Amer., Am. Series IV, pp. 113-14.

² Papers Arch. Inst. of Amer., Am. Series IV, pp. 92-93.

³ Papers Arch. Inst. of Amer., Amer. Series IV, p. 107, note 1.

⁴ This estimate is based on knowledge of the size of some of the historic Tano ruins, together with Vetancurt's statement (see Bandelier, Final Report, II, 92, note 4) that San Marcos had 600 inhabitants and San Cristobal 800 (Final Report II, 103; also Twitchell, I, 352). Bandelier, on the same page, makes the statement that Pueblo Galisteo at about this time (1680) may have had over 1000 inhabitants and Twitchell (op. cit. I, 359, note 368) repeats it. Hodge, however, (Handbook of Amer. Indians, II, 325) suggests that the number 800 cited above for San Cristobal may have included the inhabitants of both Galisteo and San Cristobal. If this is correct, and if perhaps San Marcos and Cienega were settled mostly by the Queres, then the Tanos may well have numbered less than 2000 souls, which makes the apparent error of Benavides all the more pronounced.

the Pueblos and when the Queres and Pecos Indians became actively hostile towards both the Tewa and their close kin, the Tanos.¹ The Apache, who only a few years before had destroyed all the Piro and Tigua villages bordering the Salines on the south, also made their appearance at this time and it seems practically certain that these ancient and terrible foes, together with the Pecos and perhaps the Queres, at last forced the abandonment of both San Cristobal and San Lazaro. The inhabitants at any rate moved north of Santa Fe into the Tewa country, where they founded separate homes about three leagues from the pueblo of San Juan, or, as later determined, near the present village of Santa Cruz.² Here Diego de Vargas found them in 1692 and received their peaceful submission.³ But early in 1694, after De Vargas had seemingly annihilated their Galisteo brethren for refusing to evacuate Santa Fe,⁴ they once more broke forth and followed the Tewa in retreat to the Black Mesa of San Ildefonso. From this stronghold the confederates made raids occasionally as far as Santa Fe. Here also they withstood assaults and siege but were finally, after nine months, compelled to sue for peace and to reoccupy their villages. The following year the San Cristobal and San Lazaro Indians again left their homes and sought the hills, but finding themselves unsupported by their Tewa neighbors they soon returned. At last, in 1696, whether owing to a threatening famine or to fear of the Spaniards' revenge upon them for taking part in the general uprising of that year,⁵ the majority of the Tanos, together with some Tewa, appear to have fled west, mostly to the Hopi country, where their descendants still live.⁶

¹ See quotations from Escalante and from the *Relacion Anonima* in Twitchell, op. cit., I, 359; or Bandelier, *Final Report*, II, 103, note 2. Prince, op. cit., p. 51, says that the Queres and Tewas united and almost destroyed the Tanos and Tiguas, but that can hardly have been the case as he later tacitly admits on p. 116.

² Bandelier, *Papers Arch. Inst. Amer.*, Am. Series IV, 83, p. 103, note 2.

³ Bandelier (preceding cit., 83) says that these new settlements were known by the same names as the old homes left in the Galisteo basin, viz., as Yam-p-hamba (San Cristobal) and I-pe-re (San Lazaro). De Vargas evidently also transferred the old Spanish names, because the two new pueblos are referred to several times later on as San Lazaro and San Cristobal.

⁴ The chief occupants of Santa Fe during the twelve or thirteen years of the rebellion were, it will be remembered, the Tanos from Pueblo Galisteo. With them may have been a few Tanos from San Marcos and from Clenega; and there were evidently also some Tewa in the place, at least in 1693. (See quotation from the journal of De Vargas in Twitchell, op. cit., I, 389). The San Marcos people had agreed in 1692 to return to their pueblo, which was already in ruins; but whether they did so is not clear, nor is it at all certain that they were Tanos and not Queres and were actually entrenched with their Galisteo tribesmen in the old capital city. Twitchell (op. cit. I, 393) relates that De Vargas in retaking Santa Fe killed eighty warriors and sold four hundred surviving women and children into slavery. This catastrophe probably ended the group life of the Galisteo people, as it is not stated that the later settlers of the old pueblo were members or descendants of that group.

⁵ In this uprising the Tanos of San Cristobal killed their priest, Fray Jose de Arvizu, on the 4th of June. (Bandelier, *Final Report*, II, p. 83).

⁶ No documentary proof has been found cited by the historians who record this migration to the west, but the fact is hardly to be doubted because Bancroft (op. cit., p. 229) states

The tribal existence of the Tanos in the Rio Grande country was not yet at an end, however. The great rebellion, in which they were always active, had well-nigh proved their undoing, but a few households remained and these seem to have found asylum at the Tewa pueblo of Tesuque. At any rate, in 1706, Governor Cuerdo transferred a remnant of Tanos consisting of eighteen families (90 individuals) from Tesuque to Galisteo.¹ Whether these Indians were former residents of this or of some other Tano pueblo is not made evident, nor is it clear that the new settlement was made on the site of the old ruined pueblo and not at some other place in the neighborhood, as, for example, on the spot where the Mexican town of Galisteo now stands. Wherever the settlement was, it continued to exist for nearly a hundred years, the object of some solicitude on the part of several of the New Mexican governors because, like Pecos, it was subject to repeated attacks by the new Pueblo scourge, the Comanche. Epidemics of small-pox also ravaged the settlement towards its latter end, so that while the pueblo appears to have grown and prospered during all of the first half of the eighteenth century, it declined rapidly from about 1750 onward.² There are, however, only a half dozen pertinent historical and documentary references to the place for the entire period of its existence and these cease altogether in 1794, at which date the last remnant of the Tanos had moved to the pueblo of Santo Domingo, where their idiom is still spoken by a few individuals.³

that in 1706 the Tanos and others came to the assistance of the Tewa pueblo of Tusayan in forcing a retreat of the Spaniards and their Zuffi allies. The fact seems to be that there was a general exodus from the Rio Grande country during the years of the rebellion — or more strictly from 1680 to 1696 — not only of the Tanos and Tewa but of the Jemez and Tigua as well. Thus in 1696 the Jemez fled to the Navajo country where they remained for several years (Twitchell, *op. cit.*, I, 410), and in 1743 the Franciscan missionaries brought back to the Rio Grande 441 Tigua, who, prior to the revolt, had lived in the pueblos of Sandia, Alameda, and Pajarito (Twitchell, *op. cit.*, I, 439).

¹ Twitchell, *op. cit.*, I, 422; also Bandelier, *Final Report*, II, p. 102, note 2; Prince, *op. cit.*, 123. The name of the settlement was changed at this time to Santa Maria de Galisteo.

² Bandelier (*Final Report*, II, p. 102, note 2) indicates the course of rise and decline by citing the population at different dates as follows; 90 original settlers in 1706, 110 individuals about 1712, 50 families (Bancroft gives 350 individuals) in 1748, and 52 individuals in 1782.

³ Hodge (*Bul.* 30, *Bur. Am. Ethnol.*, II, 325) places the date of the abandonment of Pueblo Galisteo somewhere between 1760 and 1805. Bancroft (*op. cit.*, and quoted by Twitchell, *op. cit.*, I, 455) appears to give 1760–1798 as the limiting dates, owing largely to the fact that Galisteo became a visita of Pueblo Pecos and the populations of the two villages are merged from 1760 onward. But Prince (*op. cit.*, p. 33) states that Galisteo was dropped from the mission reports of the Indian population for the years 1796 and 1798, which practically corroborates Bandelier's view, followed in the text above. It may be remarked that the fate of the Tanos of Galisteo was the experience also of their near neighbors at Pueblo Pecos. This strong village, which in 1680 numbered 2000 souls, was likewise decimated by Comanche attacks and by disease until finally in 1838 its remaining seventeen individuals withdrew to their kinsfolk at Jemez.

SUMMARY AND CONCLUSIONS.

The Galisteo basin was the last permanent home of the Tanos, a Pueblo tribe closely related culturally and linguistically, and doubtless racially as well, to the Tewa who still live on both sides of the Rio Grande north of the Santa Fe latitude. The Tano country was not limited to the Galisteo basin, however. From prehistoric times it appears to have included considerably more than the entire Galisteo watershed and to have extended, roughly speaking, from Santa Fe on the north to beyond the southern limits of the Galisteo depression, a distance of fully thirty miles, and from the Rio Grande-Pecos divide westward almost, if not quite, to the Rio Grande, i. e., about forty miles from east to west. In other words, the Tanos controlled about 1200 square miles of territory made up partly of barren plains and partly of forested mesas and mountains, the latter of which contained valuable turquoise mines and have since been found to be fairly rich in gold, copper, and coal. Its agricultural facilities were not to be compared with those of the Rio Grande valley. Still there were offsetting advantages; timber and building stone were near at hand, sheltered spots were more easily secured, game was probably more plentiful, and water was by no means lacking; so that, taken all in all, for a primitive, sedentary people it was a country not to be despised.

Scattered over this territory, Bandelier enumerates twenty-eight ruins, besides evidences of small houses, grottoes, and minor vestiges.¹ Some of these sites this distinguished investigator examined in person, but many others he reported on hearsay and their existence remains in some instances to be substantiated. The present investigation does not as yet embrace an exhaustive search, but the majority of the places mentioned by Bandelier have been located and examined; and while it has not been possible thus far to find, e. g., the Dyapige and Uapige pueblos said to lie in the mountains southeast of Lamy, several other minor sites have been discovered so that Bandelier's total will probably in the end be increased rather than diminished.

Now it is not to be supposed that these twenty-eight or more Tano villages were occupied simultaneously. To do so is to assume a population out of all proportion to the known historical facts about the Tanos and about the Pueblos of the Southwest as a whole. The preceding account goes to show that since 1540 the Tanos probably never occupied more than nine or ten settlements at any given date and these settlements, in view of the

¹ Final Report, II, pp. 87-124.

known limits of the total population in 1630 and 1680, must have been relatively small, averaging no doubt considerably less than 300 individuals all told for each pueblo. By 1630 the Tanos had been concentrated into five villages and numbered — after thirty years of peace and plenty — at most 4000 souls. But this figure, as has been shown, must unquestionably be reduced, because in 1680 the population did not exceed 3000 and may have been less than 2000. In contrast to these figures it must be pointed out that the eight Galisteo pueblos alone could have housed certainly more than 10,000 people, or over 1000 inhabitants for each village. Furthermore some of the outlying Tano ruins are as large as those of the Galisteo basin itself and there is no reason to doubt that all the large pueblos were for a time at least permanent settlements and not merely summer villages for seasonal occupancy. We seem therefore to be forced into a dilemma where we are compelled to suppose either that the desperate Teyas, of whom Castañeda informs us, slaughtered or took captive the Tanos by wholesale or that the Tanos have lived in their late territory for several milleniums. Neither of these conclusions is plausible, but if great slaughter did take place it will doubtless become evident in the course of the archaeological investigation. The chief objection to the idea of a lengthy occupation of the region by the Tanos lies in the uniform nature of the glazed pottery scattered over the large sites, and the fact that there are evidences within the same territory of a preceding people who built small villages and single-room houses and who made unglazed pottery exclusively. In the face of these seemingly contradictory and irreconcilable historical and archaeological evidences, what appears to the writer the most reasonable solution is that the Tanos never numbered more than three or four thousand individuals, and that though a sedentary, agricultural people, they shifted from time to time as nature and circumstances compelled. Likewise it is regarded as probable that these large pueblos were not at any time occupied to their apparent capacity, but that while new buildings were being added at one extremity of the village, old structures were falling into ruins at the other. In other words, while the period of time elapsed since the Tanos arrived in the Galisteo region must be taken as relatively limited, it is nevertheless necessary to suppose that the numerous large ruined villages left by them were occupied successively, or that, in short, some of the sites are older than the rest.

A number of points and problems have now been forced to the surface and we may close this preliminary study by simply indicating what some of the objects of the archaeological investigation must be. In the first place, it will be important to determine the five or more historic Tano pueblos, to fix their capacity and to correlate their combined probable population with

the early historic census. Secondly, it will be imperative to locate all the prehistoric Tano ruins, to determine their size, the relative duration of their occupancy, their relative antiquity, and the relation, if possible, of the oldest sites to the preceding small pueblos. There are, of course, also the wider problems touching the absolute antiquity, the permanent or changing culture and character of the people in question, their relation to neighboring tribes, etc., but these need not be formulated at the present time.

DESCRIPTION OF THE GALISTEO BASIN.

The Galisteo basin has been described by Bandelier, but in the language of Espejo, as a bleak and arid waste, having neither rivers nor brooks nor springs, and at the same time as a country abundantly supplied with maize, wild turkeys, etc.¹ The contradictory nature of this characterization calls for a word of comment and explanation and may serve as the occasion also for a brief delineation of the main topographical features and resources of the ancient Tano habitat.

Without entering into a lengthy discussion of historical questions again, it may be suggested that Espejo's description, the substance of which is given above, need not be regarded as referring to the Galisteo basin at all. As Bandelier points out, Espejo's characterization refers to a portion of the country occupied by the "Maguas," but he does not make it clear why the said Maguas should be identified with the Tanos. This is pertinent, particularly as Espejo later on entered the country of what he himself calls the Tamos or Tanos, and where he apparently received different treatment from what had been accorded him by the Maguas. Espejo certainly appears to distinguish the Tanos and the Maguas; but in any case, if this otherwise clever man could not recognize the Galisteo basin a second time after only a few weeks' absence his description of it merits little attention. In all probability, however, the region actually described by Espejo is the large shallow basin lying to the south of the Galisteo depression and known at present as the Estancia valley. This likewise barren expanse attracted primitive man chiefly on account of a number of saline lakes and salt deposits located over towards the southeastern limits; but its streams and springs, except to the west in the foothills of the Manzano Mountains, are practically negligible. The same cannot in strict truth be said of the Galisteo basin, as will be shown presently. Bandelier's visits to the Galisteo country appear to have been brief and in part at unfavorable seasons of the year. Furthermore he did not traverse the basin in every direction nor become thoroughly familiar with all the elements that made the country suitable for the sedentary Indian. On this supposition only can his ready acceptance of Espejo's description be understood.

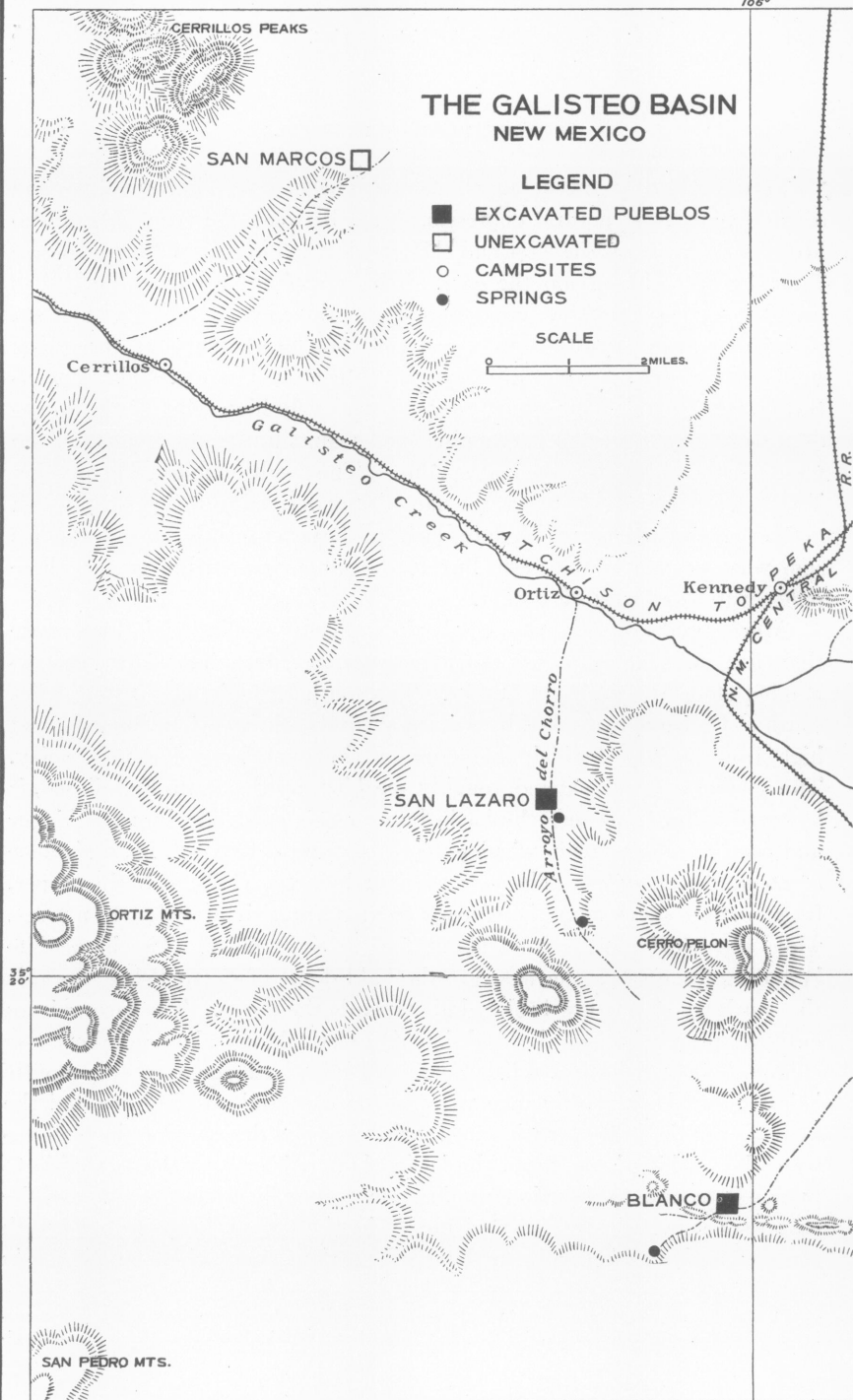
¹ Final Report, II, 100.

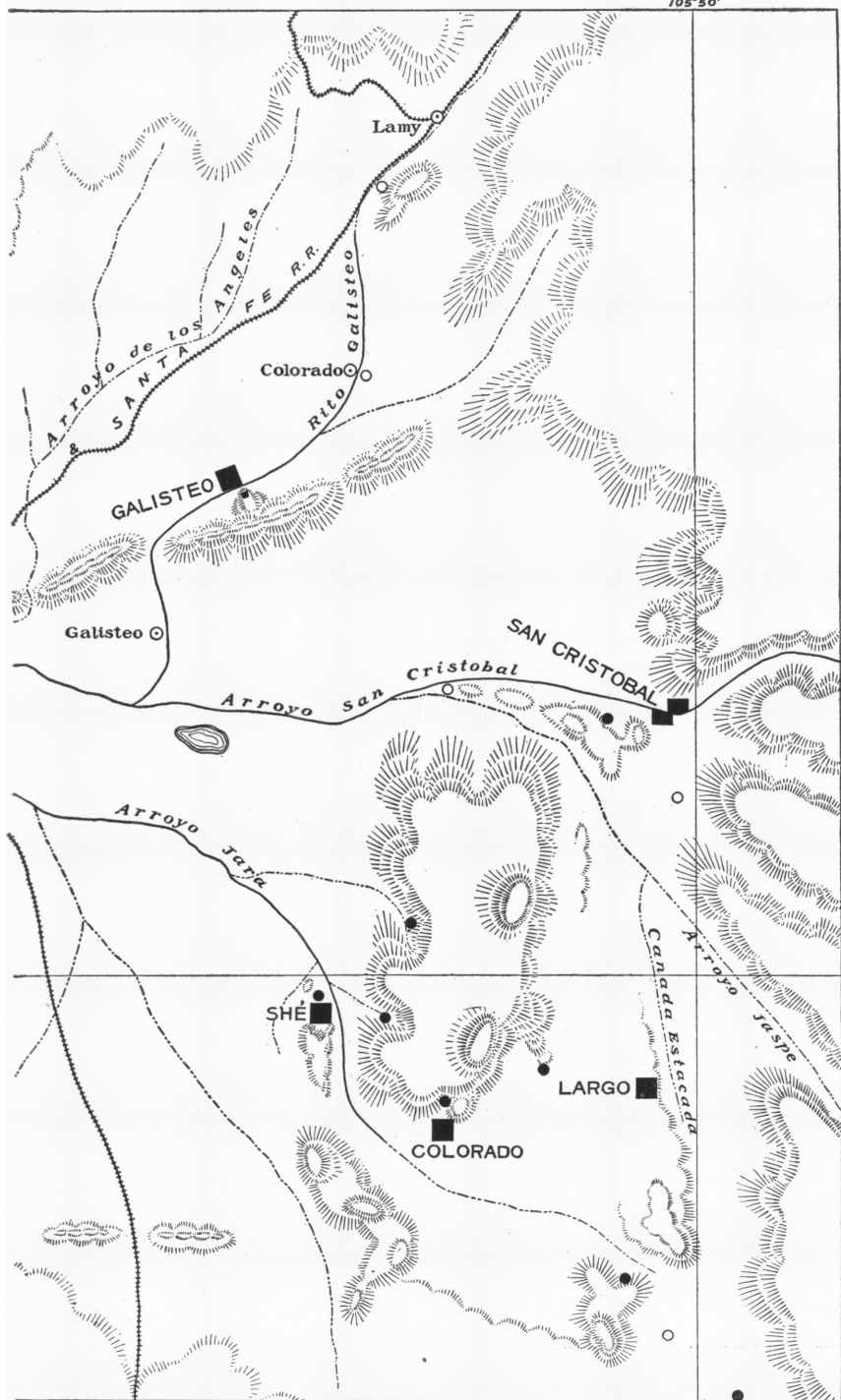
TOPOGRAPHICAL FEATURES.

Topographically considered, the Galisteo basin is merely a small portion of the extensive structural depression lying between the Sandia-Manzano Mountain system on the west and the less elevated buttes and mesas of the Trans-Pecos highlands on the east. This barren intermontane plain has been eroded to somewhat greater depth in the vicinity of Galisteo than elsewhere, owing doubtless to a concentration of drainage at this point sufficient to force an outlet directly west to the Rio Grande. The concentration was brought about partly by the relatively high relief of the immediate border country and partly also by the comparative narrowness of the plain itself at this point (see map, p. 36).¹ The resulting marked depression is known as the Galisteo basin, the name being derived from a small Spanish or Mexican settlement which dates back to the seventeenth century and lies somewhat central in the basin but at the same time within two or three miles of its northwestern border.

More specifically, the Galisteo basin is a gently rolling plain little more than five miles across at its southern extremity, but somewhat more expanded along the northern border. The southern limit, about nine miles south of Galisteo, is marked by a steep acclivity, three or four hundred feet high, from the top of which one may view the much larger Estancia valley. The northern border, skirted, roughly speaking, by the Santa Fe railroad, is less well defined, because the basin here merges gradually into the higher and partly timbered plain which extends northward to Santa Fe, a distance of about fifteen miles. The extreme length of the Galisteo basin proper, from north to south, may therefore be fixed at approximately fourteen miles, while the width ranges from about five to eight miles. The immediate bounding features on the west are the bald dome of Cerro Pelon, towards the south, and some low broken hills towards the north. The former is an outlying prominence of the dark-loomng Ortiz Mountains and the latter culminate in the less forbidding Cerrillos Peaks, both these primary uplifts being about the same distance away to the west and possibly one and the same mountain system cut in two by the collected drainage of the Galisteo watershed, which issues from the basin about midway on the west side to pursue its course to the Rio Grande some twenty-five miles away. On the east rises a less abrupt forested mesa, deeply carved, however, and with some extensive and prominent detached portions encroaching on the basin

¹ Sketch map showing the main features of the Galisteo basin and immediate surroundings. Based chiefly upon the San Pedro and Lamy topographical sheets of the U. S. Geological Survey, q. v.





along the southern half of its length. The northern and southern borders, as already pointed out, are not marked by old geologic uplifts, though within a mile or so of the southern extremity there is, running almost directly east and west across the basin, a remarkable volcanic dyke of considerable height. A similar dyke or "creston," as they are called locally, crosses the basin just north of Galisteo, or to be exact, from Kennedy station towards the northeast. As indicated on the accompanying sketch map, several more or less deep canyons open on the basin at various points, particularly on the northeast, along the east central border, on the southeast, and also on the southwest. At the level where the immediately surrounding foothills merge into the alluvium of the basin itself, these canyons are converted into as many steep-banked arroyos which traverse the basin in all directions to unite at the outlet already mentioned on the west side.

RESOURCES.

Streams and Springs. The Galisteo basin is, as Bandelier and Espejo have stated, a bleak and arid waste; it is not, however, without streams nor without springs. The San Cristobal creek maintains a very considerable flow the year round and the same, though to a lesser degree, is true of the Arroyo Jara. The water of these two streams is alkaline, to be sure, but it can be used both for drinking purposes and for irrigation. On the other hand, the Rito Galisteo, from a point near Pueblo Galisteo down to its juncture with the Arroyo San Cristobal, maintains a permanent flow of excellent water. Springs are not particularly abundant, but such as are known — and there are eleven of them — have been indicated on the map, and at least two more exist near the eastern limits of the area shown. In addition, it is proper to mention a number of natural hollows where small bodies of rain water collect and stand sometimes for several months of the year. The most conspicuous of these, located about two miles southeast of Galisteo, at times almost deserves the name of lake. Finally, the region affords a good many places where artificial reservoirs of considerable size could be made with very little labor and, as we shall see, the Tanos took advantage of this fact. It will be apparent, therefore, that the important problem of water supply was not so difficult for the aboriginal inhabitants of the Galisteo region as might at first appear to the casual visitor. There was not enough water perhaps for regular large-scale irrigation purposes, but, with plenty of tillable soil present, if dry farming did not work at times it is conceivable that the Indians may have carried water to their near by cornfields. In any case it seems unnecessary to resort to a theory of mete-

orologic and climatic changes to explain the presence of large prehistoric pueblos in this locality.¹

Climate. The climatic conditions of the Galisteo region, considered in relation to the entire Southwest, may be characterized as on the whole favorable. The elevation ranges from 6000 to 6500 feet above sea level. Consequently the summer temperature is not very high and the air is generally dry, invigorating, and healthful. Thunder showers, sometimes of a torrential nature, are normally frequent between May and October. The winters are severe at times, with heavy snowfall, while the summers may occasionally be almost rainless, as was the case in 1913. The region is also subject to strong dust-carrying winds, particularly in early spring.²

Flora. The flora of the Tano habitat, while moderately important, cannot be adequately treated at the present time for lack of data. The region specifically considered in this paper is itself relatively poor, but it is hardly to be doubted that the inhabitants of the Galisteo basin drew upon the products of their entire tribal range, and until that range has been more thoroughly examined the subject may rest. Speaking generally, the Galisteo basin is open and barren except for a thin sprinkling of forage grasses and weeds. A certain species of prickly-pear cactus (*Opuntia*) is common in places along the high margin of the basin and further constitutes an annoying element to the archaeologist in that it flourishes to an unusual degree on the debris of the ruined pueblos. Higher up, in the foothills proper and on the sloping mesas, the familiar cedar and piñon, of a more or less stunted character, are abundant; and back in the deeper canyons, at least on the

¹ The suggestion of the gradual dessication of the Southwest as the cause and explanation of the movements of its prehistoric cliff-dwelling and pueblo-building aborigines has been advanced by Dr. E. L. Hewett, Junius Henderson, and Wilfred William Robbins, in Bul. 54, Bur. Amer. Ethnol. (1913). Upholding the same view, see article by Prof. Ellsworth Huntington, entitled "The Fluctuating Climate of North America," in the Geographical Journal, Vol. XL (1912), pp. 264-280, 392-411. But see also article in Geographical Journal, Feb.-Mar. (1914), by Prof. J. W. Gregory, entitled "Is the Earth Drying Up?" where the whole question is critically treated from a broader standpoint.

Personal observations in the Galisteo basin have not led to any definite opinions for or against the possibility of climatic changes. It may be pointed out, however, that the deep rocky gorge followed by the San Cristobal creek above the ruined pueblo of the same name appears to have been partly silted up in times past. At the present moment a deep secondary channel has been cut in the alluvium, which is being carried out again. Likewise a number of the arroyos crossing the Galisteo plain are developing new branches, some of which are lengthening at a fairly rapid rate. It is a question, however, whether these latter facts are due to a heavier rainfall in recent years or to the over-stocking of the range.

² From a published report (1913) of the U. S. Weather Bureau at Santa Fe may be cited the following figures, based on a sixty year period of observation and presumably very nearly correct for the Galisteo basin:

Mean annual temperature	49° F.
Mean highest temperature, annual,	60° "
Mean lowest temperature, annual,	38° "
Average annual precipitation	14.2 inches.
Average annual snowfall	29.4 inches.

east side of the basin, are scattered not a few good sized pines, as well as occasional clumps of cottonwood and oak brush. Piñon nuts unquestionably formed an element in the Tano food supply, but acorns, berries, etc., must have been negligible. Timber, of course, was useful and necessary both for the hearth fire and for building purposes.

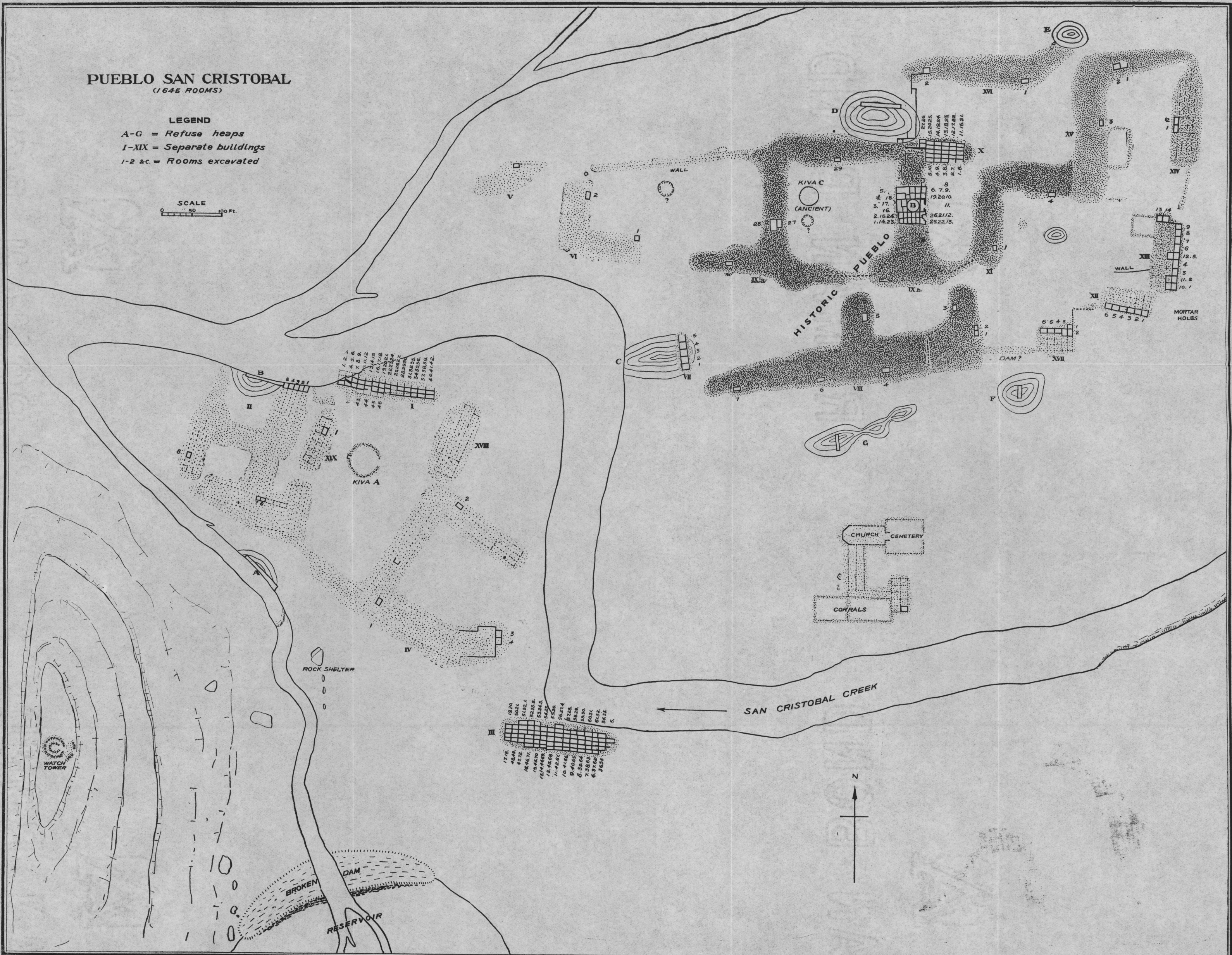
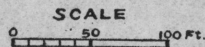
Fauna. The fauna is another item which cannot be satisfactorily discussed at the present time. Most of the explorers and investigators from Coronado down to the present have had something to say on this point, and any future contribution to the subject had better be a confirmation or refutation of their statements, based upon the identification of the animal bones actually recovered by excavation. It seems inherently improbable that game was really plentiful in the Galisteo region itself. Still meat did form a part of the native diet, as is evidenced by an examination of the oldest refuse heaps adjacent to the pueblo ruins.¹

The foregoing brief and inadequate summary of the material resources and physical environment is not going to explain the status and character of the Tanos, but it may serve to indicate some of the limitations and possibilities they had here and it will be interesting now to proceed to investigate how they adapted themselves to the conditions imposed and how they seized the advantages nature offered them.

¹ For a brief general discussion of the Southwest flora and fauna, see Bandelier's Introduction to his Final Report, Part I. See also Dr. Walter Hough on "Pueblo Environment," Proc. Am. Assoc. Adv. Sci., 55th Meeting (1906); also, J. Henderson and J. P. Harrington on "The Ethnozoology of the Tewa Indians," Bul. 56, Bur. Amer. Ethnol. (1914).

PUEBLO SAN CRISTOBAL
(1645 ROOMS)

LEGEND
A-G = Refuse heaps
I-XIX = Separate buildings
1-2 &c. = Rooms excavated



PUEBLO SAN CRISTOBAL.

SITUATION.

The first of the large Tano ruins to be excavated and the one on which most of the field-work was expended is Pueblo San Cristobal. This ancient as well as historic site is located about eight miles southeast of Lamy and six miles east of Galisteo.¹ The ruins lie on the banks of the Arroyo San Cristobal, immediately above the point where the stream emerges on to the open Galisteo plain and at the mouth of a deep, rocky gorge. The situation is sheltered by wooded hills and mesas, the latter of which present an escarpment on the north. The view is open only to the south, up a wide, comparatively treeless draw, and also to a limited extent to the west, through the gap followed by the creek in making its way among the outlying hills to the expansive and uninviting Galisteo basin. The creek in emerging from its deep canyon makes a southward bend around the base of the old smooth sandstone mesa which here dips southwestward. Down stream, beyond this bend, a small tributary canyon shoots off directly to the northeast along the base of the mentioned north side escarpment, and the upper end of this small gully reaches very nearly back to the main San Cristobal canyon at the point where its big bend commences. It is on the lower part of this somewhat isolated or detached triangle that the historic pueblo and also the larger portion of the prehistoric ruins are situated. The remaining portion of the prehistoric ruins, and probably the oldest of all, is located on the south bank of the creek, mostly west of the bend. The foundation here is alluvial and, as the stream is constantly cutting on this side, parts of at least two buildings and a valuable refuse heap have been carried away. A minor gully bounds this section of the pueblo on the west at present, but from all appearances it has been developed largely in recent times.

From an economic standpoint the site was well chosen: water, tillable soil, timber, building stone, and shelter were all near at hand. Strategically

¹ To recapitulate the available surmises about Pueblo San Cristobal: the site has been, and perhaps correctly, identified with Pueblo Ximena, discovered by Coronado in 1540. However, the first authentic visit to the pueblo was made in 1590 by Castaño de Sosa, who named it. In the 17th century the place became a visita of the mission at Galisteo, but had a chapel of its own, built probably before 1630. The population in 1680 has been given as 800, a figure which, as we shall see, may be too large. The site was abandoned some time between 1680 and 1692, as in the latter year De Vargas found the inhabitants in their new home near Santa Cruz, from which they finally dispersed in 1696. The Indian name for the pueblo, as determined by Bandelier, is Yam-p-hamba.

considered, however, the situation seems weak, as it could be surprised from almost any angle in broad daylight, unless careful watch was kept on all the shielded avenues of approach. This fact was evidently plain also to the ancient inhabitants, who may have learned in part through dear experience, for they erected something of the nature of a round watch tower on top of a small isolated hillock close by on the southwest, from which nearly all the approaches to the open surroundings of the pueblo on the south bank could be watched, at least in the day time. But an enemy might still have crept very close on all but the south side and might perhaps even have reached the old pueblo unobserved by following the bottom of the deep, box-like channel of the San Cristobal from the west and up stream. Whether or not it was this fact which led to the final abandonment of the older pueblo on the south bank for the somewhat stronger position exclusively occupied in later times on the opposite side of the stream is interesting speculation apparently incapable of proof. Still, the indications are that the more or less steep banks of the forking arroyos surrounding the new pueblo on all but the northeast side were regarded as a means of defense, because there are traces of a stone wall running from canyon to canyon across this vulnerable gap, about five hundred feet beyond the northeast corner of the pueblo.

GENERAL DESCRIPTION.

Size. The area enclosed in the accompanying groundplan (Plan I) of the San Cristobal pueblo measures about 1300 by 2000 feet. This space, to be sure, is not entirely filled with cultural remains; but, on the other hand, there are a number of more or less strictly organic parts of the pueblo scattered in different directions far beyond the mapped limits. Among these outlying elements are some small rock-shelters at the base of the escarpment to the north; an immense number of pictographs on the same escarpment and on the tumbled rocks below; also the stone wall previously mentioned as being five hundred feet above the northeast corner of the pueblo. On the south, two artificial reservoirs extend more than 1200 feet beyond the indicated limits and encircling these there are traces of five or six single-room houses. Among the rocks at the base of the north escarpment there are also traces of artificial walls, serving most likely as corrals and possibly of Indian origin. Then a little over a mile directly west of the pueblo, and south of the creek, there is a small, isolated, steep-sided mesa, known as the "middle mesa," the flat top of which is encircled by a considerable stone wall. The wall is missing wherever the natural declivity is at all steep and is otherwise so placed as to show that the mesa top, which

measures about 300 by 1300 feet, was a corral and not a fortification, as might easily be supposed. Still another possible organic part of the pueblo takes the form of a ruined house a short distance up the San Cristobal gorge, on the north bank and immediately below the escarpment of the mesa on which the main pueblo ruins lie. The Indian origin of this outlying building was not clearly determined.¹

The pueblo itself, irrespective of its admissible partition into two or three chronological divisions, comprises nineteen or possibly twenty separate buildings. These have been numbered on the appended groundplan in order to facilitate description of the ruins as well as the location of the various specimens obtained from them.² A few of these buildings, like III, VII, and XIV, e. g., are simple rectilinear structures, but the majority are composed of several united parts or wings, arranged for the most part, it would seem, with reference to the cardinal directions. All told there are 38 such buildings or wings of buildings, which if placed end to end would cover a stretch almost exactly 5000 feet long and about 40 feet wide, giving sufficient space for very nearly 2000 ground floor rooms. Actual conservative calculation places the number of such rooms in the entire pueblo at 1645, a figure considerably below what is sure to be found by the future excavator.

Communal Buildings. The present appearance of the different buildings constituting the entire ruin varies considerably. Some of the oblong, convex mounds representing the collapsed one to two or three-story structures are

¹ In this connection it may be well to mention the fact that there are rock-piles, some small and some large, scattered over the surface of the open flat which extends several miles to the south of Pueblo San Cristobal. Whether these are house ruins or graves or what was not ascertained. One such place has been indicated as a campsite on the general map. It lies fully one mile south of San Cristobal on a low rocky knoll near the east side of the draw. Here are traces of old walls, and fragments of flint, obsidian, and pottery lie all about as if possibly there had been a small pueblo on the site.

Another place of interest is a so-called "arrow cliff," located about two miles up the San Cristobal gorge, near the point where the supposed San Cristobal-Pecos trail leads out of the gorge up on to the mesa proper. The cliff in question forms the north wall of the gorge and the vertical or partly overhanging section, about 100 feet long, rises some forty-five to fifty feet above the alluvium. Near the base of the cliff there are several pictographs in black, red, and light yellowish colors. Other pictographs occur near the top of the cliff and also on the inaccessible horizontal overhang. The cliff itself furnishes good shelter and there is a considerable bed of ashes at the base, showing that the place has been used as a campsite. However, the chief point of interest about the spot is the fact that all who know it tell of numerous arrows that were formerly stuck into the crevices of the cliff. None are now visible, though the broken ends of many are said to be held fast in the crevices. One fragment, in the hands of the foreman of Senator Pankey's ranch, was seen and it showed a light arrow composed of a reed shaft to which was attached a wooden foreshaft with windings at the joint and traces of red paint.

² The attempt to distinguish the individual buildings without actual excavation is sometimes difficult, if not impossible. Hence, some of the first determinations were later found to be wrong; but inasmuch as the specimens obtained had already been catalogued by buildings, the errors committed will have to stand. In future, for the sake of simplicity, it is contemplated to number separately each individual wing of a given building.

low, compact and smooth-surfaced, while others are high and very rough on top, with here and there a corner wall standing slightly above the general level of the debris, as if the falling process was recent and not yet complete. Thus the ruins on the south bank of the creek might well be contrasted with the majority of the ruins on the north bank in this respect, the former being most of them low and in places difficult to trace. Furthermore, the thick growth of cactus bushes which flourishes on all the high rough-surfaced ruins is scarce on the low compact ones and is in fact altogether absent from the ruins on the south side of the creek. Actual excavation shows, however, that the walls of the south bank ruins stand about as high as those of the north side ruins and suggests that the noted compactness and smoothness is not the result entirely of natural causes. The rough-surfaced ruins could never, relatively speaking, weather into the condition represented by the others. Moreover, this low, flat condition characterizes some of the buildings in the north ruin, as, e. g., buildings V, VI, VII, part of VIII, also XII, and especially XVII. Buildings XIII, XIV, XVI and part of XV are also affected, but not so much. Superficial indications are therefore not entirely satisfactory as evidence on which to base a judgment about the age of the ruins, and it is at least unsafe on that ground alone to conclude with Bandler that the south bank ruins as a whole are older than those on the north bank.¹ If it is made known now that the rough-surfaced ruins, comprising buildings VIII, IX, X, XI and part of XV, with a combined capacity of fully 650 ground floor rooms, were found to date from historic times, and that most of these had been built on top of earlier ruins or refuse heaps, it is easy to understand why they should appear to represent relatively high buildings. It seems also probable that at the time when the historic pueblo was built, or perhaps in part rehabilitated, most if not all of the old prehistoric pueblo was in ruins and that the smooth, compact surface of these ruins resulted largely in consequence of the removal of building material, i. e., stone slabs, from their surface to be used in constructing the new pueblo. This explanation may not hold in all cases for the south bank ruins because some of these represent structures built partly of adobe, but it no doubt played some part, as it did also on the north side, where it would be difficult otherwise to account for the fact that in building XVII the remaining walls stand barely two feet high.

Courts. The building wings, disposed as they are mostly at right angles to one another, enclose wholly or partly no less than 11' angular courts, some small and some very large. In places where the courts are not completely surrounded by buildings there are often traces of a stone wall crossing

¹ Final Report, II, p. 103.

the open space. Examples may be indicated connecting buildings VI and IX, the separate parts of the south wing of building IX, buildings XIII and XIV, XII and XVII, and also buildings VIII and XVII. Openings leading from one court to another probably existed, though they are not always visible today. The courts themselves deserve a few remarks. Some of the enclosures appear unnaturally deep, as if the surface soil or adobe had been removed. In the court situated between buildings X and XVI the solid rock surface of the mesa on which most of the north pueblo was built has actually been laid bare. It is true that the surface adobe was probably very thin on this originally smooth slope, but it is a proper question after all whether even the small amount present was not used up for mortar when the adjacent buildings were under construction. In the large double court enclosed by buildings VIII, XI-XV and XVII there are several things of interest. Thus, in the middle and upper part occur traces of the walls of two small rectangular corrals, one having been constructed against building XIII, the other against building XV. The lower section of this same court may possibly have been a reservoir. This conclusion is based on the nature and thickness of the wall on the lower side, connecting buildings VIII and XVII, and also on the fluvial nature of the soil in the court. It could not have been a large reservoir, however, because the area to the northeast that could be drained into it is very limited. Flush waters now enter the court during occasional showers by way of a rill which cuts the wall connecting buildings XIII and XIV. By accidental digging an old covered-up wall was found running west from building XIII out into the supposed reservoir, showing that there was something here prior to the construction of the buildings now lying in visible ruins. On the north side of the reservoir, close to the south end of the middle wing of building XV, stands a roughly rectangular column of sandstone about three feet high, the top of which contains several saucer-like hollows. Presumably it has served as some sort of rest or anvil. Close by, to the southwest, there are faint traces of a refuse heap. Most of the other enclosures have nothing of interest in them excepting a few kivas.

Kivas. In the court partly formed by buildings VI and IX and close to the simple wall completing the north side there is a hollow suggestive of a kiva. A similar hollow occurs in the southwest corner of the court completely enclosed by building IX, but a trial excavation here revealed nothing of the sort, though it led to the discovery of a cache containing thirty-six metates, apparently buried in the ground. Through the same circumstance an ancient and entirely obliterated kiva (C) was found in the northwest corner of the court. This chamber was not excavated further than to learn that it is circular, with a diameter of 36 feet, and that the well-built

stone wall still stands over five feet high. Finally, over on the south bank of the creek in the court enclosed by buildings I, II, IV, etc., there was another large and presumably also ancient kiva, marked A on the ground-plan. Faint traces of the stone wall remain, but excavation proved it to go but slightly below the outside surface; yet it is certain that the kiva was partly subterranean. There appears to have been an entrance on the east side, a little towards the south, and in the wall directly opposite there was a small recess. The diameter of this kiva was almost 50 feet. Kiva B, incorporated in the east wing of building IX and dating from historic times, was completely excavated and will be referred to later. The diameter of this chamber at the bottom was exactly 20 feet.¹

Refuse Heaps. No less than eight deposits of refuse are visible about the pueblo. The smallest accumulation, hardly worth mentioning, is within the easternmost quadrangle; but the remainder, as may be observed, lie practically outside of the village buildings. Only one pile (marked D) is impressive in size, and appearances may even here be deceptive owing to the contour of the original surface and also to the fact that the refuse seems to cover up the ruins of a building. Deposits A and B show up on the surface hardly at all, but their positions with reference to the stream channels are such that complete and interesting sections respectively 4 and 12 feet thick have been exposed. The depth of the accumulations in B, and the fact that a large segment may have been removed by the stream, bespeak a very considerable antiquity for the adjoining part of the pueblo. Before quitting the site, trial trenches were dug in all of the larger deposits and the results obtained will be dealt with farther on.

Reservoirs. A reservoir has already been mentioned in describing the court north of building XVII. It was a small affair, however, and was probably developed in historic times partly through the accidental arrangement of the older ruins. But about 400 feet south of building IV, and up against the watch tower hill, lie the remains of a large dam. This artificial obstruction spans the outlet to a large shallow basin above. The dam is fully 300 feet long, measures as much as 50 feet through the base, and stands almost 5 feet in height, but it has no doubt been washed down considerably. The dam bows down stream and is made largely of adobe, though some rocks appear at the base on the inner side. Accurate leveling would be necessary to determine the extent of the reservoir above, but it must have run back southward about 900 or 1000 feet and the width in one place was

¹ Bandelier (Final Report, II, pp. 103-4) says that there are two kivas in the south pueblo and one in the north pueblo, which statement is true only if reversed. He probably refers to Kiva A and to the two hollows pointed out on opposite sides of the west wing of building IX. Kiva B he might not have recognized and C he could not possibly have noticed.

not less than 600 feet. Present conditions, however, are no sure indications of its original capacity, as the dam on the one hand may have been much higher than now and on the other hand the basin itself may have silted up considerably. Immediately above the limits of the large reservoir there was another but a much smaller one. Both dams are partly washed out now, but could easily be repaired, an undertaking which would prove of value to any future excavator of the pueblo.

Watch Tower. The supposed lookout ruin, which lies on top of a small hill bounding the south pueblo on the west or southwest side, merits a few remarks. Perhaps 150 feet high, the hill affords a splendid view, especially to the south and the northwest. The top is nearly flat and oval in outline, measuring about 60 by 200 feet. In the widest part of the oval lies the ruin, which consists of two nearly circular concentric walls, now barely three feet high and apparently thrown down by other than natural forces, as many of the stone blocks of which they were built are large and heavy. The outside diameter of the outer wall ranges from 33 to 36 feet, while the inside diameter of the same wall varies from 24 feet 6 inches to 30 feet. For the inner wall the outside diameter ranges from 12 to 14 feet and the inside diameter from 6 feet 6 inches to 8 feet. The inner wall is approximately 2 feet 6 inches thick and the thickness of the outer wall ranges from 3 feet to 3 feet 6 inches. Thus a passage, roughly speaking 14 feet wide, separates the two walls. Well preserved entrances appear on the east side, a little towards the south, and in front of these, perhaps 15 feet away and near the edge of the hilltop, there are traces of a roughly piled wall, which may have served to shield the entrances. Strange to say, there is not enough debris to build up the two walls to man's height, and as building stone is near at hand it is hard to believe that the upper part was built of adobe which might since have washed away. In short, though the inner passage was cleared to bedrock, nothing was found to indicate the function of these remains, but all the circumstantial evidence points to a round hut encircled by a low wall, suitable for nothing so much as a lookout.¹

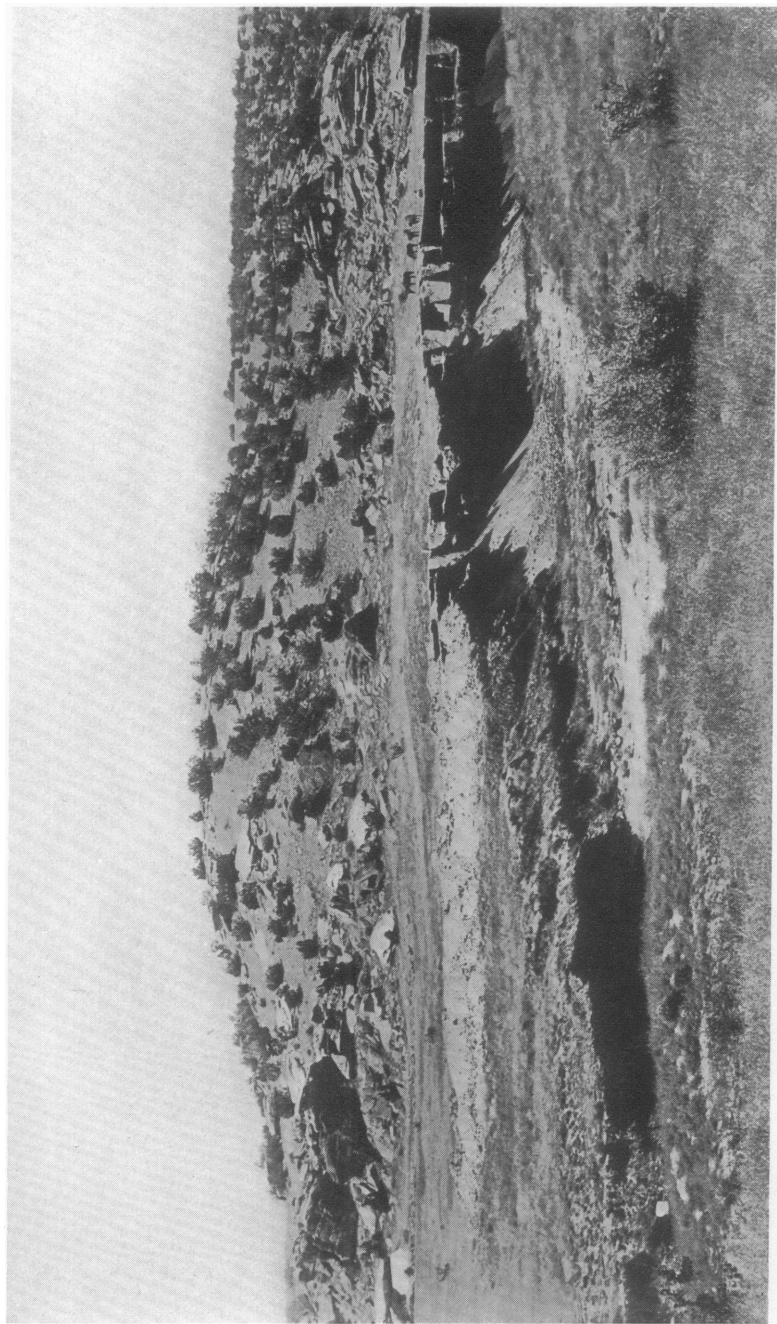
Rock-shelters. A small but rather noticeable rock-shelter is situated about 300 feet below the large dam and close to the east base of the watch tower hill, from which it is separated by a dry gully leading down from the reservoir. The shelter consists of a big thick slab leaning against a large boulder in such a way as to give a southwest exposure. With very little labor it could have been made into a comfortable home, and in attempting to improve it for camp use some traces of aboriginal occupation were found,

¹ The only find made while clearing up between the circular walls was a single oblong worn quartz rock, probably of ceremonial use; but there was otherwise nothing to indicate that the place had been a shrine.

as might have been expected. Almost directly north of this place, at the base of the escarpment repeatedly referred to, a more promising rock-shelter was found. There is here a perfectly horizontal overhang measuring nearly 18 by 18 feet, and traces of a wall which once reached from the ground to the natural roof are visible, as is also the doorway on the south. The situation is such that the rains have filled the natural cavity almost completely with sand and fine debris. A trial trench was run across the deposit and it revealed a section over five feet in thickness, showing two separate culture strata. One stratum, made up mostly of ashes and charcoal and only two to three inches thick, was found about one foot below the surface. The other stratum, also of clear ashes, rose from the bottom to a thickness of fully one foot six inches. In the center of the room, which was the deepest place found, there were traces of a rude fireplace built up of stone. A very few fragments of obsidian and glazed pottery were found, but the site gave no indications of being older than the adjacent pueblo itself. Other small shelters were tried, without results.

Chapel. Although not an essential part of the subject, it may be permissible to record a few data relative to the chapel. The ruin is situated on the alluvial bottom within the bend of the creek, directly south of the historic pueblo, and still stands apparently in the condition in which Bandler found it thirty years ago. The simple structure is oriented almost correctly east and west, with the door in the east end. The outside length was approximately 70 feet and the outside width near the altar was 29 feet, while close to the front end it was apparently about 32 feet. The inside width near the altar was 23 feet, so that the walls were about 3 feet thick.¹ Only the altar end portion of the chapel stands today, owing to the bracing effect of the four angles embodied, and it shows a fine piece of masonry laid up of thin stone slabs embedded in adobe. The total height of the visible wall is not less than 25 feet, but the base is buried in debris. A nearly rectangular cemetery or yard fronts the church and measures about 54 by 65 feet. On the south, running out from the altar end of the chapel, there is a roughly L-shaped accessory group of joined buildings containing about twenty rooms, and to the south and west of these buildings are two adjoining corrals. The whole assemblage — church, cemetery, and house ruins — gives abundant evidence of the treasure hunter's energy.

¹ Bandler's precise dimensions, 24.5 by 52.5 feet (see Final Report, II, p. 104), are so radically at variance with the above figures that it seems necessary to mention the fact in self defense. The height of the standing wall is nearly twice that of Bandler's figure. He also reverses the true relative positions of the chapel and the main pueblo with reference to the old pueblo on the south bank of the creek, and his published groundplan of the entire pueblo bears little resemblance to the one accompanying this paper. In fact, Bandler's entire Tano chapter abounds in errors, more or less pertinent; but many of these may have resulted unintentionally from the fact, as told me by Dr. E. L. Hewett, that the author did not have opportunity to correct his proof sheets.



SAN CRISTOBAL

View looking southwest across San Cristobal Creek towards the watch tower hill. Shows debris thrown out of building I on the left, the corner of the same building projecting on the creek; also the five rooms cleared in building II and adjoining it on the right the excavations in refuse heap B.

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EXCAVATIONS CONDUCTED.

In approaching the problems presented by Pueblo San Cristobal for the first time, there was lack both of experience and of data to guide the earlier stages of the investigation. Bandelier's examination had not been such as to enable him to figure and describe the pueblo and the relations of its parts correctly; but some of his observations held and from these it was clear that the ruins were essentially in the same condition as when he saw them. The chief point made by this investigator was that the ruins on the south bank of the creek were older than those on the north bank; and though this statement was not strictly borne out by superficial appearances, it seemed best to accept that view as a working hypothesis. Work was therefore begun on the south side of the creek, where it was practically confined to those buildings lying nearest the stream. Two of these structures had already been partly undermined and carried away, as in Bandelier's day, and a third was in extreme danger of the same fate. In attempting now to describe the main facts brought out by the excavations it is the aim as far as possible to avoid endless repetitions of figures and details. Therefore all the measurements have been thrown into tabular form, which the interested student will find at the end of the report.

Building I. This nearly rectilinear structure lies separate from other buildings, close to the high creek bank and on ground sloping towards the east. The northwest corner actually juts out on the creek and five rooms have here been either wholly or partially removed (Plan I, also Pl. 1). Originally the building must have been three rooms wide throughout, with the possible addition of a fourth row of rooms midway on the south side. Doubt enters because the north wall is largely missing and must have fallen out en masse before the rest of the building collapsed. There is some doubt also about the four extra rooms adjoining on the south, for the reason that while traces of the bounding walls appeared on the surface they could not be found lower down. The extreme capacity of the building may therefore be limited to 46 ground floor rooms.

The plan of the building and the nature of its foundation are both suggestive. Upon excavation most of the short partition walls were found to run straight across the entire building, but there were exceptions. With the long walls it was different, however. Viewing them from the west they ran mostly straight and parallel to a point a little beyond the middle of the building, where they swerved northward so that the east end of the building was about five feet out of line. These facts seem to indicate that though the building forms a unit it may have been constructed in two sections at

different times. There was nothing found in the ruin, however, to indicate that one end of the building was much older than the other. Nor is the building one of the oldest in the pueblo, because the northwest portion of it was found to rest on 2 to 3 feet of ashes and refuse while the east end had been erected on top of the ruins of an earlier building, the parallel walls of which ran at an angle to those of the last structure, as may be observed in the accompanying illustration (Fig. 1).



Fig. 1. View looking West along Building I, San Cristobal, showing the Separate Walls of Superposed Prehistoric Edifices.

By referring to the appended table it will be observed that the standing walls rose from about 2 to 6 feet in height,¹ the west end being considerably higher than the east end and much higher than the middle portion of the building. There is even a probability that the height of the east end walls is given in figures relatively too large, because the clay floor could not always be detected as was the case at the west end of the building, where the floors were often flagged with stone slabs or were otherwise well preserved and distinguishable. The walls were nearly all somewhat less than 1 foot in thickness, the usual measurement ranging from 9 to 11 inches; but 14 and even 18 inches were noted, e. g., at the east end of room 4. Curiously enough, the north wall of the same room was 26 inches thick, but on closer

¹ The floors in rooms 3 and 5 were a foot or more below those of the adjoining rooms so that the remaining walls of these two rooms were actually over 7 feet high.

examination this partition was found to consist of two separate walls, one of stone and one of adobe. As a matter of fact, stone and adobe were used indiscriminately in different parts of the building, suggesting again that the structure had been repaired or rehabilitated at different times, if it had not actually grown to its final size by slow accretion. As to the original height of the building it is difficult to speak; the east end may have had only one story but the west end was at least two stories high.

The size of the rooms varied unusually: widths ranged from 5 feet 3 inches to 8 feet 2 inches and the lengths from 7 feet 7 inches to 18 feet. But the student is referred to the tables for both specific and average measurements.

The excavation of the building brought to light a few minor details of interest. There were, e. g., no doors through any of the walls, outside or inside. The walls themselves showed traces of mud plaster and occasional evidences of blackening, as if by fire; though no regularly built fireplace was discovered in any of the rooms. Lumps of clay bearing impressions of grass and reeds were found in rooms 4 and 8 and were presumably parts of the ceiling. There were fragments of charred wood in several places and across room 1 lay a rotted cedar beam 4 feet long and 3 inches in diameter. Specimens of all kinds, including potsherds; common artifacts of stone, bone and shell; bones of indigenous animals and five human burials, were found scattered at various levels in the debris, giving additional proof that at least a part of the building was more than one story high. Moreover, in the debris were also found several specially shaped stones such as were used to support the cooking slab over the fireplace. The occurrence of these stones, in the absence of fireplaces on the ground floor, shows that fireplaces must have existed on the floor above. None of the various types of artifacts gave any clue to the relative prehistoric age of the building.

Building II. There is little to be said about this large compound structure, inasmuch as only eight rooms were excavated in it. The wing nearest to building I had been partly carried away by the creek, to the extent possibly of ten or fifteen rooms, and in order to save the remainder, at least for the present, a complete row of the projecting rooms was excavated (Pl. 1). In addition, three rooms were cleared farther back in the ruin merely to try it out.

The five rooms next the creek were separated by very thin adobe walls, which for the middle room rose to a height of 5 feet 6 inches. The outer walls were partly of stone and somewhat thicker. Hard tamped adobe floors were easily recognized in each room. Specimens of all kinds, including artifacts, indigenous animal bones and human remains, were found distributed precisely as in building I. Near the south end of room 1 and

about 3 feet below the surface was found an adult skeleton, parts of which extended well into the adjoining room. The inference is that when the interment was made the ruin looked very much as it does today, no wall being distinguishable or it would have been avoided by the grave digger. In this same room, with an infant burial deeper down, was found a food bowl of the old style black-and-white ware. This was the only entire pottery vessel obtained from the 130 rooms excavated on the south side of the creek. There were fragments of similarly painted ware and also of the black corrugated variety, but the glazed sherds were everywhere present. This particular wing of building II had been at least two stories high.

Rooms 6 and 7, located farther back in the seemingly high part of the ruin, yielded proof that here also we have the remains of one building lying on top of another. Room 6 was shallow and room 7 very deep. Unfortunately the latter was not cleared to the bottom. The few specimens brought to light do not of themselves indicate great difference in age, however; but there can be no doubt that further excavation here will give good chronological results. Room 8 was shallow and contained nothing of interest except an adult burial. The shallowness may possibly mean that another ruin lies buried underneath.

Building III. This simple rectangular structure lies off by itself, farthest to the south on high ground and close to the sharp return bend of the deep arroyo. Situated as it was, the building seemed in imminent danger of being removed by the stream and for that reason its complete excavation was decided upon. Superficially viewed, the ruin was a very regular oblong mound with an east and west axis and dimensions approximating 50 by 200 feet. Its convex surface was bare and smooth but the tops of the standing walls, though flush with the debris, showed in many places. Work was commenced by trenching along the outside wall so as to make sure of getting all of the building and its correct outline. The plot incorporated in the general groundplan is unfortunately too small for details, but a larger reproduction may follow in a future general discussion of pueblo architecture.

The completed excavation laid bare the entire lower story of what appears to be a single unified structure 4 to 6 rooms wide and 14 to 15 rooms long (Fig. 2). The four northernmost long walls are tolerably straight and parallel but the fifth, towards the south, has several jogs or irregularities, especially from room 43 westward. The short walls also run fairly straight and parallel across the building, with a marked exception at rooms 52 and 71. It seems reasonable to suppose that rooms 1 to 4 scattered along the north side, room 5 on the east end, and rooms 6 and 16 on the south side were late additions and that the main nucleus was a structure, 4 rooms wide and 14

rooms long, designed and built at one time. However, there is no conclusive evidence to support this contention, which consequently may be only partly correct. The ground floor capacity of the building has been limited to 72 rooms, but there are indications of additional rooms on the north side. Judging from the nature and occurrence of the specimens collected, as well as from the height of the standing walls and the amount of debris, the central portion of the building was originally more than one story high.

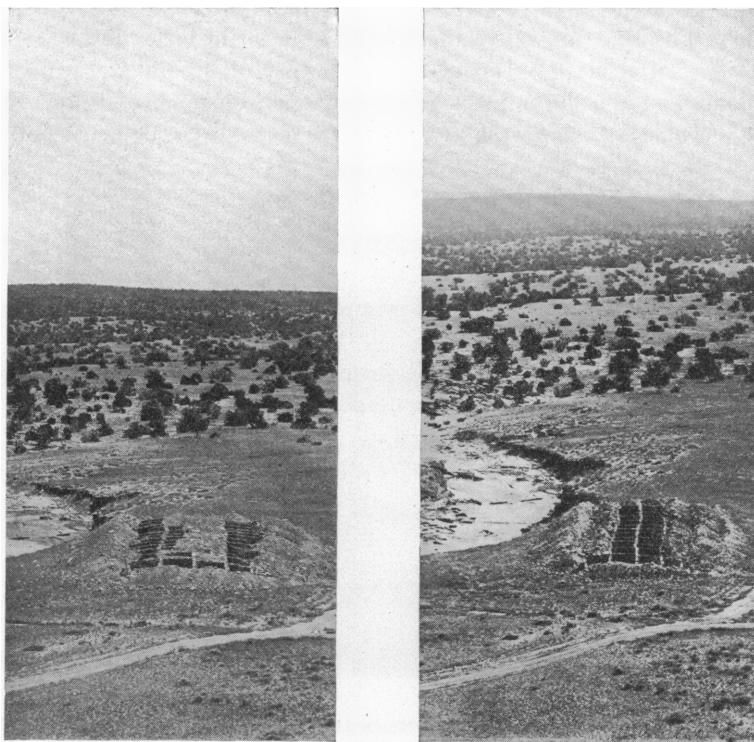


Fig. 2. Building III, San Cristobal, seen from the Watch Tower Hill, Left View showing Cleared Outer Rooms, and Right View, the Cleared Inner Rooms after Completed Excavation.

A few detail features of the building construction and furnishings may be mentioned. The rooms vary somewhat as to size, though the extremes would be removed by lopping off the outside row, already referred to as possible later additions. The average for the building accords well with the average for the pueblo as a whole, i. e., the normal room measures about 7 by 11 feet. Room 13 was excluded from the estimate because of its

abnormally small dimensions; in fact it may have been only a recess in the wall. The walls themselves rise from 2 feet on the outer edges of the building to over 5 feet along through the middle. They are almost uniformly less than 1 foot in thickness and are for the most part of stone, though there are many indiscriminately scattered sections built of adobe. In some walls there is adobe at the base and stone slabs laid in mud above, and elsewhere this condition is reversed. Comparatively speaking the masonry is excellent, the walls standing straight and firm with only here and there a leaning this way or that; whereas in the historic ruins it is quite otherwise. Mud plaster remained near the base of the walls in nearly all the rooms and the finger mark of the artisan who applied it was often visible. Traces of whitewash (two separate coats) were detected only in

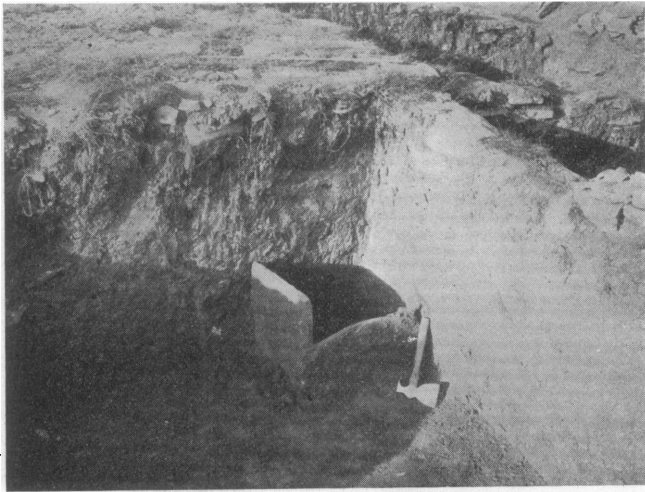


Fig. 3. View of Southwest Corner of Room 21, Building III, San Cristobal, showing a Small Bin, also the Nature and Height of the Building Walls.

rooms 30 and 31, but many of the walls were blackened as if by smoke. There were, however, no fireplaces on the ground floor, the only suggestions of such furnishings being merely a pile of ashes in one of the corners of rooms 4 and 17; but there were ample proofs that there had been fireplaces on the floor above. A small artificial niche or pocket was found in the east wall of room 21 and in the southwest corner of the same room was an angular bin (Fig. 3) produced by setting on edge a couple of thin stone slabs. Doorways were practically absent. There was indeed one connecting rooms 56 and 67 and there may have been another leading directly from

out-of-doors into room 5. Accurate measurements of the first-mentioned are lacking, but it was about 2 feet wide and may have been 3 feet high, with the sill raised a foot or so above the floor level. The floors wherever noticeable were of tamped adobe.

The architectural remains, it will be seen, are so simple as to be almost barren of suggestion and the same holds practically true of what was found in them. Artifacts were relatively plentiful, no less than 392 complete specimens being recorded, but not a single complete pottery vessel worth the name was turned up, though there were fragments enough of incomplete specimens including the corrugated, painted, and glazed varieties. The majority of the artifacts were of a utilitarian nature: metates, manos



Fig. 4. View looking West over Outer South Side Rooms of Building III, San Cristobal, showing Stacked Metates, etc.

(Fig. 4), cooking slabs, grooved axes, hammerstones, rubbing stones, polishing stones, and chipped obsidian points; also bone scrapers, awls, and spatulas. But there were numerous esthetic and ceremonial objects, including beads, pendants, flutes and whistles, together with such natural forms as quartz crystals, pebbles, concretions and fossils. Room 68, e. g., contained about 70 of these fetich-like objects lying in a heap in the middle of the floor. A few animal bones, including those of the turkey and the bison, were found; but, on the whole, osseous remains both human and animal were scarce.

In the presence of all the available facts one is at loss to understand the

later history of this building. It was not burned down and it was apparently not abandoned in great haste or there would have been some complete, if perhaps broken, pottery vessels left behind. At the same time there were found a large number of other articles, some small and light and seemingly valuable, others heavy and clumsy but nevertheless useful. If the building was vacated during times of peace for new or more suitable quarters in the pueblo and left to natural decay, why should anything of value have been left in it? There remains only the hope that further excavation of the prehistoric ruins may throw light on the subject.

Buildings IV-VI, XVIII and XIX. These ruins were merely tested by excavating a few scattered rooms and it is not the purpose to enter upon a discussion of details concerning them. They are spread out considerably and are even separated by the creek, but are all prehistoric and apparently of about the same age. Building XVIII was originally supposed to be a part of building IV; likewise building XIX was thought to be connected with building II; hence the discrepancy in numbering them. Their combined capacity will not fall much short of 330 ground floor rooms and though low and flat in appearance the sound stone and adobe walls in them stand from 3 to 6 feet in height.

It may also be explained in this connection that the long wall extending from the northwest corner of building IX towards building V appears to be of prehistoric date and the same may be said of the two rooms indicated as built against its north face.

Building VII. This small five-room affair lying at an angle across the west end of the court separating buildings VIII and IX need not detain us long, though it deserves special mention. The house is of prehistoric date but, judging from its situation on top of a considerable refuse heap (C), it must be a great deal younger than some other part of the pueblo. Nevertheless, the ruin was too small to furnish any satisfactory chronological evidence. Stone was employed in its construction but the remaining walls stood barely two feet high. The rooms were regular and of normal size. No doors were visible and no floor could be discerned. The excavations were carried three feet below the base of the walls, through the refuse heap to the natural surface, in order to secure all data that the stratigraphic relations might offer.

Building VIII. The remains of this structure lie about midway on the south side of the more recent division of the pueblo. Superficially the ruins suggest a building of unusual proportions, being notably high and measuring 450 feet in length and as much as 65 feet in width. The main wing lies east and west, but two short additions project northward. Its calculated ground floor capacity is 253 rooms, a figure not exceeded by any other building in the pueblo.

Only seven rooms were excavated in the big pile and no detailed statement will be attempted. Rooms 1-3 and 5 showed good walls built of adobe blocks, while the other rooms were bounded chiefly by stone walls much less sound and substantial. In room 5 there was a doorway through the west wall, measuring 2 feet 2 inches in height and 1 foot 6 inches in width. The sill was 2 feet 2 inches above the floor level and the whole aperture was framed by thin slabs of sandstone with dressed edges. The wall itself, surrounding the doorway, was 11.5 inches thick. Hard adobe floors resting on the natural surface were found in all these compartments. Contrasted with these, rooms 4, 6, and 7 had no discernible floor, but 4 and 6 were underlaid by nearly 6 feet of refuse. Consequently the building was perhaps not so high as appearances indicate. The superposition here of culture material of different ages makes this another spot in the pueblo worth further excavation. We may dismiss the subject for the present by simply stating that bits of corroded iron, bones of various domestic ungulates, and traces of a new variety of glazed pottery were found in several of the rooms, so that there can be no doubt that most of the building was occupied during historic times.

Building IX a. b. Unfortunately this so-called building is composed of two really separate and distinct parts, connected by thick walls. These walls are prolongations of the north and south wings and were at first thought to be the ruins of actual buildings, but the later removal of grass and cacti and some excavation showed the error.¹ The western section of this building group (IX a) may be passed over with the remark that it is of historic date and that the remains of an older building underlie at least the high west wing. Of special interest perhaps was the presence of two fireplaces in room 27 and the fact that the walls here showed several applications of whitewash. The eastern section (IX b) drew attention to itself because of the apparent incorporation of a kiva (B), which it was finally decided to excavate. In order to do this with the least possible waste of labor some of the rooms surrounding the kiva were also excavated, the result being that the larger portion of the east wing was cleared.

As may be observed on the groundplan, the building was about 50 feet wide, and into this space was compressed no less than six rooms at the south end while across the north end there were only four. In general the 26 cleared compartments surrounding the kiva were irregular both as to size and outline, rooms 11 and 12 especially so. The fact is that the east

¹ This fact of separation, through an oversight, has not been distinctly brought out on the groundplan, where the north and east wings appear to join. That was not the case in historic times, however, though there is some indication of such connection of older and partly removed buildings that once occupied this corner.

wall consisted largely of angular recesses and buttresses with apparently an outside door leading into room 11. The walls, built of stone and in a fair though variable state of preservation, rose to a height of nearly 8 feet at the south end. In places there were holes marking the insertion of ceiling timbers about 5 to 6 feet above the floor, and several fragments of the rotted beams, lying east and west across the rooms, were found in the debris. The building was no doubt two stories high, at least to the south of the kiva. The walls were plastered and showed as many as three successive coats of whitewash. Some rooms were blackened, particularly in the corners, but

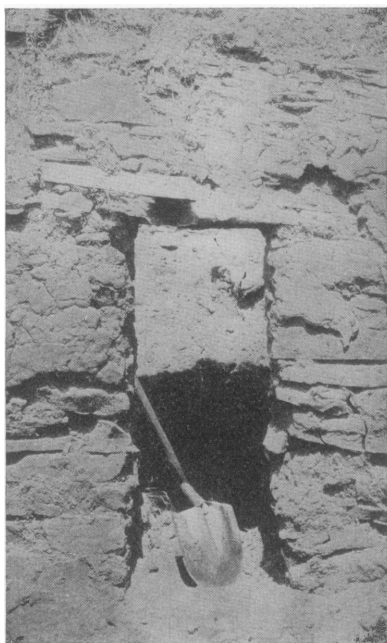


Fig. 5.



Fig. 6.

Fig. 5. Doorway leading into Room 20, Building IX, b, San Cristobal.

Fig. 6. View of the Northwest Corner of Room 13, Building X, San Cristobal, showing the Secondary Wall (on the right) on which the Ceiling Timbers rested; also Height of Plastered Wall above this Ceiling. Note Groove in Wall at Base of Yardstick where Secondary Ceiling Timbers ran through to the next Room. See Fig. 8.

there were no ashes on the floor or other unmistakable indications of fire-places, except of such as belonged to the upper floor. The ground floors themselves were for the most part flagged with stone. Doorways were few and in all but one instance uncertain. Between the kiva and room 11 there were two small triangular rooms or spaces which would seem to have been

open (i e., not filled with debris or masonry), because a door measuring 1 foot 6 inches by 3 feet 8 inches led from one of them into room 20 (Fig. 5). The inference drawn from these facts is that the kiva was constructed some time after the completion of the building and that room was made for it by tearing out some of the partitions of the regular community house. Possibly this was done after the establishment of the mission and kept secret. However, this is pure surmise.

The kiva itself yielded very little of interest. It was circular and measured exactly 20 feet in diameter at the bottom. Its walls were down completely in places and what remained stood to a height of 6 feet and over. There were no visible entrances, though such might have been incorporated in the fallen sections of the wall. The floor was of tamped adobe and was marked by three thin rectangular sandstone slabs. One of these slabs, measuring about 2 feet square, lay close to the center of the kiva. Perhaps it was originally inserted into the adobe floor. Another of the same size lay toward the northwest, not far from the wall, and a third and smaller one lay very near the center slab on the northeast. There was nothing either on top of them or underneath. No traces of fireplace or ashes were discoverable. A few of the common artifacts — mostly fragmentary, some potsherds, and also bones of cattle, sheep, etc., were found. The most suggestive object recovered was a rim fragment of a cast metal bell.¹

From the rooms surrounding the kiva there were obtained numerous artifacts of the usual types. A few pottery vessels of the painted and glazed varieties — probably of prehistoric make — were found, and sherds of all kinds, including some with a greenish, modern-looking glaze, were abundant. Bones of various domestic animals, small and large, were frequent, as were human burials, particularly in or below the rooms on the northeast side of the kiva. It should be explained, however, that these burials may antedate the erection of the building itself, because the northeast portion of it, in common with the south side of building X, stood on a refuse heap.

Building X. This building was singled out for complete excavation

¹ The presence of this bell fragment recalls Bandelier's discussion (Paper Arch. Inst. Am., Amer. Series I, pp. 41–42, 101, 121–122) of the removal of the Pecos mission bell in 1680 to the high mesa in the direction of Pueblo San Cristobal. The author thought that the Indians of the latter pueblo sacked Pecos about the time of the great Rebellion because of its friendly attitude towards the Spaniards, and that later on, in retaliation for this, the people of Pecos assisted the Apache and others to drive the Tanos of San Cristobal and San Lazaro out of the Galisteo basin. As I understand Bandelier's statement (p. 101) he saw the broken bell himself (ca. 1880), where it had been dropped near the head of the canyon leading down to San Cristobal. It would be worth while to match the fragment found here in the historic kiva with those on the mesa if they can be found, as it might verify Bandelier's opinion about an interesting historical question.

because of its apparently fine state of preservation and also because it was small in size and distinctly separated from adjoining structures. Surface appearances proved somewhat deceptive in the end. The expected regularity and simplicity of construction was not fully realized, but nevertheless the undertaking was well repaid. The ruin was an oblong heap of about 40 by 80 feet, with the long axis turned east and west. Its surface was extremely uneven, owing to the standing walls and deep hollows which marked several of the rooms. In one place, however, the ceiling beams were still supporting the debris of the upper story masonry and it was possible to enter the open chamber (No. 8) underneath through a side wall. It was hoped that several such open rooms might exist, where perhaps furnishings, pottery, etc., would be found intact, but this was not the case. The groundplan shows what was found when all the rooms had been cleared, viz., a rectangular structure 5 rooms wide and 5 rooms long, with 2 additional chambers added on to the northwest corner. Judging from some buttress-like projections found attached to the east end wall, it is possible that the building was originally longer than when last occupied.

The excavation brought out a peculiar complex of facts. In the first place the site on which the building stands was neither smooth nor level. The original mesa surface dipped southwestward, but this slope would have cut little figure in comparison with the deposition, on the lower side, of a refuse heap, which was found to extend beneath rooms 1-10, as well as beneath the northeast corner rooms excavated in the adjoining wing of building IX b. Crowded with burials, the mound could not perhaps be disturbed or leveled off so as to produce the ideal building foundation. At any

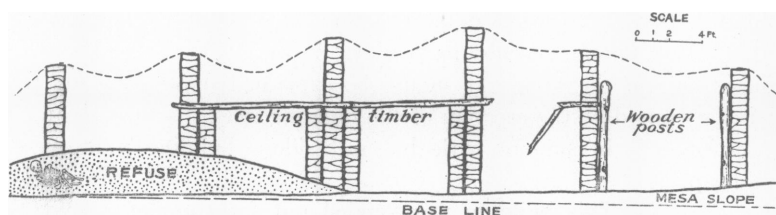


Fig. 7. Slightly generalized Cross-section about Midway on Building X, San Cristobal, showing the Relation of the Building to a Refuse Heap, also the Height of the Ceiling and how it was Supported by Additional Walls, Posts, etc.

rate the bases of the walls do not lie in a horizontal plane or any other sort of plane, but conform to the sloping and generally uneven surface. In the second place there was visible proof that the central part of the building had been two stories high, because the ceiling was in place and the walls rose 3-4 feet above it. (See Fig. 6.) But there was no positive evidence of a second

story to the outside rows of chambers, or even of a roof. A roof, or ceiling, there must have been, no doubt; but it could hardly have been on a level with the ceiling of the central rooms, at least not on the south side of the building, because there would here have been no standing room underneath it. The peculiar conditions are exhibited in the slightly generalized cross-section of the building shown in Fig. 7. Here it will be seen that while the three right-side walls were founded on the surface of the sandstone mesa the three left-side walls rested on refuse from 1 to 3 feet deep. The ceilings of the central rooms are seen to be about 5.5 feet above the native stone floor. Now if this ceiling was brought out to the left on the same level, the room beneath would be less than 3 feet high, allowing 3 to 4 inches for the adobe floor; and if extended to the right, some of the rooms there (not all) would be less than 5 feet high. Another feature of interest is a number of secondary walls (sometimes replaced by upright wooden posts) roughly piled up on either side of the central rooms as if to support the ceiling timbers, the original walls being too weak. This made the lower chambers so narrow as to be practically useless. Some upright posts were also found in the exterior rooms on the right (north) side of the building, but whether these served as ceiling supports or for some other purpose could not be determined. There is thus room for opinion as to the precise exterior lines of the finished building, but there can hardly be a doubt about the meaning of the patched-up condition of the lower central chambers. The building must have stood empty for a time, or else it became insecure, owing possibly to the poor foundation. In either case the last inhabitants found it necessary to strengthen the lower story in order to make the upper story secure.

Inasmuch as the building was entirely cleared and cannot be considered at any future time, some detail features must be mentioned. The size of the rooms, as may be seen in the table of measurements, accorded closely with the general average for the entire pueblo. The walls were weak, being constructed in part of small and somewhat friable blocks instead of large thin plates of stone.¹ Some had fallen completely, as on the southeast corner, and others leaned far out of plumb. Not a single doorway was discovered, but there were several small rectangular insets or niches in the walls of the upper rooms. One of these insets, in room 13, measured 13.5 inches horizontally, 15.5 inches vertically, and 9 inches in depth. It was faced on all five sides with slabs of stone. The walls of the upper rooms were plastered and showed, some of them, 3 to 4 successively blackened coats of whitewash. In the lower rooms there was no whitewash and

¹ Metates and manos, or mullers, were embodied in the masonry of this and several other buildings of the pueblo.

seldom any plaster. Fireplaces were not in evidence on either floor, but ashes were noted in several rooms. The ground floors, except where the native rock surface of the mesa served the purpose, were made of adobe, but the material was dissolved, i. e., it was in such a soft state as not to be distinguishable from ordinary loose earth. In fact no floors could be detected in the rooms underlaid by the refuse heap. The ceiling was made in the customary way. Beams of cedar, sometimes piñon and even cottonwood, measuring 4 to 8 inches in diameter, were laid across the rooms, fully 18 inches apart. Some of these timbers had been chopped with a dull tool, perhaps a stone axe; others were charred at the ends as if they had been

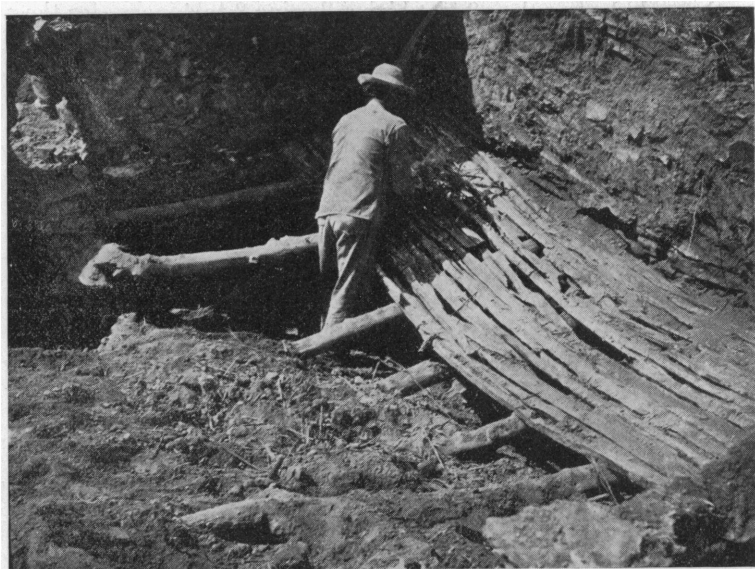


Fig. 8. View of Room 13, Building X, San Cristobal, showing Details of Ceiling Construction. See also Fig. 6.

burned down to proper lengths. All were blackened by smoke on the under side. Resting on these beams and placed close together was a series of thin poles (diameter 1-3 inches) and split rails of piñon and cottonwood, which often extended through the end walls into the adjoining rooms. On top was strewn a layer of reeds, twigs with leaves adhering, etc., and the whole was covered with adobe (Figs. 6 and 8). In room 12 the adobe surface of the upper floor bore evidence of having been carpeted with an even layer of pine bark.

Numerous artifacts, some pottery vessels and a tremendous quantity of animal bones, as well as a large series of human remains representing all

ages, were recovered from the debris of building X. Besides the specimens of native manufacture, several fragments of sheet copper were found. Among the animal bones were a number of horse heads, young animals, that bore marks of having been killed by a blow between the eyes. The human skeletons, it must be explained, were found, not in the rooms proper, but underneath in the refuse heap. Most of the pottery vessels were found in the lower chambers and while they were made perhaps in prehistoric times, it is impossible to say that they were not used at a much later date. An interesting discovery was made in room 1. There were here in the northwest corner the remains of a small chamber, ca. 3 by 3 feet in size, enclosed by adobe walls still standing in part to a height of 2 feet. Within the chamber were the osseous remains of three eagles.

Building XI. The mound so designated joins the west wing of building XV but is probably not a part of it. Only one room was excavated and while it yielded many interesting facts it will be necessary to pass over the subject matter briefly. The building was two stories high and seems to have been rehabilitated somewhat after the manner of its neighbor, building X. From the charred condition of the timbers found in the debris it seems probable that the structure was burned. Metates, cooking stones, numerous thin rectangular slabs of sandstone with dressed edges, polishing stones, potsherds, animal bones, etc., were uncovered. The building is of historic date.

Buildings XII, XIII, and XVII. By the time buildings I-III, VII, IX and X (these being the first to be investigated) had been excavated or thoroughly tried out, it had become tolerably clear just what constituted the difference between historic and prehistoric remains. Furthermore, building VII had shown that there were prehistoric ruins on the north side of the creek and surface indications bespoke the presence of others, Bandler's assertion notwithstanding. To make sure on this point it was decided to clear a promising ruin or two some distance away from the center of the pueblo and buildings XII, XIII, and XVII, on the southeastern extremity of the village, were accordingly chosen. The work was not carried to completion, only 26 rooms being cleared, because it soon became evident that they were indeed prehistoric ruins, perhaps as old as any of those south of the creek. That fact made certain, it seemed best, in view of the intended scope of the field-work, to bring the investigations at San Cristobal to a close by merely testing the various untouched ruins for clues to anything new or unusual.

The three buildings under consideration presented no absolutely unique features. They had all been relatively small and simple structures. Nothing positive can be said about building XVII because, as previously stated,

the debris had been removed until the walls rose barely 2 feet, but the other two buildings had certainly been two stories high. It must be admitted, however, that there were present only the faintest indications of ceiling timbers. Most of the rooms were of normal size and regular outline. The floors, where not made by the underlying native rock, were of adobe. The walls were built of stone slabs laid in mud and were generally in fair condition.¹ Plaster and whitewash were noticeable in a few chambers, at least in buildings XII and XIII. Some of the walls were also blackened. Doors were found in the north walls of rooms 2 and 4 of building XII, measuring 15 by 15 inches and 14 by 18 inches respectively. A single fireplace (Fig. 9)



Fig. 9. View of a Typical Fireplace, found in Room 12, Building XIII, San Cristobal.

occurred on the floor of room 12, building XIII, midway on and against the east wall. It was lined with stone slabs on all sides, as well as on the bottom, and was full of ashes. The horizontal inside measurements were 13 by 21 inches and the depth 9 inches. The run of specimens was much like that of the ruins on the south side of the creek. Few burials occurred and no domestic animal bones were recovered, likewise no greenish glazed pottery. A black corrugated jar with cover was found standing on the floor in the

¹ There is a two-foot jog in the east wall of room 3, building XIII, which has not been indicated on the groundplan.

northwest corner of room 5, building XII, and a similar vessel stood in the southwest corner of room 12, building XIII.

Buildings XIV-XVI. As will be observed on the groundplan of the pueblo, the buildings under this heading were merely tried out by the excavation of two or three rooms in each separate structure. The work done was however sufficient to answer the most important question concerning them, viz., their historic or prehistoric origin. Buildings XIV and XVI, like V-VII and also those referred to in the preceding section, were no doubt in ruins before the establishment of the pueblo of mission days. The same appears to be true also of a large part of building XV, but not of all of it. The western wing of this structure, adjoining building XI, furnished evident proof of historic occupancy and must be grouped with buildings VIII-XI as part of the historic pueblo. To go into details at this time about the eight rooms here cleared of debris seems unnecessary as there is nothing new to be said.

Refuse Heaps. The readily visible accumulations of ashes and other debris scattered about on the outskirts of the pueblo have already been mentioned in the general description. In addition it was pointed out later on that parts of buildings I, VIII, IX and X were founded on deposits of the same nature, but deposits which were not visible on the surface outside the buildings in question as in the case of building VII, which stands on the east end of refuse heap C. The hidden refuse heaps were accidentally dug into before their real nature and their relation to the superimposed buildings were fully comprehended; hence the results obtained from them are not entirely satisfactory, owing to the possibility of artifacts from the buildings and from the refuse beneath having become mixed. The refuse, made up largely of ashes, potsherds, animal bones and presumably other waste debris, was everywhere rich in burials. These burials antedated, at least in some and probably in most cases, the construction of the buildings above them and were as a rule in a poor state of preservation because of the unnaturally moist condition of the debris. In the case of the visible mounds the contour permits the rains to drain off quickly and the debris here is consequently kept dry as powder from the bottom to within a few inches of the surface. With a view therefore mainly to securing a series of good skeletons, trenches were opened in all but one of the larger deposits. Unfortunately, nearly all of this work was done immediately before quitting the pueblo and as a result in some haste. Fully 6000 cubic feet of material was handled and quite a number of skeletons, as well as artifacts of bone, chipped flint, etc., were obtained. In addition the workmen threw aside all fragments of stone and pottery and the examination of the latter revealed differences in kind, as between mound and mound, not indicated by the

surface specimens. In other words, while there is little variation in the nature of the glazed pottery found in the excavated ruins, there is a decided difference, both in general finish and in ornamentation, exhibited by the sherds found in the refuse heaps. Pottery of the general style found in the ruins is confined to the refuse deposits on the north side of the creek, while in mounds A and B there are remains of a different and really finer type of ware, which is unquestionably the older of the two. Opportunity was not afforded to take up careful stratigraphic work, but there can be no doubt that these refuse heaps are worthy of further study for chronological purposes.

RESULTS AND CONCLUSIONS.

In view of the prospect of further investigations at San Cristobal in the near future it is useless to try to say the last word at this time. Nevertheless, it may be well to summarize what has been accomplished to date and to state such conclusions as the facts at hand seem to warrant.

The work at Pueblo San Cristobal, besides mapping the ruins, included the excavation of 239 ground floor rooms. One kiva was completely cleared and two others were tried out. A watch tower, if perchance it is not another kiva or shrine, was also cleared. Some digging was done in all but one of the seven principal refuse heaps and, lastly, two near-by rock-shelters were investigated to the extent of determining their relation to the pueblo. As a result of this labor 1016 complete artifacts, belonging to about forty different types, were recovered. To this figure might be added also 1191 incomplete artifacts (mostly of stone), several bushels of potsherds and of animal bones, and lastly 131 human skeletons.

The main problem to be settled was the location and extent of the historic part of the pueblo. This is located directly above the chapel, somewhat central in the group of ruins on the north side of the creek, and has been differentiated on the groundplan by heavier shading. Twelve buildings or wings of buildings are included and their combined capacity is estimated at about 650 ground floor rooms. However, some of the buildings, though apparently not all of them, were more than one story in height and it would be fair, no doubt, to increase the capacity of the historic pueblo by almost one-half, i. e., to about 975 rooms. Now if all these rooms were habitable at the same time they ought easily to accommodate 800 people, the number of inhabitants attributed to the village in 1680 by Vetancurt and Bandelier (see note, p. 36). Some doubt is thrown into the problem, however, by an appreciable difference in the state of preservation of the ruins concerned and until this entire section of the pueblo has been excavated it will be profitless to take sides in the historic question at issue.

The investigation, it will be evident, was not exhaustive. It was not intended to be. The work was dropped almost as soon as the main facts about the pueblo and its history became clearly discernible. That point was not reached, however, without the expenditure of considerable time and labor, and the knowledge thus obtained was made to serve as a key to the study of the other pueblo ruins in the Galisteo region.

In conclusion, if all the suggestive facts be taken into consideration, such as the number, size and variation in the nature of the refuse heaps, the construction of buildings on top of several of these deposits, the burial of ruins underneath refuse heaps, the superimposed ruins, and the incorporation of worn-out or useless metates, mullers, etc., in the masonry of several buildings, it is possible to affirm with some confidence (1) that Pueblo San Cristobal is an old settlement, both relatively and absolutely; (2) that the village grew from small beginnings; (3) that the center of habitation shifted back and forth from time to time; and (4) that, in all probability, the whole pueblo was never at any time fully occupied.

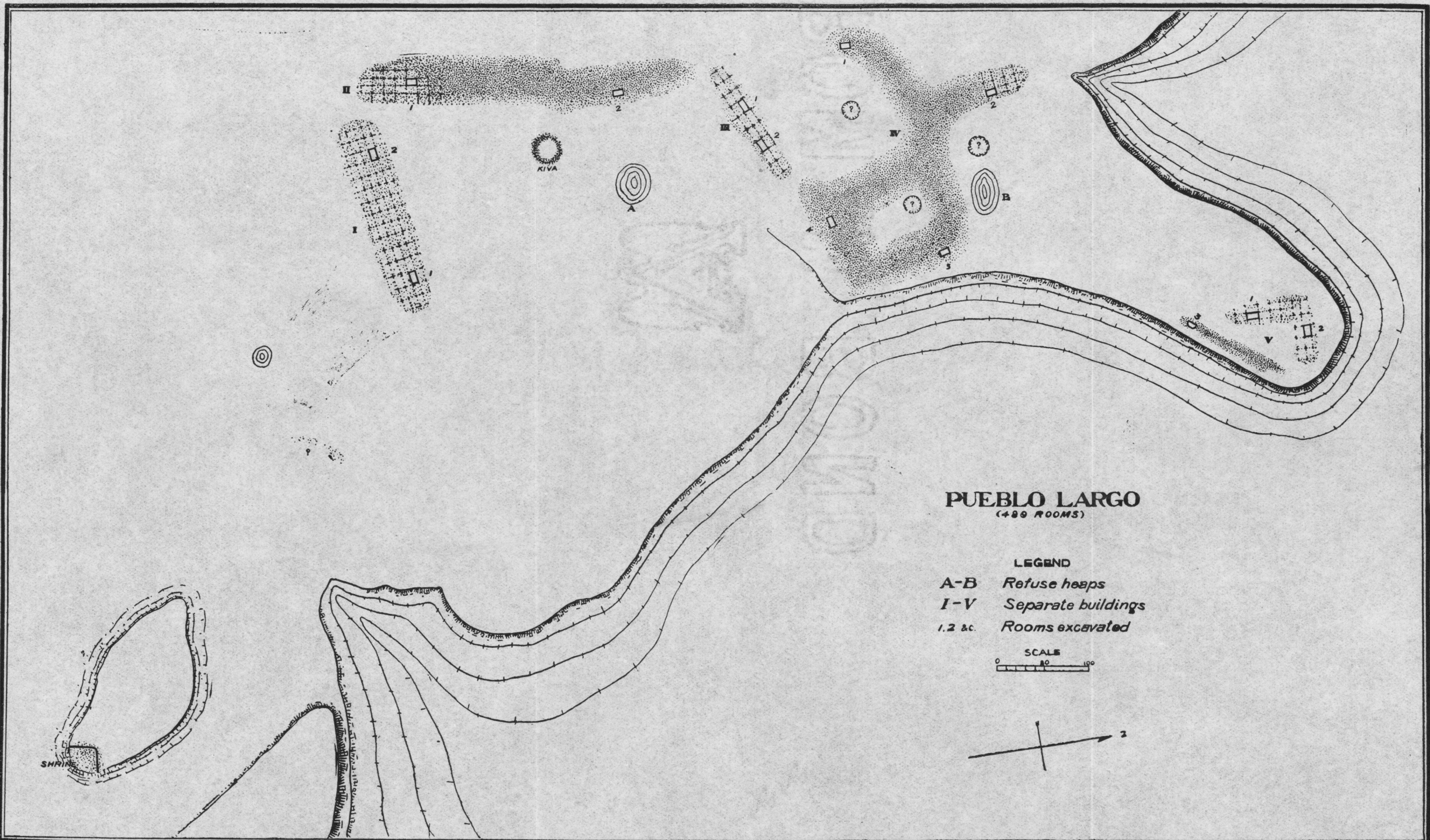
PUEBLO LARGO.

From the San Cristobal ruins and extending directly southward for about seven miles or more is an open meadow-like ravine perhaps half a mile wide on the average. This grassy plain rises somewhat gradually to a forested mesa on the east, but on the west it is bounded for the most part by a rather abrupt escarpment. Between four and five miles south of San Cristobal and on the extreme edge of this western escarpment lies Pueblo Largo, or Long Village.¹

SITUATION.

The situation of this, the smallest of the Galisteo pueblos, is somewhat striking, as may be judged in part from the appended groundplan (Plan II). The buildings lie on a sloping though partly uneven surface and fall, roughly speaking, into three groups. Of these the two large separate ruins at the southern extremity lie on smooth ground and some distance back from the escarpment; two other small ruins, at the northern extremity, lie out on the tip end of a prominent spur of the mesa, on slightly higher ground, while the center group of buildings is situated at the commencement of this mesa spur, on the highest elevation and about as close to the edge of the steep declivity as it could well be. Only a part of the escarpment presents anything like a vertical exposure, most of it being simply a steep and rather difficult talus slope, except at the indentation off the south end of the pueblo where an easy trail leads down. The exact height of the declivity was not ascertained, but while it varies somewhat in different places it is probably nowhere much over 100 feet. To the west and south of the pueblo is a semi-forested plain with interspersed open stretches, sloping gently westward for about three-quarters of a mile to the next rising escarpment.

¹ This ruin is not particularly well known to the Mexican residents of the Galisteo country. Some call it Pueblo Estacado, after the long ravine below it on the east, and others refer to it as Pueblo Largo, a name which the site merits better than any other ruined village of the Galisteo group on account of the disposition of its buildings. The pueblo is located on Senator Pankey's ranch and is specifically named Largo on the old maps of his estate, for which reason I have ventured with some hesitation to let that name stand, even though Bandelier has applied the name Largo to an entirely different ruin. The Largo of Bandelier, or, as called by the Tanos, "Hishi" (see Bandelier, Final Report, p. 106), is located ten miles away on the southwestern extremity of the Galisteo basin. This last-named site was spoken of by some local residents as Pueblo Largo, to be sure, but others knew it as Pueblo Blanco, presumably on account of some whitish rock exposures in the vicinity. I have therefore, at the risk of causing some confusion, named it Blanco.



Here, at the southern extremity of a red sandstone spur, were found traces of a spring (called Pueblo Spring on the map of the Eaton Grant), and on the smooth rock exposures in the vicinity are a number of interesting pictographs. On the plain itself, between this spring and the ruin, there are also a few water holes, and similar water holes can be found on the flat bottom of the narrow valley below, i. e., to the east of the ruin. No artificial reservoirs were discovered, however, and one is forced to conclude that unless some good spring lies choked up in the vicinity the people of Pueblo Largo might have been hard put to it for water at times. Parts of either the upper or lower plain might perhaps do for agricultural purposes, but on the whole the site is not attractive, except from a military point of view. The outlook is good in all directions and it would have been extremely difficult for an enemy to have surprised the pueblo.

GENERAL DESCRIPTION.

Communal Buildings, Kivas, and Refuse Heaps. Pueblo Largo comprises only six separate community houses. Three of the buildings are very small but the other three attain considerable proportions. The estimated capacity of the village is 489 ground floor rooms; and this figure, as usual, can safely be increased by about one-half for upper story chambers. A dense growth of cactus covers all of the buildings, owing probably not so much to any fertility that the tumbled masonry possesses as to the nooks and crannies it offers where rodents may hide their winter supplies of cactus seeds. Ruins III and V (the latter really two separate structures) look as if they had been dismantled or else are much older than the other buildings, though the latter assumption is not clearly borne out by the nature of the pottery found in them. Building I is a simple rectangular structure, five rooms wide and fifteen rooms long. A good many of the corner walls still protrude above the general level of the debris, so that it is not difficult to estimate the number of ground floor rooms. Building II, lying nearly at right angles to I and separated from it by a gateway, is considerably larger, but its walls are not visible except at the southern extremity. There is a jog in the outline towards the north end, suggesting that the building was constructed in two sections. Building IV is a curiously shaped combination of parts, controlled in their disposition largely by the elevated nature of the topography. The four easternmost wings enclose a small court. Between buildings IV and V there is a depression, most marked on the west side of the mesa spur. In fact the various parts of the group called building V do not lie on the same level. Thus, e. g., the northernmost wing is built up

against a slight escarpment, perhaps five feet high, in such a way that the inner row of rooms lies at the base of the natural wall while the outer rooms, including No. 2, lie on top of the escarpment.

There are traces of one semi-subterranean kiva and this is located close to and midway on the east side of building II. It had a diameter of about 30 feet and was constructed at least in part of stone. There are three other hollows in the wholly or partly enclosed courts of building IV, but that they were really kivas is highly improbable.

Refuse heaps are not much in evidence about the pueblo, though potsherds, chipped flints, obsidian, etc., are freely scattered all about the premises. The deposit marked A is so small as to be practically negligible and mound B does not make much showing either, though it may well be larger than the surface appearances indicate. Time did not permit their examination.

Shrine. About 600 feet to the southeast of the pueblo proper, on the edge of a flat-topped hillock, there are to be found the remains of what may no doubt be called a shrine. The hill in question is strictly speaking a bit of isolated mesa with a solid stone cap, and the fairly steep talus slope leading to the top is some 25 to 30 feet high. The shrine is located on the extreme southeastern edge of this mesa, partly on top and partly on the slope below. A roughly constructed stone wall rises from 2 to 4 feet on the west and north; but of the south and east walls, which were built on the talus slope itself, practically nothing remains standing. The enclosure has been probably about 25 feet square. The floor is quite uneven, being made up of a series of ledges in the scaling rock foundation. Entrance to the place was evidently effected through the east wall, and directly opposite, close to the west wall, stood a large sandstone slab on which was a well-preserved, graven, human-like image. The slab, as shown in the accompanying illustration (Fig. 10), has a visible height of 7.5 feet, is 2.5 feet wide and barely 3 inches thick. Although extending only 1.5 feet below the surface, it stood nearly upright, being firmly wedged into a crevice in the rock floor. Its surface was partly covered with lichens.¹ The outlined image was not pecked into the rock but was rubbed or ground, the line being smooth and shallow but perfectly definite, excepting for the hands which seem not to be present. Stiff and somewhat lacking in proportions, the figure (3 feet 9 inches high) is nevertheless interesting, particularly so on account of two

¹ A stone slab of such proportions, it would seem, must have been not only hard to handle but difficult to obtain. There is, however, a small ledge of the same kind of stone cropping out only about a quarter of a mile to the west. The cleavage here corresponds closely to the thickness of the shrine slab so that very probably it was quarried in this place. The specimen was trimmed off at the top and bottom and brought to the Museum.

horn-like projections on the head, two additional pointed projections on both sides of the lower part of the trunk and, lastly, a deep and well-defined slit in the center of the chest. Precisely who or what the figure represents or whether it is unique, the writer is not prepared to say.¹ Traces of a similar



Fig. 10. Partial View of Shrine at Pueblo Largo, showing some of the Standing Wall and also a Large Figured Stone Slab. Pueblo Colorado lies at the Base of the Distant Cliff.

figure were found on a smaller slab which lay broken in pieces on the floor of the shrine. The largest fragment is set up in the right of the illustration and shows the right shoulder and arm. Another large lichen-covered slab, found set into the ground but leaning hard to the left, may also be seen. No inscription could be discovered on its surface.

Inasmuch as there was practically no soil within the limits of the shrine, excavation could yield nothing. The interior was nevertheless cleared of slabs and debris as far as seemed worth while, but nothing was found save a few curiously shaped rocks mostly of the nature of concretions. These lay buried close to the standing slab and were presumably fetiches.

¹ Espejo mentions numerous idols and also some chapels located on high places in the Rio Grande country, so that the discoveries here and in some of the following pueblos seem to verify his observations. See Hakluyt Voyages, p. 393.

EXCAVATIONS.

Owing chiefly to the difficulty of obtaining water for camp use in the vicinity of Pueblo Largo, no more labor was expended on the site than was absolutely necessary. Two or more rooms were excavated in different parts of each of the buildings and when the resulting finds showed beyond a doubt that the culture represented was identical with that of the prehistoric San Cristobal the investigation stopped. Only a few items need be mentioned. The walls were found to stand from 2 to 7 feet in height. Having been built of choice, i. e., large, thin, stone slabs, which occur in unlimited quantity on the adjacent talus slope, all the standing masonry was generally in fine condition. Some plaster remained in several of the rooms, but whitewash was not detected. There was a doorway in the south wall of room 1, building I, 8 inches above the floor and measuring 1 by 2.5 feet. Likewise in room 2, building II, there were framed doorways or openings in the east and west walls, measuring 1 foot 2 inches by 2 feet 9 inches and 1 foot 5 inches by 6 inches respectively. The few rooms excavated varied somewhat in size but were all approximately rectangular with the exception of No. 3 in building V, which had two of its corners beveled off. No fireplaces were found though some walls were blackened, and in room 1, building IV, there were some charred timbers as well as over a half bushel of carbonized maize of good quality. Some of the plaster in this room was burned a brick red, an evidence of unusual heat suggesting that perhaps that part of the pueblo was burned.

RESULTS AND CONCLUSIONS.

The transportable collections obtained from the clearance of 13 rooms were of course not large. Only 48 complete artifacts were recorded, but to these could be added 13 incomplete specimens, besides a small quantity of animal bones and a somewhat larger quantity of potsherds illustrative of the glazed, painted, and corrugated wares. No pottery vessels were found intact, though a large, partly broken and possibly complete jar of the corrugated type was found in room 1, building I. The rest of the finds included metates, manos, polishing stones, grooved axes, and chipped points of flint, obsidian, etc. Only two burials were noted.

The only pertinent conclusion to be drawn from the hasty examination

of Pueblo Largo is that the settlement is of prehistoric date.¹ But while this is unquestionably true, the nature of the pottery and the general state of the ruin lead one to believe that the settlement cannot begin to compare in age with Pueblo San Cristobal. In other words — and this is also suggested by the lack of refuse heaps — Pueblo Largo cannot have been occupied for a very long period of time; and the indications are not wanting that its abandonment was forced by some human agency.

¹ Probably the site was never seen by Spaniards or the shrine image would most likely have been destroyed.

PUEBLO COLORADO.

The next ruin to be considered is located about two and one-half miles southwest of Pueblo Largo, at the base of a towering cliff. The site is most easily reached by going down the broadening plain to the west of Largo, but even here it is next to impossible to find passage for a vehicle on account of the numerous deep gullies that intervene. One enters gradually a roundish, meadow-like depression, which is a sort of Galisteo basin in miniature, with drainage outlet also to the west through a deep, narrow canyon.¹ And at the point where the main stream channel of the small basin enters its funnel-shaped gorge lies the ruined village, known as Pueblo Colorado² on account of the strikingly red color of the sandstone of which it was built.

SITUATION.

Picturesque above all in its immediate surroundings, Pueblo Colorado also bears witness to the strategy and good judgment of its founders. The ruins lie on an easy, somewhat exposed slope perhaps four hundred yards from the right bank of the main arroyo and nearly three hundred yards away from the base of a 250 foot cliff or escarpment presented by the high and rugged mesas extending away to the north (see general map, p. 36).³ The situation affords only a limited view, even to the southeast, in which direction it is open for some distance; but for all that the place is by no means insecure. Attack could not, e. g., be made from the north, while at the same time the top of the cliff directly above the pueblo furnished a good lookout point, as may be judged in part from Plate 2. But the site was hardly chosen on account of its military strength, if one may speak in such terms, the chief secret being rather the presence of an excellent spring which issues at the head of a deep canyon, or indentation in the cliff directly to the northwest. And it is precisely in this connection that military sagacity is

¹ The basin, which is included in the Pankey Ranch, is known locally as El Chico and the main stream (really the headwaters of the Arroyo Jara) down to its emergence on the Galisteo plain, about 1.5 miles below Pueblo Colorado, is sometimes referred to as Chico Creek, the canyon itself being called Cañoncito Colorado.

² Bandelier (Final Report, II, p. 106) gives the Tano name of the village as Tze-man Tu-o.

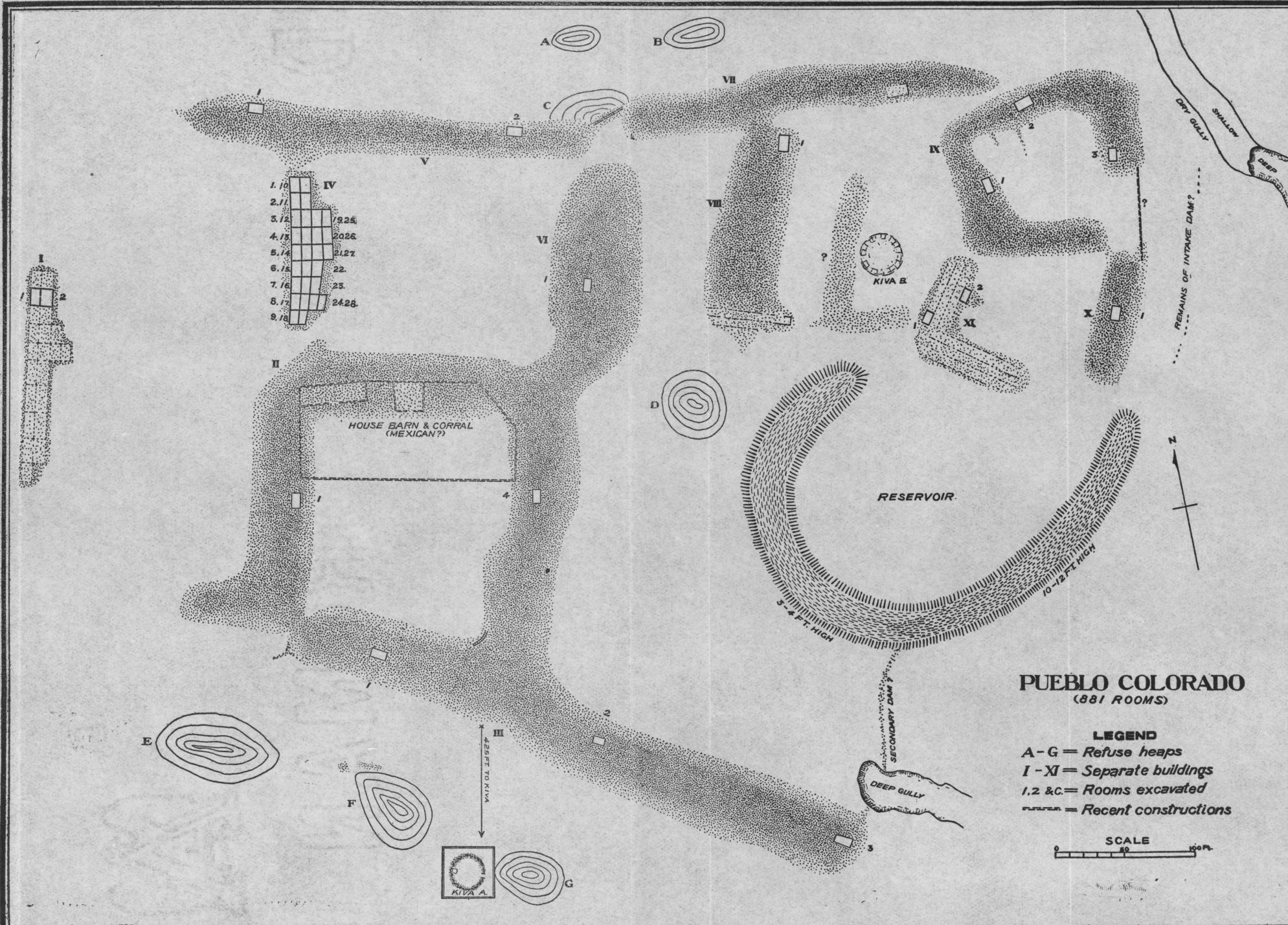
³ Attention is called to the fact that the symbol for Pueblo Colorado is not quite correctly placed on the map. The village should be more to the southwest, i. e., about half way between the escarpment and the creek.



PUEBLO COLORADO

General view from a high cliff looking across the ruins in a southwesterly direction. All except building I (on the extreme right) are covered with cacti and are easily distinguished.

(Page 74)



displayed. The spring is a quarter of a mile or more away from the pueblo and it furnishes the only good water in that region, the flow in the creek being uncertain as well as decidedly alkaline. If economy alone had been consulted the pueblo would have been located back in the sheltering canyon, near the spring. There was some fuel timber here and building stone would have been as handy as where the pueblo now lies. However, had the pueblo actually been located back in the canyon referred to, no outlook would have been possible and no watch could have been kept on the corn-fields bordering the creek below; what is more, it would have been the easiest thing in the world for an enemy to have bottled up its inhabitants and starved them out because the sides of the canyon rise like immense cathedral walls and could not have been scaled in any attempt to escape.

GENERAL DESCRIPTION.

Communal Buildings. Pueblo Colorado is represented on the accompanying groundplan (Plan III) as being made up of eleven distinct communal buildings disposed in such a way as to enclose at least four separate courts.¹ Some of these buildings are straight and simple in outline while others are composed of two, three, and even four wings; but it is by no means impossible that future excavations may show the actual number of free-standing houses to be either more or less than the given estimate. Examining the groundplan it will be noticed at once that the various buildings differ markedly as to width, size, and even as to general trend of orientation. That is, there is, so to speak, a lack of unity among the various parts of the pueblo. There is also a noticeable difference in the state of preservation of individual ruins; buildings I and XI, e. g., have been dismantled so that the remaining walls stand only 2.5 feet high, against 7 feet or more in some of the other buildings. The meaning of all this has not become clear, however; and so, irrespective of any possible succession of habitations in the pueblo, its total capacity has been placed at 881 ground floor rooms. But nearly all of the buildings must have been two stories or more in height, thus permitting a considerable increase of housing facilities. Substantial walls spanned the gaps between buildings V and VII, likewise between IX and X, and these no doubt date back to aboriginal times. But some recent settler must be held responsible for the remaining walls of what appears to have been a house and barn, with corral, to be seen on top of and adjacent to the north wing of building

¹ There are faint traces possibly of another building lying between buildings VIII and XI.

II.¹ In general appearance the Colorado ruins vary but little from those of the neighboring pueblos, unless perhaps they are more prominent. One noticeable feature is that the walls in many places appear to have fallen en masse, because large sections of the masonry lie precisely as put up, but in horizontal positions. Cactus bushes cover all except the two dismantled buildings.

Kivas. A circular shrine or kiva (A), 21.5 to 22.5 feet in diameter, is located off by itself some 425 feet west-of-south of the main pueblo. It lies close to a slight declivity and on a solid rock foundation. The place was therefore not subterranean, while at the same time the debris present is insufficient for the construction of a wall more than possibly 2.5 feet in height. A few of the lower courses of this roughly piled stone wall still lie in place and a doorway through it is definitely fixed, on the east side, by two large standing slabs set 2 feet 9 inches apart. These framing slabs are fully 3 feet across (i. e., slightly broader than the wall itself) and stand to a height also of about 3 feet. They are kept in place at the bottom by a similarly broad horizontal slab forming the sill, but incline to 1 foot 6 inches at the top, and probably intentionally so. On the left hand face of this door frame is pecked a circle 19 inches in diameter, and some irregular figures have been cut on the door frame opposite. The entrance had apparently been closed from the inside by another slab, which still stood in place, though it is possible that this particular stone may have been the top of the door frame fallen down across the inside of the entrance and kept in an upright position by other debris. Directly opposite the entrance, close to the back wall, stood a leaning slab measuring about 3.5 feet square and without detectable inscriptions of any kind. In order to obtain possible clues to the function of this ruined structure, a shallow trench was cleared along the inside of the wall and another from the entrance across the center to the large standing stone slab. From these excavations were obtained several potsherds, a fragmentary mano, over 40 rather oddly shaped but waterworn boulders, some quartz pebbles, some smoothened pebbles of iron ore, some nodular concretions, a small stone disk, a large stone disk, and finally an angular slab of sandstone ca. 15 by 19 inches, with several artificial perforations worked from opposite sides. Nearly all of these specimens were found in a heap close to the standing slab. The sum of the evidence seems on the

¹ Little attention was paid to this ruin, which seemed so clearly to be of Mexican origin, until one of the workmen reported that some Indians from the pueblo of Santo Domingo had made a temporary settlement at Colorado some sixty or seventy years ago. No one could substantiate the story or furnish any particulars, however; but some color was lent to it afterwards by the fact that in clearing a portion of the house there were found fragments of a glazed pottery vessel of the type characterizing the historic pueblo ruins, such as San Cristobal, San Lazaro, and Galisteo.

whole less suggestive of a typical kiva than it does of a shrine like that already described at Pueblo Largo.

A circular hollow appears to mark a real subterranean kiva (B) in the court partly enclosed by buildings VII-IX. The approximate diameter was 38 feet and at three different points in the perimeter stood a short, thick and much weathered post, probably either of pine or piñon. The tops of these posts, rising a foot or so above the surface, were cut squarely off. On being dug out, the largest and best preserved was found to be practically rotted away below ground, but traces of it could be seen to a depth of fully 2 feet. The matrix surrounding the post was pure adobe and no traces of stone walls or anything else artificial could be found on the edge of the hollow. It may have been a kiva in process of construction, but in any case the wooden posts still remain a mystery.

Refuse Heaps. Seven refuse and burial mounds were noted about the ruins, one of them (D) being within the limits of the village proper. Excepting C, none of these deposits were over a foot or two in thickness, and while they were tried out in a superficial way to learn something of their depth and general nature, there is nothing of importance to be said about them.

Reservoir. It seems that the inhabitants of Colorado did not choose to rely on their nearby spring alone. Perhaps it was a little too far away, except for emergency purposes. At any rate, they expended a good deal of labor in constructing a semicircular reservoir within the large court on the lower east central side of the pueblo.¹ The tank is now silted up to a considerable extent and the dam has been washed down on the south side; but along on the necessarily highest east side it still rises 10 to 12 feet above the natural surface. It is built mainly of adobe but also in part of stone slabs set on edge. The manner of filling the reservoir seemed a puzzle at first, but a few faint traces of what must have been an intake dam were finally discovered connecting the reservoir with a small dry gully which drains a portion of the nearby talus slope and passes close to the northeast corner of the pueblo on its way to the main arroyo (Plan III). In this way the flush of the summer showers was easily conserved, though the altered topography would make the feat difficult today. The overflow from the reservoir went over the south edge of the dam and into the court, where it was caught in another gully touching the southeastern corner of the pueblo.

¹ See Plate 2, as well as the groundplan.

EXCAVATIONS.

Building IV. After having tried out all of the pueblo by the excavation of 20 scattered rooms, it was finally decided to clear building IV. This was a small structure distinctly separate from any other building and relatively free from cacti. The work occupied less than a week and the architectural results laid bare have been made tolerably clear on the general ground-plan. The building turned out to be 10 rooms long and 2 to 4 rooms wide, with a total capacity of 28 ground floor rooms. From the appended tables of measurements the chambers will be seen to have been seldom rectangular and on the whole narrower and at the same time longer than usual, the average for the building being 6 feet 2.04 inches by 11 feet 3.45 inches. The walls, consequently not quite straight nor parallel, were almost uniformly less than 1 foot in thickness (range 8–12 inches) and stood to a height ranging from 2.5 to 5 feet. They were built in the usual way, of stone slabs laid in adobe, and were fairly substantial. A considerable amount of mud plaster remained in place, and in rooms 13 and 17 there were traces of white-wash. In several other rooms the walls were blackened, though fireplaces were found only in rooms 18 and 27. The hearth in room 18 was set into the floor and against the east wall. It was framed with stone slabs and measured 14 by 20 inches. One of the conventionally shaped stones that serve to support the cooking slab was still in position and the place itself contained 6 inches of ashes. The other fireplace, in room 27, was likewise framed but was raised on a 4-inch platform in the center of the room and adjoining it in the northeast corner was a large bin partly filled with ashes. The floors themselves were flagged with stone in a few rooms, but generally they consisted of hard adobe, more or less cracked and blackened. No less than 11 doorways were found connecting inner rooms and a twelfth door was found in the outer wall of room 3. These openings, sometimes framed and sometimes not, were all a foot or so above the floor level and ranged in size from 9 by 22 inches to 20 by 36 inches. None of these details were entered on the groundplan because the reduction would make them indistinct.

Most of the preceding details could be repeated for any one of the other buildings, but no new data would be added that have not been brought out in the tables of measurements. Hence description of these merely tried-out ruins may be left to the future.

RESULTS AND CONCLUSIONS.

From the 47 rooms excavated at Colorado there were listed 385 complete artifacts and almost an equal number of broken or incomplete forms. As an example of how the material runs in these pueblos, it may be stated that the 385 complete specimens included 35 metates, 122 manos, 8 cooking slabs, 33 rectangular dressed slabs, 11 circular slabs (pot covers?), 11 rubbing-and-hammer stones, 16 polishing stones, 19 fine grooved axes, 9 grooved arrow-straighteners, 5 chipped flint points, 3 shell pendants, 7 pointed implements of antler, 5 chisel-like bone implements, 17 bone awls, 4 bone flutes, and 3 pottery vessels. The pottery vessels were small and of the glazed variety, but of no particular interest. Sherds¹ and animal bones, quantitatively speaking, ran about as usual. Six incomplete human skeletons were found, some in refuse heaps C and D and some in room 1, building IX, beneath which there may possibly be buried a deposit of ashes, etc. A sculptured intaglio impression of a natural size hand was also removed from a rock near the pueblo.²

In agreement with Bandelier's general conclusions regarding most of the southern Galisteo pueblos, Colorado may safely be put down as prehistoric. If Indians inhabited the site at any later time, as is barely possible, it was only temporary. The settlement, like San Cristobal, gives some evidence of having grown from small beginnings, and while the duration of its occupation cannot have been as long as that of San Cristobal, it was certainly longer than that of Largo. Whether Colorado was abandoned before or after Largo is difficult to say, but the probabilities seem to favor Colorado as the first of the two to be vacated.

¹ Among the pottery fragments found in building IV there were two (found in separate rooms) which were clearly of foreign make. The body of the vessel represented was of a lemon color and the ornamentation consisted of dark brown lines and dots. It resembled Hopi ware more than anything else.

² It might be added that there are a number of interesting pictographs in the vicinity of the pueblo, some on boulders at the base of the talus slope and others on what appear to be inaccessible points on the vertical cliff. For example, there are some bird figures at the top of the cliff near the head of the next canyon below the spring, and there is a large human figure, visible at times, on a very high smooth stretch of the cliff to the north of the pueblo. A half size European figure (priest?) has been cut on a boulder within 800 feet of the northwest corner of the ruin. Some of the figures may not be of Indian origin, but this cannot be true of all.

PUEBLO SHÉ.

The ruins of Pueblo Shé¹ are located in the Galisteo basin proper, about five miles southeast of Galisteo. They lie close to the left bank of the Arroyo Jara, i. e., the identical stream which passes Pueblo Colorado, and the two villages are barely three miles apart. Passage from one to the other is nevertheless impossible except on foot or horseback, owing to the intervening canyon. The site, in common with Largo and Colorado, has been mentioned by Bandelier in his Final Report, but it appears never to have been visited by anyone particularly interested in archaeology.

SITUATION.

The immediate environs of Pueblo Shé are singularly bleak and uninviting. Approach from whatever angle the visitor may choose, he will come upon the site unexpectedly, as it lies in the practically open and barren landscape. But a short stay at the place brings out a number of real advantages which the situation affords and advantages which would hardly be observed in passing. In the first place, while the settlement seems to lie on the flat floor of the small valley, down which comes the Arroyo Jara in a northerly direction before turning westward through the rolling basin country, it is really set into a sheltering hollow of these same basin hills. The shelter is not very noticeable to the eye except on the south, but the actual effect is that the site does not get the full force of any wind unless it blows directly from the north. In the second place, there is a spring within the limits of the pueblo (Plan IV) and there is another spring about half a mile to the east, at the head of a small gully leading out of the foothills to the main arroyo. Moreover, there is usually water in this principal arroyo, alkaline to be sure, but useful; and level land, suitable no doubt for agricultural purposes, is plentiful on both sides of the stream. Building stone was to be had close by at small outcrops and talus slopes off both the southwest and northwest corners of the village and also farther away to the southeast along the edge of the valley. Some wood for fuel could have been gathered on the hills to the south though all building timber must have been brought from a distance. Nor was the general openness of the surround-

¹ Pronounced "Shay" and sometimes spelled "Ohe." The place is the fourth and last of the sites on the Pankey Ranch to be described in this report.



ings without compensating value for it made the task of guarding against surprises very easy. The indications are, in fact, that a lookout was kept at an advantageous point precisely as at San Cristobal, because there are some remains of a round structure on top of the hill to the southwest close to the edge of the escarpment overlooking not only the village and its immediate surroundings but a large portion of the whole Galisteo basin. The most dangerous avenue of approach, viz., the canyon leading down from Pueblo Colorado, could not be observed from here, however, but would have to be watched from another position on the easternmost edge of the same hill.

GENERAL DESCRIPTION.

Communal Buildings. The main part of Pueblo Shé covers an area measuring about 900 by 1300 feet. The ruins as plotted (Plan IV) indicate fourteen or possibly sixteen separate dwelling houses, oriented, roughly speaking, with the cardinal points and so disposed as to enclose eight or ten courts. These courts are generally connected by gateways, and similar passages also lead from the courts to the exterior. Some of the buildings are very small and others are large, consisting of two to four wings. The total capacity of the pueblo is estimated at 1543 ground floor rooms, a figure which must as usual be increased by something like one-half to get a correct idea of the housing facilities. But it need not be concluded necessarily that all the ruined structures were inhabited at once. Building XI, e. g., has been partly dismantled and the uncertain group of ruins designated XIV is weathered to a point beyond recognition, though upon being dug into the walls are found to stand fully four feet in height. The cactus bushes are also absent on the northern ruins, while at the same time annoyingly plentiful on all the larger buildings to the south. In short, without actual data to prove the point, one gets the impression that the northern extremity of the pueblo is older than the southern.¹

Kivas. There appears to have been three and only three semi-subterranean kivas at the pueblo. One of these (A) is in the court enclosed by buildings V and IX and is so weathered away that there is nothing to be seen but a slight circular hollow in the ground with a few stones lying around

¹ The ruins of a typical Mexican house with traces of the familiar round oven are to be noticed at the northern extremity of the pueblo. There are also the remains of a long stone fence running east past the Mexican ruin for about 600 feet, thence south for about 1500 feet and finally west about 350 feet to the escarpment southeast of the pueblo. Another Mexican house ruin is located on the east close to the arroyo and still another to the east of the arroyo a little south of the Iron Spring.

in places on the perimeter. The diameter of this chamber must have been close to 45 feet. Kivas B and C are the source of some speculation. They are situated on the northeastern extremity of the pueblo and so close together as to appear united. Circular mounds of debris, 2 to 4 feet high, with here and there a stone rising from the original walls, mark the place. The debris itself consists of curiously small angular bits of rock, as if fire-cracked; while the buried walls within — as was ascertained by excavation — are built of fair-sized slabs. The chambers must have had diameters approaching 45 feet and were both entered from the east.

Watch Tower. This circular ruin, marked D, is also a puzzling affair. It is situated on the best elevated view-point within hailing distance of the pueblo and on a bare rock foundation. The surface of the hill therefore constituted the floor of the chamber, and yet there seems not to be enough of debris to raise a wall of man's height above it. This same debris is made up mostly of large prismatic blocks of stone, which if laid into the wall with normal care could never have fallen down as they have except through human agencies. The enclosed chamber was about 23 feet in diameter and it may have had a doorway on the east side, although that suggestion is not clearly evident. As there was nothing but stone blocks in sight no attempt was made to clear the place in the effort to find a clue to its function. It may of course have been a shrine, though common sense argues more strongly for its service as a lookout place, or watch tower.

Refuse Heaps. Five or six mounds of ashes and other rejectage occur on the outside limits of the supposedly most recent part of the pueblo, though they are not so immense as the groundplan may seem to suggest. Only the largest of them, viz., D, was dug into, a trench fully 50 feet long and 4 feet wide being run across the highest part of it. The depth of the material was about 4 feet and it contained both artifacts and burials as well as animal bones and potsherds.

Springs and Reservoirs. The pueblo spring has already been referred to and its location has been indicated on the groundplan. On arriving at the ruins no spring was in sight anywhere; but its presence being generally known to the workmen by hearsay, all suspicious looking places were dug into and the right spot located. It was choked with debris and the brackish water in it did not rise to the ground surface. Hence it would seem to have been an easy matter for the Indians of former days to have hidden this source of water supply. The spring was not properly tested and there is some doubt about the quality of the water. The other spring (outside the mapped limits), across the arroyo in the edge of the foothills, is not very strong but nevertheless permanent and at the same time charged with iron. It is known as the Iron Spring and its medicinal virtues are generally believed

in. The waters trickle out at the base of a small east-facing escarpment and are soon swallowed up in the bed of a deep, dry gully cut through this ledge and leading across the narrow flat to the main arroyo.

A few rods to the north of the iron spring there are traces of an ancient dam which must originally have been about 160 feet long and fully 20 feet high at one point near its middle. The reservoir above it was not large, however, owing to the tilt of the hill slope. But the topography which suggested and made possible a reservoir in this place is rather difficult to describe. Perhaps the essential point may be conveyed by the statement that the dam was placed at right angles to the face of a low vertical escarpment. The pressure of the water tore out the high central part of the dam long ago, but both extremes, one at the top of the escarpment and one at some distance away from the base, are both distinctly visible. The second reservoir — also outside the mapped limits — is located about 1200 feet to the west of the pueblo and is made by spanning a shallow ravine with a dam over 300 feet in length. This dam is also partly washed out but it still rises about 4 feet in height and measures 30 to 40 feet through the base. Water is caught in some small holes above the dam and this supply was utilized for the camp during excavations at the pueblo.

EXCAVATIONS.

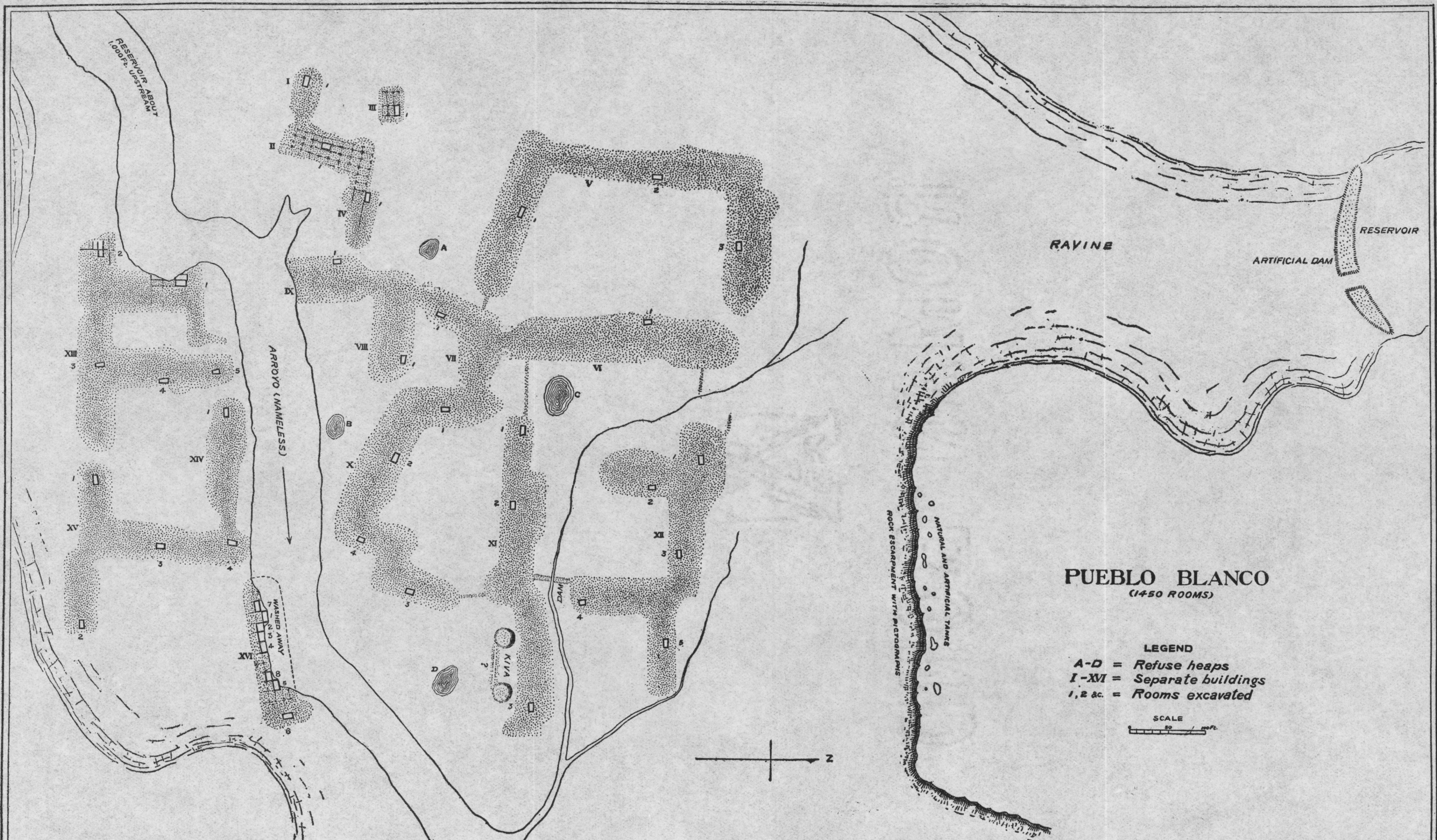
The work accomplished at Pueblo Shé was not all that could be desired. A heavy snow had fallen in the mountains on October 10 and a cold snap followed. The end of the field season seemed at hand. Nevertheless, one to five rooms were excavated in each building and, as that answered the most important question about the pueblo, the work was called off. No one building having been entirely cleared, there is little occasion to write at length about the particular facts discovered, especially as these conform in all essentials to the previously repeated statements. The buildings, with two or three exceptions, were of stone, though not of large, thin slabs, but rather of small thick, angular pieces. Hence, generally speaking, the standing walls were not in the same uniformly sound condition as those of Largo and Colorado. Buildings X, XII, and XIII were of adobe, the walls being in some places constructed of cubical blocks and in another place built of a thick adobe coil, somewhat after the manner of making pottery. The walls rose from 2 to 6 feet in height and were in many instances in good condition. Some plaster remained as a rule, and traces of whitewash were noted in nearly every building. In room 3, building II, this had a pinkish hue. No fireplaces were found, although the walls were occasionally blackened.

Only two doorways were made sure of, and these were in room 1, building IV, and room 2, building IX. They measured 1 foot, 3 inches by 2 feet, 3 inches and 1 foot 3 inches by 2 feet 8 inches respectively. The floors were of solid adobe and nearly always quite level. Comparatively speaking, the rooms were of about normal size, if anything, a little larger than the general average.

RESULTS AND CONCLUSIONS.

Summarily stated, 28 rooms were excavated at Pueblo Shé and the results were 134 complete and 163 incomplete artifacts. The former figure included two small, insignificant pottery vessels. In addition there were listed 11 skeletal finds and normal average quantities of animal bones as well as potsherds of all kinds, corrugated, painted, and glazed. A small lump of coal was found in room 1, building II.

In view of the absence of osseous remains of domestic animals, as well as the absence of the greenish glazed pottery such as characterizes the historic sections of San Cristobal, San Lazaro, and Galisteo, it is safe to affirm that Pueblo Shé is of prehistoric date. It seems also safe to say that it was at no time inhabited to its full extent. At what date Shé was founded and when abandoned is impossible to state, but the indications are that the place was inhabited for a somewhat longer period than Colorado and that it was abandoned possibly before Colorado. These are suggestions, however, based entirely upon superficial evidence and may well be disproved by further investigation.



PUEBLO BLANCO.

Another pueblo in this partially excavated series is located nearly six miles from Shé, over beyond the southwestern border of the Galisteo basin. The ruin in question can be found without difficulty, being situated close to the north base of the locally prominent volcanic dyke and only a short distance beyond the point where this upheaval enters the western foothills. To some this site is known as Pueblo Largo, to others as Pueblo Blanco, the latter name attaching probably on account of some whitish sandstone escarpments that form a sort of gateway to the valley in which the ruins lie. Bandelier passed here in 1882 (perhaps also at an earlier date) and he alone has left us a brief general description of the place, which he called Largo.¹ The term Largo has been replaced in this paper by Blanco.

SITUATION.

As suggested, the ruins of Pueblo Blanco are not situated out in the Galisteo basin proper, but a short distance up a narrow valley immediately below the point where the volcanic dyke referred to crosses that depression. A small arroyo breaks through this dyke about 150 yards off the southwestern corner of the pueblo and comes meandering down through the ruins, having already carried away a part of two or three different buildings. No one can view the situation critically without perceiving that it was deliberately chosen, in spite of certain defects that it possesses. For one thing the valley is considerably expanded at this point and the ground though not level is quite smooth. Again, the place is hemmed in by wooded knolls and ridges on all but the east side, and in that direction one looks for miles out through the mouth of the valley, across the Galisteo basin to the white cliffs rising above Pueblo Colorado, and beyond. Consequently Blanco is well sheltered. There is also building stone and small timber in the vicinity

¹ Bandelier's description, barring his observation on the nature of the building walls and also on the number of kivas present, is generally correct and suggests again that there has been but little change during the thirty years' interval. The circumstances leading to the change of name have already been dealt with in connection with Largo. Had Bandelier been accompanied to the site by some Indian and thus identified it as Largo that name might with some reason have been left; but as there seems to have been both a Largo and a Blanco among the Galisteo pueblos there is no choice but to call this place Blanco. If it is Blanco, and if Bandelier's Spanish and Indian names for these various pueblos are properly matched, then the Tano name for the settlement is Ka-ye Pu (See Final Report, II, p. 106).

and agricultural lands are present both up the valley and out in the basin below. But that practically exhausts the visible advantages.¹ Water is particularly scarce. There is, to be sure, a small "dripping" spring about three-quarters of a mile up the canyon to the southwest; still this natural supply, even if used at all, had to be supplemented by artificial conservation as we shall see presently. The natural strength of the position is likewise not so apparent as to elicit special comment. However, watch could and must no doubt have been kept from various high points in order to give notice of the approach of friend and foe.

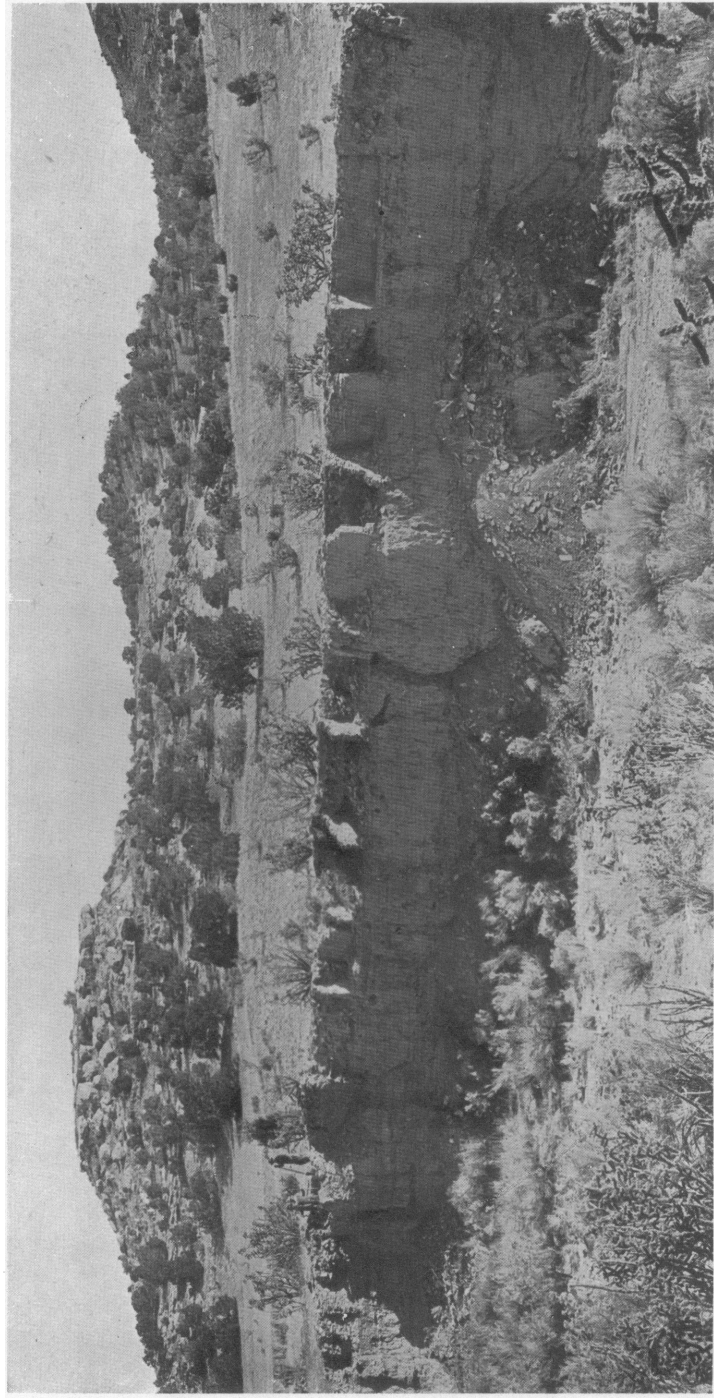
GENERAL DESCRIPTION.

Communal Buildings. Bandelier has described the ruins under consideration as those of a large village, forming several quadrangles and capable of accommodating about 1500 people.² He goes on to modify the latter part of this statement, however, by saying that the ruins on the south bank of the arroyo "show more and apparently longer decay" than those on the north bank, and that therefore it is not safe to assume a full capacity population for the settlement. This latter observation may well be true, though there are no superficial indications to suggest it at the present time. The ruins, as outlined on Plan V (q. v.), seem to separate into about 15 or 16 distinct buildings, some of which contain only 6 rooms or less while others are very much larger, being made up of a series of joined sections or wings. Roughly speaking, the building wings are oriented in conformity with the cardinal directions and are arranged at right angles in such a way as to completely enclose 6 courts or plazas. To these might be added an equal number of courts that are enclosed on all but one of their four sides. The pueblo as a whole seems small in comparison with some of the others in the region, but on the other hand it is of necessity compactly arranged, and actual calculation shows it to contain approximately 1450 ground floor rooms. Adding one-half of this number for upper story quarters, we have a pueblo with a capacity of over 2000 rooms, certainly more than enough to accommodate 1500 people.

The general appearance of the ruins calls for a word of comment. In the case of all the preceding pueblos there have been some building ruins which appeared young and others which were either dismantled or in a relatively

¹ A seam of coal now being mined crops out only a few hundred yards to the west and northwest of the ruins, but there is no evidence at hand to show that the Pueblos ever used it as fuel.

² Op. cit., p. 106.



PUEBLO BLANCO

General view of building XVI at Pueblo Blanco. This structure stands nearly parallel to the creek bank and has been about half undermined and carried away by the occasional torrent.

(Page 87)

advanced stage of decay and obliteration due to weathering. If we except buildings II-IV, which may possibly have been slightly dismantled, the majority of the ruins at Blanco are about equally weathered, and this weathering appears to have reached a relatively advanced stage. That is to say, while the buildings of this pueblo, like those of the preceding, were constructed largely of stone and must, when first collapsed, have presented rough and uneven surfaces, full of holes and crevices, the tops of the ruins are today approaching a smooth condition and the debris is firmly packed. The holes and crevices have all been closed as the result of time and the workings of natural agencies. This has made it difficult for cactus seeds to find lodgment and thus obtain a start; and, if appearances are not entirely deceptive, the old crop is on the point of dying out. The prediction seems therefore not unwarrantable that in a few decades the visiting archaeologist will find the ruin as free from this pest as the valley floor itself. But can this weathering process and the consequent condition of the cactus growths after all furnish a sure key to the relative ages of the various ruins? Perhaps not. An element of uncertainty is introduced into the problem by the fact that the pueblos in question were not built of precisely the same materials. The better the nature of the building stone at hand the less adobe was employed in the masonry construction and, vice versa, when the building stone was scarce or of poor quality much adobe was used. This fact alone would alter the resisting power of any given ruin very considerably. Nevertheless, if care is exercised with respect to the above variations in constructive material, there can be no doubt that the examination of the superficial conditions of a pueblo ruin is of some value in the effort to determine its age.

There is still another possible clue to the age of Pueblo Blanco. On the occasion of Bandelier's visit in 1882 the creek had already partially undermined the ruins on the south bank. But the author does not state how many or which buildings were so affected or to what extent they were removed. Perhaps there has been no appreciable change. In any case the rate of removal is probably a variable one, making a thirty year observation far too short a period on which to base a sound estimate of the age of the buildings affected. To date fully one-half of building XVI has been carried away (see Plan V and also Plate 3), but who shall say whether that is the work of three or four decades or three or four centuries? Still, in the course of time, it seems plausible that the phenomenon might prove useful for chronological purposes.

Kivas. According to Bandelier "at least five estufas can be detected within the squares of the large courtyards formed by the edifices."¹ This

¹ Op. cit., p. 107.

is a rather extraordinary statement in view of the fact that only two kivas can be found today and these are not strictly within any of the courts but are located on the plot of ground separating building XI and the main arroyo. These kivas were subterranean and had diameters approaching 30 feet. They were close to building XI and barely 40 feet apart. Two parallel lines of stone and debris seem to mark a passage which may have connected the two chambers. There is also a slight hollow within the same enclosure over near building X, and still another within the court surrounded by buildings X and XI, but neither of these can be the remains of kivas. Of the "very peculiar arrangement of ten stones, in three parallel lines . . . set in the ground . . . at regular intervals," observed by Bandelier, nothing now remains.

Refuse Heaps. It is a remarkable fact that there are no refuse or burial mounds at Pueblo Blanco. The three or four visible traces indicated on the groundplan are negligible, at least so far as amounts of debris are concerned. The accumulation marked C is the largest, but while this was not dug into it seems too small for general burial purposes. One may suppose, of course, that the ashes and other waste products of the village were thrown into the arroyo and thus carried off by the flood currents. But it should be borne in mind that the refuse heap is a recognizable feature of a large number of the pueblo ruins in the Southwest and that it seems to have served everywhere as a repository for the dead. Therefore the most obvious inference to be drawn from the absence of burial mounds at Pueblo Blanco is that the settlement was not inhabited long enough to permit the accumulation of debris, such as is seen, e. g., at Shé and San Cristobal. There is, however, the possibility that some refuse may lie buried underneath the ruins, and evidence of such a deposit was actually discovered in room 5 of building XII.

Reservoirs. Traces may be noted on the groundplan of a number of walls that closed several of the passages leading from one court to another. One of these walls, viz., that connecting buildings XI and XII, is of particular interest because it seems to have been strengthened to the point where it served as a dam, thus making an actual reservoir out of the enclosed court. The water supply thus created could not have amounted to much, however, because if allowed to rise above three or four feet the water would have damaged the surrounding buildings. Moreover, a good share of the available watershed was cut off by another dam about 750 feet to the north of the pueblo. This dam was thrown across a shallow ravine at a narrow point and produced a considerable reservoir. It is now dry because the retaining dam, which is fully 200 feet long and seemingly close to 10 feet high, is broken. A third reservoir was located about 400 yards west of the pueblo,

in a shallow ravine which drains into the main arroyo directly above the dyke. The dam here is also broken and pretty nearly washed out, but some idea of its extent and construction may be obtained from Fig. 11. As will be observed, some stones, originally set on end, were embodied, but the bulk of the material was necessarily adobe. Precise data on dimensions are not available, but the length of the curving dam was fully 300 feet.

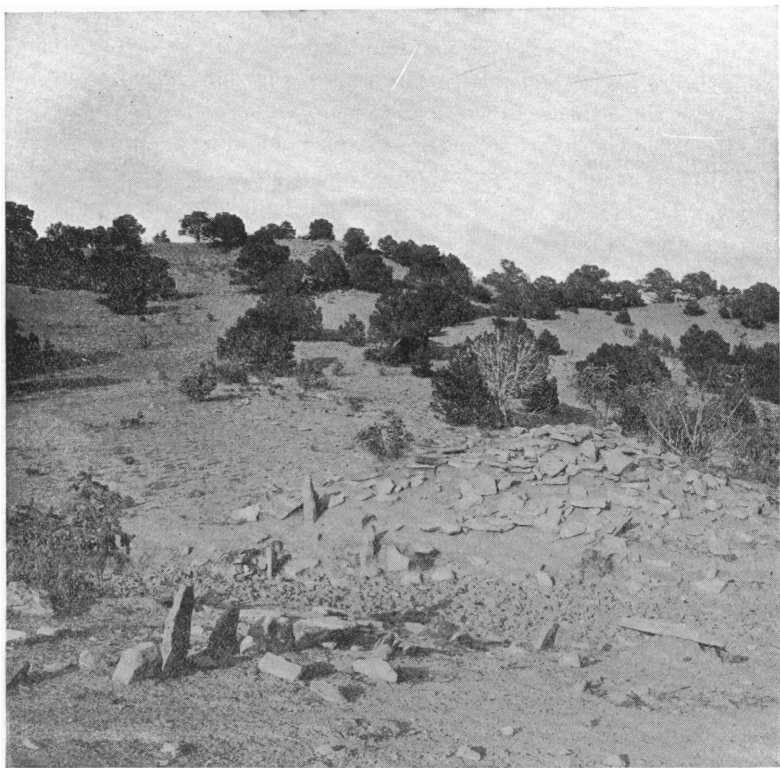


Fig. 11. Partial View of Reservoir Dam near Pueblo Blanco. The Dam has been completely washed out in the Foreground and is Low all over but extends almost to the Extreme Left of the View.

Mention may also be made of a few so-called tanks found hollowed out in the surface of the sandstone above the escarpment to the north of the pueblo. These small cavities, which really furnish a welcome supply of water at times, are probably the results of chemical solution, though some may possibly have been artificially enlarged as was done in one case at San Lazaro.

EXCAVATIONS.

General Observations. The advance of the season compelled expeditious work at Blanco and consequently the separate buildings were merely tried out. Only 47 rooms were excavated but the results obtained were so uniformly consistent and so like those found at other ruins in the vicinity as to entirely satisfy the scope of the investigations. Under these circumstances elaborate description of details may be dispensed with as before where no buildings were entirely cleared. The rooms dug out ranged from 5 feet 9 inches to 8 feet 8 inches in width and from 7 feet 5 inches to 19 feet 1 inch in length. The last figure, relating to room 1, building I, seems extraordinary, and were it not that several other rooms are over 12 feet in length it might well be thought that a cross partition had fallen, thus adding two rooms together. The standing height of the walls varied from 2 feet 9 inches to 6 feet 6 inches, and their thickness, as Bandelier says, is commonly less than 12 inches. They are generally built of stone, though in a few cases of adobe, and are almost uniformly in excellent condition. Plaster remained attached, at least near the base, and this in many of the rooms was either blackened or showed traces of whitewash. The floors were usually of adobe and often blackened; but in some rooms the smooth rock surface of the gentle slope upon which part of the pueblo stands seems to have served the purpose. Open fireplaces were found only in room 1, building IV, and in room 3, building XIII. As usual they were set into the floor and against one of the side walls, their measurements being 15 by 19 inches and 12 by 16 inches respectively. No less than 22 doorways were found in the scattered rooms. These with one exception were set into side walls and never into end walls even though, as sometimes happened, there were two entrances to the same room. So far as could be judged, nearly all the places dug out were inside rooms, so that nothing can be said about the presence or absence of doors in the outside walls of any of the buildings. The width of these doors ranged from 13 to 23 inches and the height from 15 to 42 inches. There were five additional apertures too small to have served as doors, inasmuch as their dimensions were less than 12 inches. The smallest of these measured 4.5 by 5.75 inches. Another one, measuring 6.5 by 10.5 inches, was divided into two equal parts by a stone slab set vertically. Small niches were noted in the walls of three different rooms. They were either roundish or angular in outline, measuring from 6 to 13 inches across and 9 inches in depth, and presumably served as shelves or receptacles for special objects.

Inter-mural Shrine. By far the most interesting discovery of the season

was made in room 3 of building X. Here, on a small earthen platform and leaning against the east wall, stood a carved stone image surrounded by numerous objects, natural and artificial. (Fig. 12.) The platform or altar, as we may properly call it, measured approximately 17 by 25 inches heri-

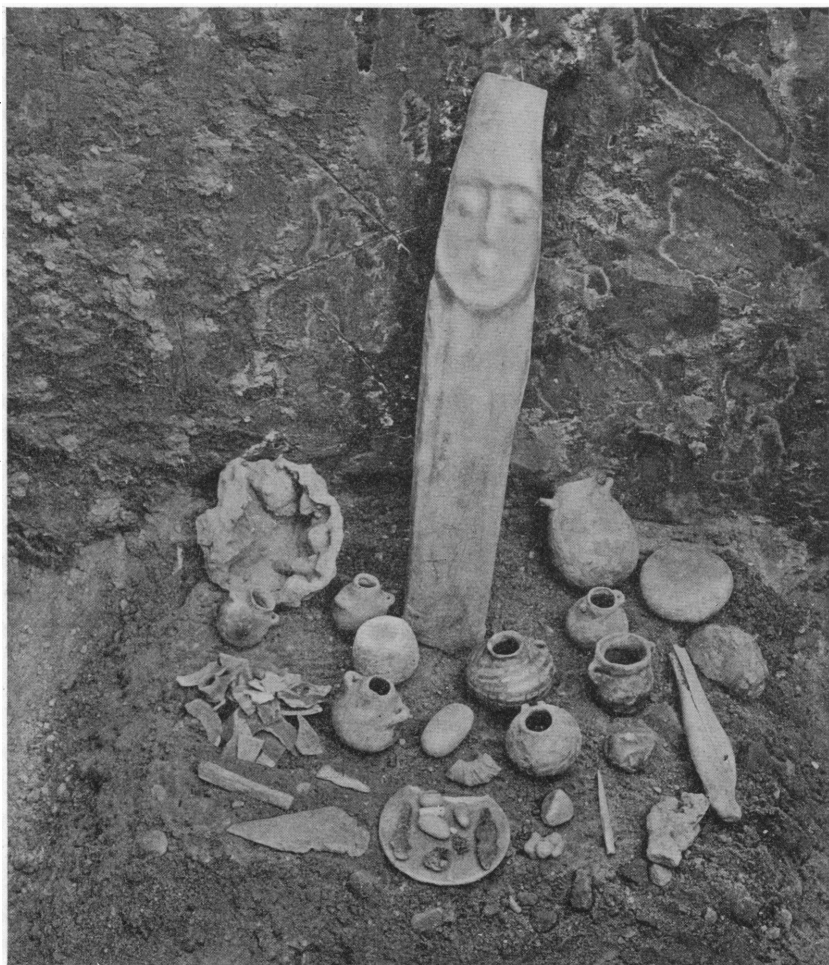


Fig. 12. View illustrating a Shrine found in Room 3, Building X, Pueblo Largo. The Stone Idol and the Objects lying around it rest on a Small Earthen Platform or Altar.

zontally and 4 to 6 inches in height. It was placed about midway in the room but over against the east wall and, curiously enough, covered up a fireplace of somewhat smaller dimensions. The fireplace itself was set into

the floor in the usual way, framed on the sides and bottom with stone slabs, and filled with ashes. As may be observed in the illustration, the altar platform was practically covered with specimens — offerings perhaps — some of which were broken by the workman's pick. The collection comprises 32 objects, including several miniature pottery vessels, two pointed bone implements, some chipped points of flint and obsidian, a smoothened angular boulder, a thin, circular disk of shale (broken), an oblong, pecked and rubbed specimen of white quartz, a few small pebbles with worked or polished facets, a small cupped anvil or hammerstone, a small boulder of iron ore, two oblong nodular concretions, a fossil fragment, some fragments of petrified wood and a cup-like fragment of some calcareous deposit. The precise arrangement of these various objects is not vouched for, because nothing unusual was suspected until the idol itself came into view. The latter alone was photographed in place, exactly as uncovered. Very little can be added in the way of description to the illustration of the image. It is made of some fine-grained variety of sandstone. The specimen is 21 inches long and measures 3 by 3.5 inches on the bottom, but tapers slightly upwards, with a longitudinal curve. The back side is hollowed out somewhat, but smoothened, and the front side of the body portion shows three ground facets. Only the face of the image is brought out, and this is done by rubbing away all but the main features, such as the eyes, nose and mouth, which stand out in relief. This facial portion of the specimen is covered by a coat of dark red paint and the body portion bears evident traces of having been coated with green. Mixed with these colors was some substance, perhaps powdered mica, which has lent a strikingly glistening hue to the figure.¹

A few facts may be added about the room itself in which the shrine was found. The average dimensions of the chamber were about 8.5 by 9.5 feet. Its walls, largely of adobe, were in good condition and stood to a height of over 6.5 feet in one corner. Plaster remained over all and a partly blackened coat of whitewash is visible even in the illustration. There were traces of rotted ceiling beams in the east wall, 4.5 feet above the adobe floor. In this same wall, respectively 6 and 18 inches from the south wall and 12 and 14 inches above the floor, there were two small loopholes. These apertures were 4.5 inches apart and were roughly rectangular in outline, the one nearest the south wall being 7 inches wide and 6.5 inches high, the other 5.75 inches wide and 4.5 inches high. Both were filled with stones that must have been placed in them by hand. In the south wall, 2 feet above the floor, there was an unframed doorway measuring 14.5 by 17-18

¹ The specimen is catalogued as No. 29.0-2755.

inches; and in the west wall, about 6 inches above the floor, there was another doorway with dimensions approaching 13 by 17 inches. Both had been walled up.

For the present at least the writer cannot attempt to discuss the nature and function of this discovery. Whatever may be the truth about the stone idols in the museum at Santa Fe, and perhaps elsewhere, this is a genuine prehistoric specimen,¹ and its occurrence is not surprising in view of Espejo's statements about idols and chapels in the Rio Grande country.² The nature and composition of the group thus placed on what, for lack of a better term, we may call an altar, settles any question there may be about the native origin of this feature of ceremonial life. European influence can safely be discounted.

RESULTS AND CONCLUSIONS.

The investigations at Blanco were limited to the survey of the pueblo and the excavation of 47 mostly scattered rooms. A number of pictographs found on the rocks in the vicinity were also either traced or photographed.³

Aside from the unusual collection found in the shrine chamber, the artifacts ran about as usual and varied in no essential particulars from those found in any of the other prehistoric ruins. The record is not quite finished, but it indicates the recovery of 308 complete and 155 incomplete specimens. Among these are 8 small pottery vessels, an imitation conch shell carved out of some soft, whitish rock substance, and a semi-realistic animal figure — perhaps a squirrel — also carved out of soft rock. Animal bones seemed relatively scarce but broken pottery, representing incomplete vessels, occurred in normal quantities. Only three incomplete human skeletons were recovered from rooms in buildings XI, XII, and XVI respectively.

In conclusion, it may be stated that Pueblo Blanco was undoubtedly in ruins at least before the Spaniards began to colonize New Mexico in 1598, and probably even before the arrival of Coronado in 1540. Bandelier's question as to whether or not this settlement may have been one of the five

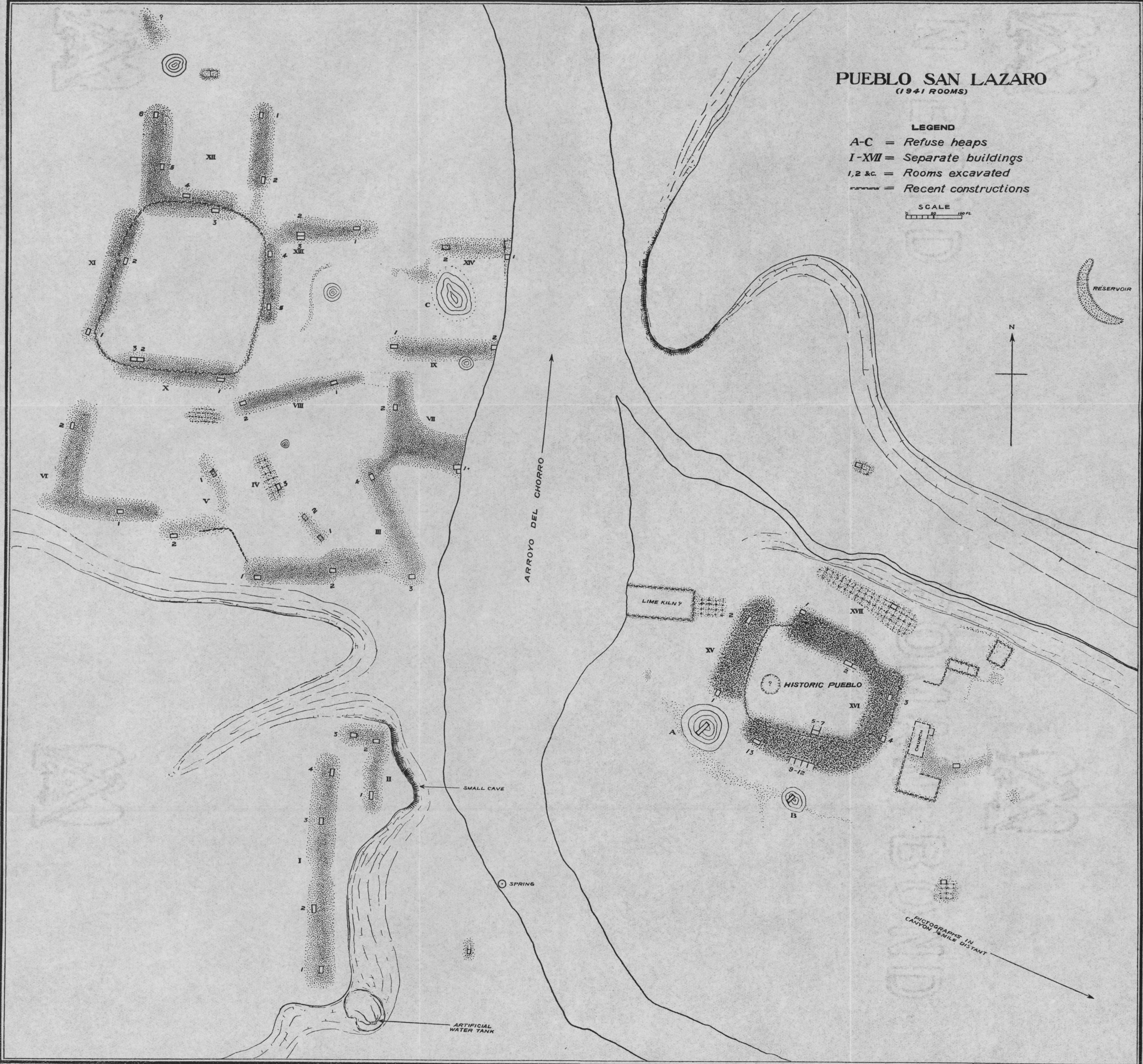
¹ Another somewhat similar but more complete image was found in a prehistoric building at Pueblo San Lazaro.

² Hakluyt *Voyages*, III, 393; see also quotations by Prince, *op. cit.*, p. 42.

³ These rock inscriptions occur on the sandstone escarpment to the northeast and also on the trap rock along the top of the dyke for some distance to the east. Possibly they are to be found all along the dyke, as quite a number are to be seen from the N. M. Central railway where it passes through a natural gateway. Some of the figures are of the geometric order but the majority seem to represent forms of life, such as birds and various local mammals. Several, among them the bear, fox and squirrel, are about natural size and very lifelike. Another striking example is a huge horned serpent over 25 feet long.

historic Tano mission pueblos is therefore answered.¹ Not a single scrap of evidence suggesting European contact was brought to light by the excavation. Further than that it is unsafe to dogmatize. In all probability Blanco, like the other settlements, grew from a small beginning, but, relatively speaking, the period of its occupancy must have been short. At what date it was abandoned is impossible to say. It may have been simultaneous with Pueblo Shé. If not, it was earlier.

¹ See Final Report, II, p. 107.



PUEBLO SAN LAZARO.

The two ruins that remain to be considered in this paper are of the same historic date as San Cristobal, but like the latter they were inhabited long prior to the arrival of the European missionaries, who gave them their names and who served them during most of the last century of their existence. One of these two ruins is located about five miles north-northwest of Blanco, on the banks of the Arroyo del Chorro, fully two miles above its juncture with Galisteo Creek. The place can be reached by wagon either from Blanco or from any of the nearby railroad stations to the north. A descriptive paragraph by Bandelier in his Final Report shows that he visited the remains, to which he attached the aboriginal name I-pe-re.¹ The Spanish name given to the pueblo early in the 17th century and by which it is still known is San Lazaro.

SITUATION.

The ruins of San Lazaro are situated on both the east and west banks of the normally dry bed of the Arroyo del Chorro at the point where it emerges from the high-relief country on the south. The channel broadens out here as it enters on the open, flat-bottomed alluvial valley which conducts it to the Galisteo and its banks become accordingly quite low. A small tributary joins the main channel from the southeast and a short distance farther down a larger one comes in from the southwest. Within these three forking

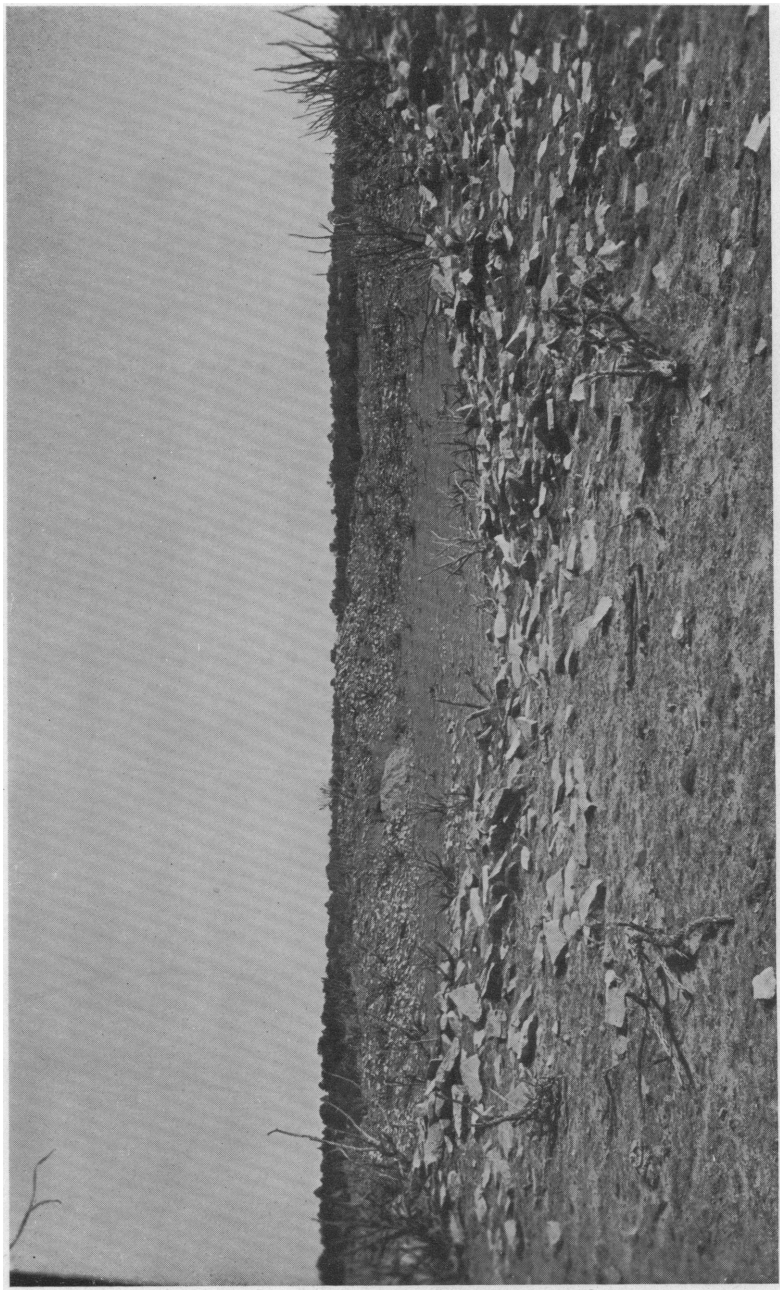
¹ Op. cit., II, p. 105. This description, strange to say, is incorrect in almost every particular. It also seems as if the author saw only the relatively small historic section of the pueblo on the east bank of the creek and paid no attention to the prehistoric part on the opposite side. San Lazaro has also been mentioned by other writers and the site appears on several of the old maps covering the Pecos-Rio Grande country. See Bul. 30, II, p. 446, Bur. Amer. Ethn.

As to the history of San Lazaro there is very little to be said because nothing is definitely known. In the Historical Introduction it has been pointed out that the settlement was probably in ruins already in 1540, when Coronado passed. At what time the site was reoccupied cannot be stated positively, but it seems not to have happened until after the introduction of the permanent missions at the close of the 16th century. A chapel was built at the pueblo, which, however, is supposed to have remained a visita of the mission at San Marcos, precisely as San Cristobal was served by a priest from the mission at Galisteo. Finally, the date of the abandonment of San Lazaro cannot be fixed, though it must be placed between the years 1680 and 1692. The inhabitants were found by Diego de Vargas in the latter year at their new pueblo of the same name near the present Santa Cruz. From here, after having suffered great reduction in numbers during the period of the Rebellion, they dispersed in 1696.

channels lie the ruins, for the most part on low, smooth, though not entirely level ground. The historic pueblo is situated on a broad, gently sloping ridge on the right bank, and the prehistoric pueblo lies directly opposite, partly on the low, smooth valley floor and partly on a bald, rocky eminence which presents a slight escarpment to the creek (Plan VI). A permanent spring of brackish water issues as if from under the left bank of the arroyo directly below this hill and the water continues on the surface for about six or seven hundred feet down stream when it again disappears. Presumably this is the real secret of the location of the pueblo. At any rate the situation affords little in the way of natural defenses, being practically surrounded by generally higher and semi-forested country. The view is open only down the valley to the north, though one may look over the low ridges to behold the bold outlines of the Ortiz and San Pedro Mountains to the west and southwest, the less impressive Cerrillos peaks to the northwest, and in the more distant northeast the bulky domes that mark the southern extremity of the Rocky Mountains. Timber is conveniently near, and building stone, though neither plentiful nor of good quality, is to be had in the vicinity. Small patches of land suitable for agriculture are present both directly above and below the settlement, as well as farther down towards the Galisteo. On the whole, therefore, it is a well-chosen site.

GENERAL DESCRIPTION.

The first thing that strikes the visitor to San Lazaro is the absence of cactus bushes on the ruins west of the creek and the presence of the same on the ruins opposite. Weathering processes appear also to have been at work much longer on the buildings to the west than to the east of the broad, gravelly channel. However, a closer examination tends to modify this judgment somewhat, because on the one hand there are still some half dead growths on buildings I and II, which lie off by themselves on the hilltop to the south; and on the other hand there are some old-looking ruins on the east bank which are as free from cacti as they could well be. Furthermore, although numerous bushes of this thorny parasite exist on the large, fresh-looking ruins constituting the historic pueblo, few of them are in a vigorous condition. But artificial agencies may have been at work here. This ruined settlement, in contrast with all the rest, is incorporated in a small Mexican ranch the buildings and cultivated fields of which lie directly beyond the mapped limits on the north. The site has evidently been much over-run by sheep and cattle and protruding stones have unquestionably been removed from the tumbled debris for the construction of corral fences as well



SAN LAZARO

Partial view of the historic San Lazaro pueblo, looking through the southwestern gateway into the court. This is the most conspicuous of the Galisteo ruins but gives a fair idea of the general condition in which these remains are found.

as ranch buildings. Consequently, while there is no doubt about the different ages of the east and west side ruins, it is not safe to jump at a conclusion about the relative antiquity of the prehistoric pueblo. It is the writer's personal opinion that San Lazaro is as old as San Cristobal, but that opinion is based upon the nature of the pottery found and not on the superficial appearance of the ruins themselves.

Historic Ruins. The historic pueblo is easily made out. It consists of four building wings arranged on the four sides of a rectangular court. Three of the four wings are united into one building, the remaining one being set off by itself so as to afford entrances to the court (Plate 4). These ruins represent unusually wide and also, it seems, uncommonly high buildings. The latter suggestion may, however, be due in part to the contour of the building spot and the possible removal of soil or adobe from the interior court. Within the court, close to the southwestern gateway, there is a small hole in which rain water collects and which may possibly have been a kiva.¹ The two gateways leading to the court appear to have been closed by walls, as Bandelier points out; but it is perfectly evident that these walls are not of aboriginal origin because they can be followed up onto and clear around the entire ruin. Some sheep owner has simply taken advantage of the shelter afforded in this court and from the protruding stones conveniently at hand he has constructed a low wall serving to keep his flock together. This may have happened many decades ago, for the wall is mostly fallen and in places quite obliterated, as is the case also with a Mexican house and a smaller corral situated close by on the northeast.

Chapel. Behind the pueblo, i. e., to the east or southeast, are the remains of the church or chapel, also a small accessory building and a corral or possibly a churchyard. The pile representing the chapel is not very impressive because all the debris and masonry have been removed to the ground level with the exception of the eastern wall, which still stands 3 to 4 feet in height. Evidently the structure was a simple rectangular affair, measuring 28.5 by 64 feet on the inside. The walls had a thickness ranging from a few inches below to a few inches above 3 feet. Somehow, the place does not seem to have been lined up with the pole star, but rather with the adjacent pueblo. What end the door was in cannot be determined. From the nature of the ground outside, the north end would have been most suitable for the entrance, but if the fenced tract on the south was a churchyard and not a corral, doubtless the door to the church was here. A couple of rooms were cleared in the adjoining building, and of these the one near

¹ Bandelier in the paragraph cited mentions "two circular sunken depressions," but only one is visible at the present time.

the northeast corner of the chapel measured 9.5 by 10 feet, had a solid adobe floor, a door 2 feet 10 inches wide and excellent walls 1 foot 8 inches thick, with a heavy coat of clean whitewash still adhering to the plaster. Judging from the hard, brick-red condition of the plaster in one corner there must have been a fireplace here, probably of the hooded type still to be seen in Mexican dwellings. Nothing whatever was found either here or in the rooms cleared in the east wing of the same building.¹

Prehistoric Ruins. The excavations carried out in the historic pueblo were insufficient to determine beyond all doubt whether or not the buildings in question were constructed in prehistoric times. The impression is that they were not, i. e., it is not a case of rehabilitation here as at San Cristobal but the construction of a new and well planned village. Nevertheless there are some prehistoric ruins east of the arroyo and building XVII is one of these. In addition three or four small unnumbered buildings have been indicated on the groundplan, which, if of Indian origin, are probably also prehistoric. But the real main pueblo of ancient times lies on the west side of the locally very broad stream channel. Buildings I and II are situated on a rather exposed hill, which location nevertheless offered some advantages from a defensive point of view. These ruins are easily distinguished. Between building II and the arroyo, half way up the face of the irregular 30 to 40 foot escarpment, there is a small cave in which burials are said to have been found. The remainder of the pueblo, and that means the larger portion of it, lies on lower ground to the north. Here the numerous buildings are not always readily distinguishable and no doubt some of them, like IV, V, XIV and three or four other minor structures, have been dismantled. Three edifices jut out on the arroyo, and there is every indication that a considerable portion of these and perhaps all of their connecting wings have been undercut and carried away by the occasional torrent. On the whole the various buildings in this division are irregularly arranged as if there were groupings among them belonging to different stages in the life of the village. Thus buildings X to XIII, and possibly VI, may have formed one unit. Four wings of this group enclose a very large court, which in times long past — perhaps during the pueblo's historic period — served as a corral or sheep-fold. The proof consists in traces of a wall which has passed along on the tops of the four enclosing ruins and down across the intervening spaces on the corners, exactly as in the case of the historic pueblo. This same court

¹ Between the arroyo and the northwest corner of the historic ruin there are the remains of what seems to have been a large building. At first this was thought to have been the church, but its dimensions are too large, even discounting the fact that the creek may have carried away the west end. A workman said he had been told of a limekiln erected here, but whatever it may be it is doubtless modern. The enclosure either joins on to or covers up part of an older Indian building, probably of prehistoric date.

has also within the memory of local residents served as a reservoir and the intake ditch is still noticeable, coming across the hill slope and entering the enclosure at the southwest corner. There are no visible kivas or anything else of interest in the court save possibly three or four bushy growths of cedar. But these latter might well have been there during the pueblo's occupation and hence cannot be appealed to for a possible check on the age of the ruins surrounding them.

Size of Pueblo. Bandelier regards San Lazaro as having been a smaller pueblo than San Cristobal, but this conclusion is not borne out by a thorough examination. As suggested above, however, he may have seen simply the historic section of San Lazaro and with only that part of the ruin for comparison his judgment is quite correct. Calculations show this part of the pueblo to contain about 488 ground floor rooms as against 650 ground floor rooms at San Cristobal. But at San Cristobal no entirely new or additional pueblo was constructed after the arrival of the Spaniards, as was probably the case at San Lazaro. Hence, if we disregard the chronological divisions at the latter settlement, as was done in estimating the total size of the former we have in San Lazaro a pueblo with a ground floor capacity of about 1941 rooms. In other words, San Lazaro is the largest pueblo ruin thus far examined in the Galisteo region.

Refuse Heaps. There are some six or seven deposits of refuse in and about the ruins of this pueblo but none are large. The most conspicuous are A and B, over near the historic ruins, and these are presumably of the same date as the ruins themselves, though this was not made clear by the small trench dug into them. Across the arroyo, at C, there is another accumulation of unknown extent. As a matter of fact, there is no actual mound here, but an irrigating ditch dug through the place shows that ashes and other debris — including potsherds representing old wares — extend to a considerable depth. The material seems to correspond in age with that of the oldest refuse heaps at San Cristobal.

Reservoirs. It would seem that the water which rises to the surface in the creek bottom for a short distance adjacent to the pueblo was not regarded as all-sufficient. Perhaps its saline character made it unsuitable for some purposes. At any rate a small reservoir was constructed in a shallow ravine about 250 yards northeast of the historic ruins. The dam, thrown up in the usual way, of adobe and some rocks, is today a low, crescentic mound about 125 feet long and possibly 20 feet through the base. Although of insignificant proportions, the basin thus created still appears to retain for a time the surface flow of the summer rains that come down the hillside depression. In addition to this created water supply there are in the surface of the exposed sandstone of the hill to the south and southwest of the ruins

a number of small eroded cavities in which rain water collects. One of these so-called tanks, located on the lower edge of a large, rather smooth-surfaced rock projecting from the hillside off the southeastern corner of building I, is of interest because it has been artificially enlarged. It takes the form of a rectangular hollow measuring about 4 by 7 feet on the horizontal and nearly 1.5 feet in depth. In the middle of the bottom there is an additional mortar-like basin approximating 1.5 feet in diameter and 1 foot deep. Several small channels have been pecked into the rock surface above and these have been so ingeniously placed as to conduct practically all the rain water that falls on the sloping exposure into the reservoir. Of course the amount of water conserved in these small rock tanks would have been insignificant where a pueblo of a thousand or more people was concerned, but the pure, non-alkaline fluid may have been sufficient for certain special purposes. The Mexican women still find these small supplies very useful for washing clothes.

EXCAVATIONS.

In accordance with the general plan of work, which was to a certain extent dictated by circumstances, Pueblo San Lazaro was merely tried out. The test included, however, the excavation of about 60 rooms, scattered as evenly as possible among the 26 or more separate buildings constituting the entire ruin. But inasmuch as no one building was completely cleared it will be of no use to consider them separately at this time and we may as before summarize in a few sentences such general observations as seem of permanent value.

As was suggested by the washed out and generally smooth appearance of most of the prehistoric ruins, they were found to represent buildings constructed largely of adobe. It is not that the various edifices can be separated into those built of stone and those built of adobe, because few structures were found in which the two elements were not mixed, and the mixture was of a curiously promiscuous nature. That is to say, one room in a given building might have walls constructed of stone and another room not far away in the same building might have walls constructed of adobe. Again, opposite walls in the same room were found on occasion to be thus constructed of different materials, and in a few instances the lower portion of the wall was of adobe while the upper part was of stone, or vice versa. Evidently there was a dearth of building stone, and the kind which was at hand was a rather soft and friable sandstone, none too substantial when compared with first-class adobe. The historic pueblo was, however, built

of stone, at least so far as investigated; but its walls, though relatively young, were comparatively unstable, as was the case in the historic ruins at San Cristobal. In height the walls of the prehistoric buildings range from 1 foot 8 inches to 7 feet 6 inches, and in room 1, building VII, they appear to rise fully 8.5 feet. Near the high center of this same building the masonry may stand perhaps over 10 feet, but in all probability we have here the debris not of one but of two or three superposed ruins. The walls in the historic pueblo, so far as determined, range in height from 4 to about 7 feet. In size, referring to the pueblo as a whole, the rooms approach close to the general average for the region, but concerning details on that point the student is referred to the table of measurements. Ten of the rooms had blackened walls and five showed traces of whitewash. Plaster was commonly present, at least on the lower two or three feet of the wall. In some rooms the adobe floor was also blackened. Only five hearths, of the usual sunken rectangular type, were discovered, however, and these ranged from 9 to 15 inches in width and from 10 to 28 inches in length. Small rectangular bins measuring about 2 by 3 feet and constructed of stone slabs were located in two of the rooms and in the walls of two other rooms were found small roughly circular niches 6 to 8 inches in diameter and 4 to 8 inches deep. Only 6 doorways were made out for certain and most of these seemed too small to admit a full-grown person. Their dimensions ranged from 11 by 18 inches to 17 by 24 inches. Fragments of what must have been ceiling timbers were met with occasionally in both divisions of the pueblo, though naturally very seldom in the prehistoric ruins.

RESULTS AND CONCLUSIONS.

From the 60 rooms wholly or partially excavated there were obtained 424 complete and 308 incomplete artifacts, in addition to fully 3 bushels of broken pottery and about 2 bushels of animal bones. The latter were of course removed for the most part from the historic ruins and represented domestic animals. Only 8 human skeletal remains were uncovered, one fine specimen coming from beneath the floor of room 3, building I. In the same room were also found two complete food bowls of ancient manufacture. The artifacts vary not one whit from the types mentioned at Colorado and their general run and relative frequency are also about the same as in the other neighboring pueblos, excepting the pottery, which, however, may be a mere coincidence. All told there were 15 complete specimens of pottery found at San Lazaro, including large and small jars, medium-sized bowls and some platters adapted apparently from the bottoms of larger vessels.

The most interesting discovery was another stone image or idol, somewhat like the one found standing on the inter-mural altar at Blanco. The San Lazaro specimen occurred in room 1, building VI. It was found in an upright position, pressed into the plaster of the east wall, near the northeast corner and 4 feet 4 inches above the floor level. The figure is of hard rock, measures about 2.5 by 4.5 by 15 inches, and shows the eyes, nose, mouth, and hands in relief. The head tapers to a point and the specimen shows traces of reddish-brown paint all over, excepting the middle third of the face.¹

The chief conclusions to be drawn from the investigations at San Lazaro have been anticipated in the course of the general description. First of all the position and size of the historic pueblo have been determined. The probable extent of the prehistoric settlement has also been made out. From the nature of the architecture as well as from the artifacts recovered it is clear that the prehistoric and historic culture stages here represented are contemporaneous with the corresponding stages found in the other ruins of the locality. The age of the settlement, it has been pointed out, seems to correspond closely with that of San Cristobal, but as to the time elapsed since the prehistoric ruin was abandoned nothing definite can be said. If the masonry had been identical in character with that of Blanco, Largo, Shé, and Colorado, and if the site had not been visibly disturbed by modern residents, then it would have been safe to say that the San Lazaro ruins were older than any others in the Galisteo country, excepting perhaps the oldest at San Cristobal. As it is, we shall for the present have to be content with the statement that the abandonment of the prehistoric San Lazaro dates back at least as far as the corresponding event for Largo, which is perhaps the youngest and best preserved ruin in the Galisteo group.

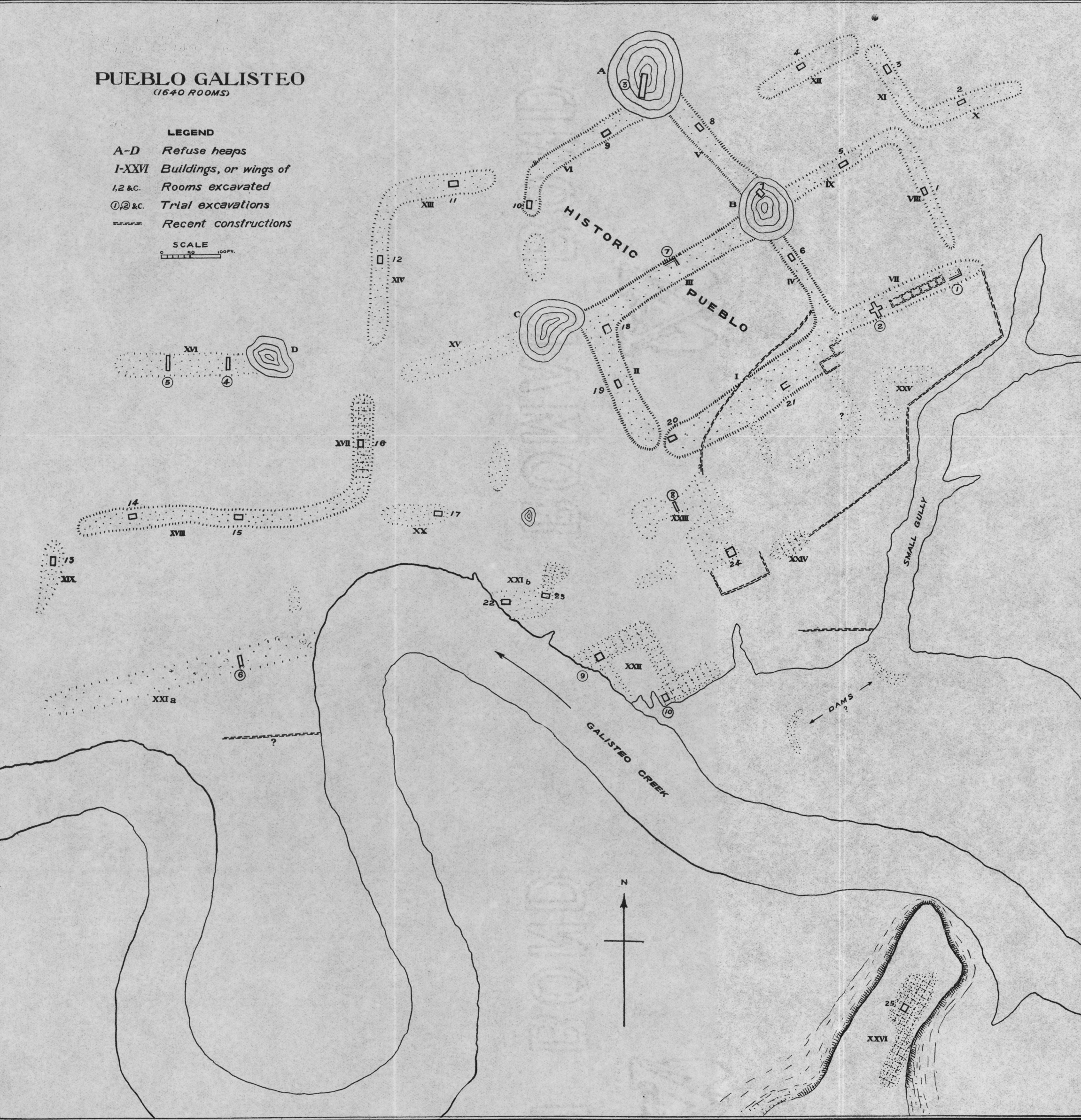
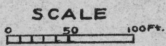
¹ See Mus. Cat. No. 29.0-2885.

Another stone idol, said to have been found at San Lazaro, is in the possession of Mr. José Ortiz of Galisteo. It is made of a column of sandstone 21 inches long, worked somewhat oval in cross-section, the dimensions of the base being about 5 by 8 inches. A roundish head has been carved out at one end but a stroke of some workman's pick has removed the facial portion. The only other elements brought out are the arms and hands, the right member extending straight down the side while the left is bent so as to bring the hand over the lower part of the chest.

PUEBLO GALISTEO
(1640 ROOMS)

LEGEND

- A-D Refuse heaps
- I-XXVI Buildings, or wings of
- 1,2 &c. Rooms excavated
- ①,② &c. Trial excavations
- Recent constructions



PUEBLO GALISTEO.

The last ruin to be excavated to date is Pueblo Galisteo, or as it is called locally, Pueblo de los Tanos.¹ This historic as well as prehistoric settlement is located on the banks of the Arroyo Galisteo, fully one and one-half miles above the present Mexican town of Galisteo. The site is plainly visible from the Santa Fe railroad a couple of miles east of Kennedy station, and can be reached without difficulty at any time of the year. Bandelier was here at some time in the late seventies or early eighties and he has published in his Final Report a partial groundplan and also a few descriptive remarks about the remains.²

SITUATION.

The situation of Pueblo Galisteo is unlike that of any of the other villages, unless it be Shé. The Arroyo Galisteo, after separating from the main stream, takes a northerly course through the modern Mexican hamlet and beyond to a gateway, or "puertocito" in the locally prominent volcanic dyke. After passing this upheaval the arroyo turns sharply to the north-east and for something over a mile hugs the north base of the dyke. Fully one mile above the gateway, at the point where a singular yellow sandstone

¹ To recapitulate: Pueblo Galisteo has by Bandelier and several other writers been identified with the Pueblo Ximena visited by Coronado in 1540-41. The reason for this identification is not stated and may in any case be doubted. In 1590 Castaño de Sosa appears to have passed the settlement and to have named it San Lucas. When Oñate arrived in 1598 and when the various Indian villages were grouped into mission districts, our particular pueblo was named Santa Ana. But before many years this name was changed to Santa Cruz de Galisteo. According to Bandelier the pueblo was the seat of an important mission and it may have had a church as early as 1617. The mission seems to have grown and prospered up to the time of the Rebellion of 1680, when, if we are to believe Vetancurt, it had a handsome temple. The population at this time has been estimated by Bandelier as close to one thousand souls. Whatever the number, the inhabitants took a prominent part in the Rebellion and it seems that the entire population moved to Santa Fe immediately after the retreat of the Spaniards. Here they remained until killed or sold into servitude by Diego de Vargas in 1693. In 1706, by order of the New Mexican governor, Pueblo Galisteo (or some other place in the vicinity) was settled again by 90 Tanos of uncertain derivation. These increased in numbers for a time but were finally reduced by smallpox epidemics and Comanche depredations to the point where they could no longer maintain themselves, and at some time shortly prior to 1794 took refuge at the pueblo of Santo Domingo. The fact that the ruined site is still known as Pueblo de los Tanos by the Mexican people in the vicinity is circumstantial proof of the relatively recent disappearance of the Tanos from the neighborhood. The new settlement made in 1706 was called Santa Maria de Galisteo, a name which it still retained in 1733. Bandelier determined the aboriginal name of the village to be Ta-ge-uing-ge. See Bul. 30, I, p. 482, Bur. Amer. Ethn., for reference to the place.

² Op. cit., pp. 100-103. This author errs in placing the settlement on the banks of the Arroyo de los Angeles.

spur runs out at a steep angle from the said dyke, lies the pueblo. One small ruined building is situated south of the stream channel on top of the high rocky spur itself, but the real pueblo remains lie scattered on the bare level valley floor along the arroyo bank directly opposite (Plan VII). The immediate surroundings are as dreary and barren as could well be imagined. To the north, as well as to the east and west, the valley floor merges gradually into a low, rolling plain and for miles not a tree worth the name is in sight. The view is excellent, however, especially from the rocky eminence to the south of the creek; and if one climbs to the top of the adjoining dyke he may scan the country for many miles in all directions. It is conceivable that an enemy might approach by way of the arroyo, but he could not actually reach the village without exposing himself. Barring a few bushy growths of cedar dotting the north face of the dyke and also relieving here and there the monotony of the extended plain, the nearest small timber is some three or more miles away to the north and northwest, beyond the Santa Fe railway. Water does not rise to the surface in the adjacent arroyo, in late summer at least, but has to be brought from a point about three-fourths of a mile down stream. It is possible, however, to dig down to the flow, and the water, contrary to the usual, is of excellent quality.¹ Extensive tracts of level, tillable land are present up and down the valley, but to be productive some kind of artificial watering must no doubt be resorted to. Some ditches have been noticed on both sides of the arroyo for three miles or more above the pueblo, but these were probably all of modern origin though no one cultivates land in that drainage basin at the present time. It will therefore be seen that, barring the lack of shelter from the northern winds and the scarcity of fuel, the situation possessed some very important advantages. But shelter and a more readily accessible water supply, as well as a somewhat closer proximity to timber, could have been secured farther down stream. Hence, one wonders why the pueblo was placed precisely where it is, unless it was to enable the inhabitants the better to guard their cornfields.

GENERAL DESCRIPTION.

Prior to the Museum's excavations the presence of pueblo remains would hardly have been noticed by anyone coming near, unless he had passed directly over the spot. This is because the ruined edifices were constructed

¹ With a good natural supply of water near at hand there was no occasion for constructing reservoirs, even if there had been any really suitable places in the neighborhood. Nevertheless, there are some suspicious-looking crescentic mounds on a low terrace between the historic pueblo and the arroyo, placed, as it were, across the mouth of a small gully. They may be natural formations, however.

almost exclusively of adobe and are in many cases so washed out and weathered away as to be well-nigh indistinguishable. Careful inspection, however, reveals a number of low ridges relatively free from vegetation and sometimes marked by a few small, angular boulders lying scattered over the surface. There are no cacti here, as in the case of the other pueblos, and there probably never were any. A certain species of weed, sometimes called "snake-weed" by the local inhabitants, thrives to the exclusion of everything else all over the valley floor and its absence generally marks the location of a ruin (Fig. 13). Someone has lived on the site in modern times, the evidence



Fig. 13. View (looking west) of Room 11, Building XIII, Pueblo Galisteo. The Standing Adobe Walls are seen to be scarcely one Foot High and the Bare Level Ground ahead shows the Washed-out Condition of Many of the Ruins.

being the ruins of a long, narrow stone house placed on top of one of the southeastern pueblo buildings. A barn or something has apparently been improvised close to the house on the southwest by digging a cavity into the side of the most prominent of the ruins, and some remains of stone fences which may have surrounded the place are also visible.

Communal Buildings. Plan VII is a somewhat unsatisfactory attempt at showing the size, outline, and general condition of the visible architectural remains at Galisteo. Of the 26 actually numbered buildings or building wings only those marked I-VI are at all prominent, and these were

later discovered to constitute the historic pueblo. Buildings VII–XIV are also easily apparent to the trained eye but the remaining structures are very faint, at least so far as surface contour is concerned (Fig. 13). Yet shortly after a heavy rain, owing to the difference in texture of the adobe walls and the debris filling the rooms, the former stand out quite plainly as dark lines on the smoothly washed surface. The rooms outlined in building XVII were thus determined. Elsewhere, as in the case of building XXII, some of the chambers are outlined by a few boulders that probably formed the foundation of the walls. In the case of building XXI there is almost nothing to indicate its presence except a few stones lying about among the weeds. The trial trench (6) dug part way across the marked line encountered no walls whatever, but east of the advancing arroyo bend, which appears to have carried away a large section of the building, the walls of several rooms are visible on the surface. Exposed to view near the top of this same 25–30 foot vertical arroyo bank were counted no less than nine human skeletons. Building XXVI was actually constructed of stone and though presumably very old, being reduced to a practically smooth and level condition, the walls are well marked.¹

Viewing the groundplan as a whole, one cannot but be impressed with the lack of uniformity in orientation of the different buildings. The faintly marked group to the west is probably of an earlier date than the more unified group to the northeast. But even this group, though perhaps constructed at the same time, has to be differentiated, buildings VII–XII having been abandoned in prehistoric times,² while buildings I–VI, as before stated, showed indubitable evidence of historic occupation. The capacity of the historic pueblo has been estimated at 567 ground floor rooms which, if increased by say one-half, would seem to be enough for the accommodation of from 800 to 1000 souls. The strictly prehistoric part of the pueblo contained approximately 1073 ground floor rooms. Combining the figures for the two parts of the pueblo, we obtain a total capacity of 1640 ground floor rooms, almost exactly the estimate reached at San Cristobal.

The quadrangular courts enclosed by buildings I–VI are deep and well marked, but one searches there in vain for indications of the familiar circular and subterranean kivas. What is more remarkable, not a trace of such chambers is to be found outside the limits of the historic pueblo. To be sure, this outer area has been subject to weathering processes for a much longer

¹ On account of the very strong position of building XXVI one is continually inclined to agree with Bandelier as to the possible identity of Pueblo Galisteo and Pueblo Ximena of Coronado. But this building taken by itself is too small to constitute a pueblo. Moreover, had Castañeda seen Ximena in a unique position like that occupied by this building he would most likely have described it.

² There is some doubt on this point in reference to building VII.

period, but had there been any kivas it is more than probable that some evidence of their presence would still remain.

Church. The "handsome temple" referred to by Spanish historians and mentioned once or twice in this paper, has not been definitely located. But unless this edifice, contrary to usual practice, was incorporated in one of the large communal houses it must be identified with the obscure and irregular heap of adobe marked XXIII. Some trial diggings were begun here and on one corner a room (No. 24) was opened up and partly excavated. Its dimensions proved to be about 13.5 by 16.5 feet, so that it is certainly not of Indian origin but belongs probably to the convent or church annex. Although the chamber was cleared all along the four walls, leaving **only** a large column standing in the center, nothing of European origin was found, unless it was the doubtful evidence of a fireplace in the southeast corner. On the other hand, several fragmentary aboriginal artifacts were present. The "temple," whatever its architectural charm, must have been relatively small.

Refuse Heaps. Three of the four or five refuse heaps indicated on the groundplan are fairly prominent, though there is some doubt about their real size. The element of doubt arises from the fact that the accumulations are placed, it seems, on top of the ruined buildings, and at the points where two or more wings meet. Possibly there were gateways here leading from one court to another and the rejectage was at first thrown outside the entrance to the inhabited court. In the course of time the buildings nearest the refuse may have been abandoned and gradually as they fell into ruins the accumulating debris covered them up. All that remains to be determined, however; but as these three largest deposits are so very closely associated with the historic pueblo they suggest strongly that this was vacated gradually and not at once. A trial trench was dug in mound A only and this was not carried to the bottom, hence nothing definite can be said at this time about stratigraphic conditions or cultural changes.

EXCAVATIONS.

The work accomplished at Galisteo was less thorough than it should have been. But snow was flying and after less than four days it was necessary to call a halt. Almost every one of the building wings was tried out, however, by one or more rooms as conditions seemed to demand. Besides a number of trial trenches, 25 rooms were, with two or three exceptions, entirely cleared. What this amounted to can best be judged by an examination of the table of measurements. The rooms were of normal size, but

while in some buildings, such as I and II, the walls stood from 6 to 6.5 feet in height, in others, as e. g., XIII, they rose but little over 1 foot above the adobe floor, as may be seen in Fig. 13.

The walls themselves, no matter how much or how little of them was left, appeared to be in excellent condition. They ranged from 9 to 15 inches in thickness and were, with a possible exception noted in room 16, of adobe. As nearly as could be made out, these adobe constructions were laid up in successive tiers. That is to say, the walls were not built of cubical blocks, as was noted at one pueblo, nor yet by a coiling process as was observed in another place, but more after the manner of a concrete wall of today. A section of kneaded adobe (with an occasional boulder thrown in) appears to have been reared as one solid mass standing about 2 feet in height. As soon as this was dry and firm enough to support more than its own weight without flattening out, another similar sized section was reared on top of this, and so on. At any rate, whether or not that was the exact process, there are in some cases visible horizontal joints along which the walls break.

Although with but a single exception the walls were made of adobe, they bore evidence of having been plastered with mud. In rooms 4, 12, and 17 the plaster was blackened somewhat, and in 13 and 14 the same was true of the adobe floor. Whitewash was noticeable in rooms 12, 23, and 24, while in room 19 there were traces of a wash or slip of a yellowish-brown color. Not a single fireplace was located, although examples of the upright stones that support the cooking slab were found in the debris of rooms 1, 6, and 8. Presumably they had fallen from the upper story rooms of the house. The walls of room 14 were burned to a brick red color as if from a general conflagration. No doors were discovered and but a single wall-niche or recess was observed. This latter was found in the east wall of room 12, 1 foot above the floor. It was of rounded outline, having a diameter slightly exceeding 5 inches and a depth of 7 inches. Fragments of timber were found in rooms 7, 15, and 25, and in the walls of room 20, exactly 5 feet 2 inches above the floor, there were observed holes for the ceiling beams with rotted wood still present in some of them.

RESULTS AND CONCLUSIONS.

The excavations at Galisteo, covering 25 rooms in addition to some trial trenches and several unfinished chambers, yielded 55 complete and 82 incomplete artifacts of the already familiar types. There were found perhaps fully half a bushel of animal bones, most of them coming from the historic section of the pueblo. Potsherds were not very numerous, though

possibly about half a bushel of these was collected. They represent all the different types of ware — simple coiled, painted, and glazed — found in the neighboring ruins; and the peculiarly modern-looking greenish glazed variety, noticed in the historic sections of San Cristobal and San Lazaro, is also present. In addition to the sherds, there were found in rooms 4 and 6 the fragments of two nearly complete sooty black jars of the plain corrugated variety. Only a single fragment of human bone was found, viz., in room 25 of the promontory house, but it will be recalled that several buried remains were observed protruding from the adjacent bank of the arroyo. On the whole the run of specimens was poorer at Galisteo than anywhere else, though the variety measures well up to the average.¹

The excavations prove very clearly that there are ruins of prehistoric as well as of historic date at Galisteo. But owing to the nature of the building material employed here it is difficult to draw any sound comparisons between this and the other pueblos as to relative age, date of abandonment, etc. There are numerous adobe ruins in the vicinity and from these it is evident that a building left to itself will deteriorate and crumble in a very few years. After being reduced to a heap the winds and rains begin the work of leveling out the debris and this process also goes forward pretty rapidly, but just how rapidly cannot be stated. Perhaps when more excavation has been done on the Galisteo ruins and when it is made certain whether the abandonment of the historic pueblo was in 1680 or in 1794, it may be possible to make a rough estimate on the date of the evacuation of the prehistoric buildings. A thorough examination of the refuse heaps must also yield valuable data bearing on the chronological position of the pueblo.

¹ Mr. José Ortiz, a member of the merchant firm resident at the modern Galisteo settlement, has in his possession a copper "bell" said to have been found in the ruins of Pueblo Galisteo. This bell is not of the cast type, being made of two thin trapezoidal sheets of metal partly dovetailed and partly soldered together. The lower edge is folded back over a metal ring. The portion forming the top, which fitted on as a sort of cap and was riveted to the body, is missing. The following measurements were taken of the specimen:

Inside basal diameter, $8\frac{3}{8}$ inches

Inside top diameter, 4 inches

Outside top diameter, $4\frac{3}{8}$ inches

Vertical height, $6\frac{1}{2}$ inches

The bell bears the date 1682, preceded by what appears to be a crescent, and also a complete circle with dots and lines added as if to represent eyes, nose, beard, and possibly the body outlines of a person. The date figures are scratched into the surface and are of course fraudulent, as the Spaniards had no institutions in New Mexico at that time. Moreover, it is difficult to imagine what purpose a bell of such proportions and make could have served.

GENERAL CONCLUSIONS.

The writing of conclusions to this barely begun study is obviously premature; but nevertheless a tentative answer can be given to some of the questions raised in the Historical Introduction and there are besides a number of outstanding facts which may properly be brought together at this time.

As to the historical problems, the investigations show that, in accordance with Bandelier's surmise, the pueblos known as Largo, Colorado, and Shé are all of pre-Spanish date. They show further that Pueblo Blanco, which Bandelier looked upon as possibly one of the five Tano mission sites, is also pre-Spanish. This strengthens the view that San Marcos was a Tano settlement and compels us to look among the remaining ruins of the Tano habitat for another mission pueblo, i. e., a site which, taken together with San Marcos, San Lazaro, Galisteo, and San Cristobal, will complete the five pueblos required by the historical records. The new site must be fully as large as any of the four known settlements in order to accommodate its share of the population attributed to the Tanos around about 1630. If the census figure, 4000 souls, is correct then the five pueblos must have averaged about 800 inhabitants each. But we are told that San Marcos had only 600 inhabitants while San Cristobal had 800 and, therefore, it follows that some of the other pueblos must have had more than 800. Now the investigations show that the historic San Cristobal could easily have housed its quota of 800, provided, however, that the entire pueblo was occupied. The same would have been the case with Galisteo, but San Lazaro is somewhat smaller than either of the two preceding and might, in common with San Marcos, have accommodated only 600 people. Consequently, if the data are correct, the missing Tano pueblo should have had about 1200 inhabitants. This strengthens our doubt about the exactness of the census figures furnished by Benavides, because if such a large pueblo had been in existence in 1630 we should certainly have known something about it.

The date of the abandonment of the four pre-Spanish ruins on the southern border of the Galisteo basin is a more difficult question. Castañeda's statement about the Teyas who sacked and destroyed the Galisteo pueblos about the year 1535 must not be taken too literally, even though Bandelier has cited traditional evidence tending to uphold it. The four pueblos in question could have held probably almost the entire Tano population and as these four settlements constitute only a small fraction of the total number

of Tano ruins it becomes improbable that they were contemporaneous or, in other words, that they were destroyed at one and the same time. A far more intensive study would be necessary to enable one to state anything positively on the subject, but the archaeological data at hand do seem to corroborate this conclusion, viz., that the four southern pueblos were not abandoned simultaneously.

One particularly interesting observation made by Espejo in 1582 was amply verified. He reported seeing many idols at the Rio Grande pueblos and also the presence of chapels, as he calls them, erected in high places. It is unfortunate that many of the statements made by this intrepid explorer cannot be accepted at face value, yet the finding of idols in the rooms of communal houses and also of shrines built on hilltops and exposed places makes it clear that he saw and reported some things correctly.

Referring to the investigation of the Galisteo ruins as such, attention may be called to several important facts. First of all the remains are of the same general nature and of the same period of time, representing unquestionably one particular but not unique phase of Pueblo culture. The pueblos investigated were uniformly large, their parts were grouped and arranged on the same general plan and their minor architectural details, such as the arrangement and size of rooms; the position, size, and special character of doors, fireplaces, etc., were identical. The circular and partly subterranean kiva was found at all but two of the pueblos, and here they may possibly have been obliterated. The refuse heap was everywhere and functioned in conformity to the usual practice as the burial mound. The surviving artifacts were of the same types, with nevertheless a local and also a stratigraphic variation in the general finish and decoration of the pottery. The artificial creation of a water supply at almost every settlement shows that the aborigines knew their habitat and that they deliberately sought to insure the permanence of their homes against the failure of natural resources. And the scarcity everywhere of indigenous animal bones in contrast to the numerous metates and manos, as well as the presence of charred maize, indicate an agricultural rather than a hunting people.

The culture of the Tanos in all its main features, so far as illustrated by artifacts, appears to be practically identical with that of the Jemez plateau. Actual close study may develop variations in decorative symbolism, but these differences will be at best no more remarkable than the similarities. One feature of interest is the scarcity and in one or two instances the apparent absence of the kiva. What the precise social or religious significance of this may be need not be considered for the present, but in contrast to the numerous kivas found at the pueblo ruins in the region to the west and northwest of the Rio Grande this absence is worthy of notice.

Finally, a few words about the influence of European contact on the Tano Pueblos. The aborigines concerned had the example and presumably the advice, as well as the occasional coercion, of Spanish colonists and missionaries in reference to the execution of many common tasks for nearly a century. Those who lived at Pueblo Galisteo enjoyed the privilege for about a hundred years more. Yet the architectural remains, so far as examined, do not reveal any marked changes or improvements. The Tanos of historic times constructed the same style of building, retained the same room dimensions, the same sort of doors, fireplaces, etc., as their ancient forefathers. It must be admitted that one single corner fireplace was found at San Cristobal, but whether this had been of the hooded type with a chimney to draw out the smoke is very doubtful. No evidence of anything corresponding to a window was found, though a single wall-niche framed with stone slabs approached the idea, but whether this was an European inspiration cannot be stated. Changes of another character were effected, however, and one of these appears in the glazed pottery. Generally speaking, the execution of glazed ornamentation on pottery seems to have degenerated in late prehistoric times, but the artists continued to use the glaze of older days. In historic times, however, they took to using another glaze and one which was probably introduced by the Spaniards. At any rate it was of a different nature from the one they were familiar with and they never learned to manage it without spoiling the desired effect. The glaze itself was probably superior to their own and it reminds one strongly of the greenish-brown glaze often seen on common earthenware and crockery of our own day.

There was a change also in the aboriginal diet and to some extent in the mode of gaining a livelihood in consequence of the introduction of domestic animals. The osseous remains, particularly of the sheep but also of the goat, the hog, the cow, and even the horse, testify plainly as to the Indian's bill of fare in historic times. Very likely this new and relatively certain source of food supply did away with the extensive cultivation of maize in the places least adapted for its production.

TABLE OF MEASUREMENTS.

The following compilation of measurements may need a few words of explanation to be fully intelligible. The four "specific dimensions" are simply measurements taken on the respective east, west, north and south walls of the given room. These separate measurements were taken in most cases because it was soon discovered that few of the rooms were rectangular. The horizontal "average dimensions" are merely calculations based on the preceding figures. The "height" dimension represents the average of four measurements taken, one in each corner of the room.

Bldg.	Room	Specific Dimensions						Average Dimensions							
		East		West		North		South		Breadth		Length		Height	
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
		San Cristobal.													
I	1	5	3	5	3	11	9	12		5	3	11	10.5	4	9
"	4	7		8		10	6	10		7	6	10	3	4	9
"	7			7		7	9	7	6	7		7	7.5	5	3
"	8	7	6	7	9	10		10	3	7	7.5	10	1.5	5	8
"	10	6	6	7		13		13	3	6	9	13	1.5	2	8
"	11	7	4	7	6	13	4	13		7	5	13	2	3	9
"	13	6	9	5	9	11	7	11	7	6	3	11	7	2	8
"	14	6	3	8	4	11	6	11	7	7	3.5	11	6.5	3	1
"	16	7	2	7	4	10	6	10	3	7	3	10	4.5	3	1
"	17	7	3	7	6	10	4	10	6	7	4.5	10	5	3	1
"	19	6	9	6	6	8	3	8	2	6	7.5	8	2.5	2	7
"	20	7	9	8	6	8	6	8	8	8	1.5	8	7	2	8
"	22									7	6	8	6	1	10
"	23									7	6	8	6	2	
"	25									7	2	10		1	11
"	26									7	6	10		1	9
"	28									8		10	6	1	6
"	29									7	6	10	2	1	10
"	31									8	2	9	10	2	4
"	32									7	4	9	10	2	4
"	34									8		10	2	2	8
"	35									7	6	10	2	2	8
"	37									8		12		2	10
"	38									7	6	12		2	10
"	40									8		18		3	
"	41									7	6	18		3	
II	1	9+		9+				7	8					4	3
"	2	9+		9+				8	6					5	
"	3	9+		9+				6	3					5	6
"	4	9+		9+				7	2					5	
"	5	9+		9+				7	5					4	6
"	7	6	3	6	3	5	9	6	6	6	1.5	6	3	4	3
"	8									6	7	9	4	2	9
III	1	4	8	4	10	14	3	14	3	4	9	14	3	2	9
"	2	5	3	4	10	9	8	9	8	5	.5	9	8	2	10
"	3									6		9	10	2	10
"	4	5	2	4	6	11	6	11	6	4	10	11	6	2	10
"	5	8	10	8	10	15	7	15	5	8	10	15	6	1	9
"	6	4	6	4	8	10	9	10	9	4	7	10	9	2	4
"	7	4	6	4	8	10	10	11		4	7	10	11	3	
"	8	4	10	4	10	11	6	11	3	4	10	11	4.5	2	9

Bldg.	Room	Specific Dimensions								Average Dimensions							
		East		West		North		South		Breadth		Length		Height			
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.		
		San Cristobal.															
III	9	4	8	5	2	12	6	12	6	4	11	12	6	1	10		
"	10	5	3	5		10	6	10	6	5	1.5	10	6	2	8		
"	11	4	9	4	9	11	6	11	6	4	9	11	6	2	5		
"	12	4	10	4	8	11	6	11	6	4	9	11	6	2	8		
"	13	4	(?)	4	(?)	3	2	3	2					2			
"	14	3	4	3	4	10		10		3	4	10		2	6		
"	15	5	10	6	2	9	6	9	6	6		9	6	2	5		
"	16	5		5		15		15		5		15		2	1		
"	17	5	4	5	1	9	5	9	5	5	2.5	9	5	1	11		
"	18	6	4	6	8	9		9	6	6	6	9	3	2	7		
"	19	7	4	7	6	10	4	10	6	7	5	10	5	2	8		
"	20	7	3	6	6	9	9	10	1	6	10.5	9	11	2	10		
"	21	7	2	7	5	9	6	9	6	7	3.5	9	6	3	8		
"	22	8	3	7	9	14		13	10	8		13	11	3	3		
"	23	8	8	8	3	9	5	9	5	8	5.5	9	5	3	8		
"	24	8	6	8	6	11	4	11	2	8	6	11	3	3	10		
"	25	7	9	8	9	9	6	9	8	8	3	9	7	3	10		
"	26	8	2	7	9	11	2	11		7	11.5	11	1	3	10		
"	27	7	8	7	8	11	6	11	8	7	8	11	7	3	6		
"	28	7	10	8		10	3	10	3	7	11	10	3	4	3		
"	29	8	2	8		8	8	8	8	8	1	8	8	4	1		
"	30	7	5	8	2	12	4	12	6	7	9.5	12	5	4	3		
"	31	7	6	7	3	12		12		7	4.5	12		4	3		
"	32	8		7	8	9	8	9	8	7	10	9	8	3	7		
"	33	7		7	6	10	9	10	10	7	3	10	9.5	2	3		
"	34	8		7		11	2	11		7	6	11	1	2	8		
"	35	7	3	9		13	8	12	6	8	1.5	13	1	2	5		
"	36	7	2	7	2	11	6	11	6	7	2	11	6	1	10		
"	37	7	3	7	6	11	3	11	2	7	4.5	11	2.5	2	6		
"	38	7	8	7	8	9	8	9	8	7	8	9	8	3			
"	39	7	7	7	7	11	2	10	10	7	7	11		3	5		
"	40	7	8	8	6	11	6	12	6	8	1	12		3	7		
"	41	9	6	9	6	10	6	10	6	9	6	10	6	3	6		
"	42	10	3	10	2	11	6	11	6	10	1.5	11	6	3	8		
"	43	10	3	9	10	11	6	11	6	10	.5	11	6	3	8		
"	44	9	10	9		10		10		9	5	10		3	8		
"	45	6	6	7	3	9	6	9	6	6	10.5	9	6	3	8		
"	46	8	3	8	2	15		15		8	2.5	15		3	8		
"	47	7		5	10	10		10		6	5	10		3	1		
"	48	5	9	5	2	10	6	10	6	5	5.5	10	6	3			
"	49									7	8	10	11	2	10		

Bldg.	Room	Specific Dimensions								Average Dimensions							
		East		West		North		South		Breadth		Length		Height			
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.		
		San Cristobal.															
III	50									7	4	9	9	4	4		
"	51									7	4	14	1	4	5		
"	52									7		10		4	6		
"	53									7		11		4	5		
"	54									7		9	9	4	4		
"	55									7		10	7	4	1		
"	56									6	10	12		4	4		
"	57									7	3	11	2	4	9		
"	58									8		9	6	4	8		
"	59									8	2	11	11	4			
"	60									8		10	8	3	6		
"	61									7	6	10		3	9		
"	62									8	2	10	5	4	5		
"	63									8		10	3	4	5		
"	64									7	10	11	1	4			
"	65									7	10	11	9	4	3		
"	66									8		10	11	3	10		
"	67									8		11	4	4	1		
"	68									8		11	2	3	10		
"	69									8		10	6	4	2		
"	70									8		10	9	3	7		
"	71									7	9	15	1	3	3		
"	72									7	8	9	7	3	6		
IV	1									7	10	12		6			
"	2									7	2	11	8	4	6		
V	1	7		7	2	9	2	9		7	1	9	1	3	5		
VI	1	4	10	4	8	6		6	4	4	9	6	2	4			
"	2	11	4	12	6	7	8	7	3	7	5.5	11	11	5	2		
VII	1	11	9	12		7		6	9	6	10.5	11	10.5	1	8		
"	2	12	8	12	9	7		7	2	7	1	12	8.5	2			
"	3	12	10	13	2	7	6	7		7	3	13		2			
"	4	13	6	14		7	6	7	6	7	6	13	9	2			
VIII	1	10		10		6		6	6	6	3	10		5			
"	2	11	6	11	6	5	10	5	6	5	8	11	6	2			
"	3	10	7	12		5	10	6	2	6		11	3.5	7	6		
"	4	6	8	6	5	12		12		6	6.5	12		10			
"	5	11	4	11	6	7	7	7	7	7	7	11	5	6	6		
"	6	5	10	4	10	11	8	11	2	5	4	11	5	2	5		
"	7	7	6	6	11	12	8	12	10	7	2.5	12	9	1	9		
IX	1	9	1	8	3	5	4	5	6	5	5	8	8	6	8		
"	2	8	8	8	9	6	8	5	9	6	2.5	8	8.5	5	7		

Bldg.	Room	Specific Dimensions								Average Dimensions									
		East		West		North		South		Breadth		Length		Height					
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.				
		San Cristobal																	
IX	3	23		23		7	8	8	10	8	3	23		6	2				
"	4	9	10	9	10	14		14		9	10	14		5	7				
"	5	11	4	9	4	21	2	21	2	10	4	21	2	5	9				
"	6	8	7	9	3	6	6	6	6	6	6	8	11	6	9				
"	7	7	6	8		9	5	10	6	7	9	9	11.5	7	7				
"	8	8	3	8	2	5		5		5		8	2.5	3	2				
"	9	7		6	8	6		6		6		6	10	3	4				
"	10	9	8	9		6	8	6	8	6	8	9	4	4					
"	13	9	4	10		6	6	6	6	6	6	9	8	7					
"	14	8	4	8	4	7	3	7	3	7	3	8	4	6	6				
"	15	9		9		7	2	8		7	7	9		7	3				
"	16	10	6	10	2	6	4	6	9	6	6.5	10	4	6	6				
"	17	10	8	11	6	7	2	7	8	7	5	11	1	6					
"	18	7	6	7	6	7	4	7	4	7	4	7	6	5	8				
"	19	9	4	8	9	6	3	6	4	6	3.5	9	.5	5	9				
"	20	9		9		10		10		9		10		5	10				
"	21	9		9		10		10		9		10		5	9				
"	22	9	4	9	5	7	7	6	7	7	1	9	4.5	7	10				
"	23	8	2	7	2	6		6		6		7	8	7	11				
"	24	10	4	10		6		6	6	6	3	10	2	7	9				
"	25	9		8	10	6	5	6	10	6	7.5	8	11	7	5				
"	26	8	9	8	6	6	7	6	4	6	5.5	8	7.5	6	9				
"	27	11	6	12		9	1	8	9	8	11	11	9	6	1				
"	28	8	10	8	10	8	3	8		8	1.5	8	10	4					
"	29	5	2	5	7	10	9	10	9	5	4.5	10	9	5	5				
"	30	5	3	5	3	10	7	10	7	5	3	10	7	1	7				
X	1			6	6	11	9							6	3				
"	2	6	6	6	9	10	4	10	4	6	7.5	10	4	6	9				
"	3	6	9	7	4	10	6	10	6	7	.5	10	6	6					
"	4	7	6	7	2	10	4	10	4	7	4	10	4	7	6				
"	5	7	2	6	2	13	6	13	4	6	8	13	5	3	6				
"	6	6		6		12		12		6		12		5					
"	7	5	6	7		9	9	9	9	6	3	9	9	5	6				
"	8	6	9	7	4	10	9	10	6	7	.5	10	7.5	10					
"	9	7	3	6	10	10	4	10	4	7	.5	10	4	6					
"	10	6	10	9		13		12	10	7	11	12	11	5					
"	11	7	3	7	3	12		12		7	3	12		8					
"	12	7		7		10	1	10	1	7		10	1	8	3				
"	13	7		7		11		11		7		11		8					
"	14	7		7		11		11		7		11		9					
"	15	7		7		13		13		7		13		8	6				

Bldg.	Room	Specific Dimensions								Average Dimensions							
		East		West		North		South		Breadth		Length		Height			
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.		
		San Cristobal															
X	16	6	6	6	6	12		12		6	6	12		8			
"	17	6	3	6	3	10		10		6	3	10		8	3		
"	18	6	3	6	3	11		11		6	3	11		8			
"	19	7		7		11		11		7		11		9			
"	20	7		7		13		13		7		13		8	6		
"	21	9	3	7	9	11	6	11	6	8	6	11	6	7	6		
"	22	7	9	7	9	10		10		7	9	10		8			
"	23	7	9	7	9	11		11		7	9	11		8			
"	24	7	6	7	6	11		11		7	6	11		9			
"	25	7	6	7	6	13		13		7	6	13		8	6		
"	26	7		7	4	11	5	11	4	7	2	11	4.5	9	6		
"	27	7		7		11	4	11	4	7		11	4	9	6		
XI	1	10		10		8	4	8	4	8	4	10		8	6		
XII	1	8		8		11	1	11	1	8		11	1	2	3		
"	2	8	4	8	11	10	7	10	9	8	7.5	10	8	4	4		
"	3	9		8	10	10	10	11	3	8	11	11	.5	3	5		
"	4	9	2	8	2	10		10	8	8	8	10	4	3	8		
"	5	8	5	8	2	10	8	10	5	8	3.5	10	6.5	4	8		
"	6	7	9	8	2	9	10	10	3	7	11.5	10	.5	4	3		
XIII	1	11	10	12	8	4	9	4	6	4	7.5	12	3	3	2		
"	2	9	10	10	10	5	6	6	7	6	.5	10	4	3	4		
"	3	9	3	9	3	7		7		7		9	3	4	10		
"	4	11		11	3	7	4	7	4	7	4	11	1.5	4	7		
"	5	10	6	11		9		7	10	8	5	10	9	4	3		
"	6	9	10	9	10	7	10	7	10	7	10	9	10	4	8		
"	7	12	6	13		7	2	7	10	7	6	12	9	4	9		
"	8	11	10	12	10	8		7	5	7	8.5	12	4	4	6		
"	9	11	2	10	11	7	10	8		7	11	11	.5	3	7		
"	10	11	3	11	6	8	3	8	3	8	3	11	4.5	3			
"	11	11	4	11	8	7	5	7	2	7	3.5	11	6	3	4		
"	12	11	1	11		7	5	7	5	7	5	11	.5	5	11		
XIV	1	11	6	11	7	4	8	4	8	4	8	11	6.5	4	3		
"	2	13	6	13	6	5	4	4	7	4	11.5	13	6	4	5		
XV	1	11	3	11	3	8	4	8	8	8	6	11	3	5	7		
"	2	8	10	8	7	10		9	10	8	8.5	9	11	5	7		
"	3	9	5	9	10	5		5	3	5	1.5	9	7.5	4	2		
"	4	4	4	4	5	9	10	9	3	4	4.5	9	6.5	2	10		
XVI	1	5	4	5	9	11	2	11	9	5	6.5	11	5.5	4	11		
"	2	8	8	8		11	10	11	9	8	4	11	9.5	5			
XVII	1	9	7	9	4	6	7	6	6	6	6.5	9	5.5	1	11		
"	2	10	1	9	5	6	5	6	9	6	7	9	9	2	1		

Bldg.	Room	Specific Dimensions								Average Dimensions					
		East		West		North		South		Breadth		Length		Height	
						San Cristobal									
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	n.
XVII	3	9	6	9	10	6	7	6	9	6	8	9	8	2	7
"	4	4	6	4	10	10	1	9	9	4	8	9	11	2	6
"	5	5		5		11	9	12		5		11	11.5	2	1
XIX	1									7		12		5	6
General Averages										7	1.28	10	11.35	4	4.89
						Pueblo Largo									
I	1	6	3	6	1	13	5	13	8	6	2	13	6.5	5	6
"	2	6	5	5	6	9	4	9	10	5	11.5	9	7	6	
II	1	13		13		6	7	7	1	6	10	13		5	6
"	2	11	2	10	10	5	3	4	9	5		11		6	
III	1	7		7	8	15	4	14	10	7	4	15	1	4	
"	2	8	6	8	4	13	4	13		8	5	13	2	3	6
IV	1	11	8	11	5	6	10	6	7	6	8.5	11	6.5	2	6
"	2	11	6	11	6	7	6	7	3	7	4.5	11	6	6	
"	3	7	3	8	2	7	8	8	2	7	8.5	7	11	5	6
"	4	6	2	6	2	11		11	5	6	2	11	2.5	5	9
V	1	11	8	11		5	4	6		5	8	11	4	4	3
"	2	6	8	7	8	11	6	11	6	7	2	11	6	4	6
"	3	11	4	12	4	7	2	6	1	6	7.5	11	10	2	6
General Averages										6	8.42	11	8.5	4	8.77
						Pueblo Colorado									
I	1	11	3	10	11	6		6		6		11	1	2	5
"	2	12	3	11	4	7	11	8	2	8	.5	11	9.5	2	7
II	1	12	6	11	9	6	8	7	4	7		12	1.5	5	7
III	1	5	7	6	5	13	1	13	9	6		13	5	4	
"	2	6	8	6	10	10	10	11	3	6	9	11	.5	6	10
"	3	6	3	5	9	12	6	11	8	6		12	1	6	5
"	4	11	6	11	10	7	7	7	2	7	4.5	11	8	6	3
IV	1	10	7	11	6	6	6	.5	11	6	2.5	11	.5	2	6
"	2	10	10	10	7	6	1	6		6	.5	10	8.5	4	5
"	3	13	2	12	9	5	3	5	3	5	3	12	11.5	4	6
"	4	12	8	12	3	5	6	5	9	5	7.5	12	5.5	4	9
"	5	8	3	8	3	5	10	6		5	11	8	3	5	1

Bldg.	Room	Specific Dimensions						Average Dimensions					
		East		West		North		South		Breadth		Length	
IV " 													

Bldg.	Room	Specific Dimensions								Average Dimensions									
		East		West		North		South		Breadth		Length		Height					
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.				
		Pueblo Shé																	
III	1	15	5	15	5	6	11	7		6	11.5	15	5	4	1				
IV	1	5	10	5	10	10	5	10	4	5	10	10	4.5	5					
"	2	8	8	8	8	7	10	7	4	7	7	8	8	5	6				
"	3	7	4	7	8	10	6	10	5	7	6	10	5.5	5	10				
"	4	9	9	9	9	6	9	6	9	6	9	9	9	5					
V	1	7	8	7	10	11	10	12	5	7	9	12	1.5	4	8				
"	2	14		13	9	7	10	7	3	7	6.5	13	10.5	5	7				
VI	1	9	7	9	8	6	1	5	4.5	5	8.75	9	7.5	4					
VII	1	6	7	6		13	4	13	5	6	3.5	13	4.5	4	9				
VIII	1	9	10	9	10	7	9	7	8	7	8.5	9	10	4	8				
IX	1	6	6	7		9	10	10	5	6	9	10	1.5	5	2				
"	2	7	4	7	8	11	3	10	11	7	6	11	1	3	5				
X	1	7	3	7	3	12	2	12		7	3	12	1	3	4				
"	2	7	1	7	2	12	9	12	5	7	1.5	12	7	3					
XI	1	5	10	5	11	9	2	9	2	5	10.5	9	2	2	6				
"	2	6	2	6	3	11	3	11	9	6	2.5	11	6	2	4				
XII	1	10	9	11	4	7	10	7	7	7	8.5	11	.5	1	10				
XIII	1	10	2	10	2	8	2	8	2	8	2	10	2	3	4				
XIV	1	11	2	11	6	6	8	6	8	6	8	11	4	3	1				
"	2	7	9	7	9	10	3	10	3	7	9	10	3	3	10				
General Averages										6	11.1	11	3.87	4	1.67				
		Pueblo Blanco																	
I	1	5	7	5	10	19	2	19		5	8.5	19	1	4	9				
II	1	9	6	9	5	6		6	10	6	5	9	9.5	3	2				
III	1	6	3	6	6	15	4	15	3	6	4.5	15	3.5	2	8				
IV	1	7	4	6	7	10	11	10	10	6	11.5	10	10.5	3	9				
V	1	6	3	6	5	18	9	19	2	6	4	18	11.5	4	3				
"	2	15	2	14	11	6	2	5	6	5	10	15	.5	5					
"	3	8		7	7	12	1	12	1	7	9.5	12	1	4					
VI	1	10	7	10	3	6	5	6	6	6	5.5	10	5	4	4				
VII	1	12		11	9	5	4	5	1	5	2.5	11	10.5	4	4				
VIII	1	5	6	6		13		13	3	5	9	13	1.5	4	2				
IX	1	7	8	7	6	5	9	5	9	5	9	7	7	4	9				
X	1	9	8	9	9	6	7	7	2	6	10.5	9	8.5	6					
"	2	7	6	7	3	15	7	15	3	7	4.5	15	5	6	5				
"	3	9	2	9	11	9		8	3	8	7.5	9	6.5	6	3				
"	4	8	5	7	2	6	5	6	5	6	5	7	9.5	5	10				

Bldg.	Room	Specific Dimensions								Average Dimensions					
		East		West		North		South		Breadth		Length		Height	
		Pueblo Blanco													
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
XI	1	6	4	6	9	14	8	15	1	6	6.5	14	10.5	6	2
"	2	7	11	6	8	11		11	4	7	3.5	11	2	4	4
XII	1	7	5	7	10	11		11	1	7	7.5	11	.5	5	6
"	4	8	8	9	1	8		7	7	7	9.5	8	10.5	3	9
"	5	5	10	6	4	12		12	6	6	1	12	3	7	
XIII	1	12	1	12		6		6	5	6	2.5	12	.5	5	
"	2	6	5	6	9	7		7	1	6	7	7	.5	4	4
"	3	13		13	5	6	4	6	3	6	3.5	13	2.5	5	7
"	4	13	4	13	4	5	11	5	3	5	7	13	4	4	3
"	5	12	10	12	9	6	11	6	4	6	7.5	12	9.5	5	
XIV	1	7	3	6	7	13	7	13	6	6	11	13	6.5	5	
XV	1	7	4	7	3	15	1	15	2	7	3.5	15	1.5	4	3
"	2	7	3	6	7	11	10	11	10	6	11	11	10	4	9
"	3	12	6	12		7	4	7	4	7	4	12	3	5	5
"	4	16	10	16	11	8		8	2	8	1	16	10.5	5	4
XVI	5									6	8	10	10	5	2
"	7									4	6	11	10	4	9
"	8									6	2	13		4	6
"	9									6	7	12	2	5	
General Averages										6	4.46	12	4.35	4	10.15
		Pueblo San Lazaro													
I	1	8	3	8	3	6	10	6	9	6	9.5	8	3	3	7
"	2	14	7	14	10	8	3	8	5	8	4	14	8.5	4	9
"	3	11	3	11	3	8	3	7	6	7	10.5	11	3	4	
"	4	11	6	12	2	7	1	7	10	7	5.5	11	10	4	
II	1	16	8	15	10	6	1	5		5	6.5	16	3	3	9
"	2	6	3	6	8	9	7	9	10	6	5.5	9	8.5	3	2
"	3	7	3	7	2	9		9		7	2.5	9		5	
III	1	5	7	5	3	12	10	13	2	5	5	13		4	
"	2	7	11	8	4	11	8	10	11	8	1.5	11	3.5	5	4
"	3	7	4	7	8	7	1	7	10	7	5.5	7	6	4	9
"	4	7	9	8	6	6	5	6	5	6	5	8	1.5	3	
IV	3	14		13	10	8		6	10	7	5	13	11	3	5
VI	1	7	5	7	3	10	3	11	2	7	4	10	8.5	6	2
"	2	12		11	11	5	8	5	5	5	6.5	11	11.5	3	9
VII	1	7	2	6	10	5	10	5	10	5	10	7		8	6
"	2	9	8	10	1	5	9	6	4	6	.5	9	10.5	3	8

Bldg.	Room	Specific Dimensions								Average Dimensions					
		East		West		North		South		Breadth		Length		Height	
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
Pueblo San Lazaro															
VIII	1	6	3	6	2	12	7	12	7	6	2.5	12	7	3	
"	2	7	1	7	1	13	8	14		7	2.5	13	10	3	9
IX	1	6		6	7	11	1	11		6	3.5	11	.5	3	2
"	2	9	10	9	6	7	3	7	3	7	3	9	8	7	5
X	1	6	3	6	9	8	10	9	3	6	6	9	.5	3	
"	2	7	6	7	5	11	10	11	9	7	5.5	11	9.5	3	
"	3	7	7	7	10	10	7	11	1	7	8.5	10	10	3	
XI	1	13	4	13	4	4	2	4	5	4	3.5	13	4	2	5
"	2	12		11	7	5	10	6		5	11	11	9.5	1	8
XII	1	9	9	9	10	8		7		7	6	9	9.5	4	
"	2	15	11	15	10	7	4	7	4	7	4	15	10.5	5	5
"	3	7	10	7	8	10	6	10	3	7	9	10	4.5	4	3
"	4	7	5	7	8	10	6	11	2	7	6.5	10	10	4	4
"	5	11	11	11	3	9		8	9	8	10.5	11	7	3	9
"	6	10	7	10	2	6	6	6	6	6	6	10	4.5	4	
XIII	1	5	11	6	2	9	7	9	7	6	.5	9	7	2	9
"	2	6	4	5	9	12	8	12	8	6	.5	12	8	2	3
"	3	6		6	3	13		13	8	6	1.5	13	4	3	
"	4	12		12	2	4	4	4	4	4	4	12	1	2	9
"	5	12	3	12	2	6	6	6	9	6	7.5	12	2.5	4	
XV	1	12	8	12	10	6	2	6	9	6	5.5	12	9	4	3
"	2	11	1	10		4	11	6	3	5	7	10	6.5	4	4
XVI	1	7	9	7	10	13	8	13	8	7	9.5	13	8	4	
"	2	6		7		11	3	11	3	6	6	11	3	3	4
"	3	9		9		5	9	5	9	5	9	9		6	9
"	4	11	8	11	7	5	11	7	1	6	6	11	7.5	4	
"	8	6	6	5	9	10	10	10	10	6	1.5	10	10	4	
XVII	1	6	9	6	8	11	4	11	5	6	8.5	11	4.5	2	7
General Averages										6 8.23		11 3.82		3 11.73	
Pueblo Galisteo															
VIII	1	11	1	11	3	7		7		7		11	2	1	10
X	2	5	2	6		14		13	6	5	7	13	9	2	3
XI	3	9		8	11	7	1	6	4	6	8.5	8	11.5	1	6
XII	4	6	2	5	8	12		12	4	5	11	12	2	1	9
IX	5	5	10	5	8	11	4	11	4	5	9	11	4	2	
IV	6	11	9	11	9	6	6	6	9	6	7.5	11	9	4	
V	7	8		8		7	10	7	10	7	10	8		3	9

Bldg.	Room	Specific Dimensions								Average Dimensions							
		East		West		North		South		Breadth		Length		Height			
		Pueblo Galisteo															
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.		
V	8	10		10	5	6	11	6	9	6	10	10	2.5	2	5		
VI	9	7	11	8		11	8	10	11	7	11.5	11	3.5	2	6		
"	10	10	1	10	1	6	10	6	9	6	9.5	10	1	1	4		
XIII	11	4	11	6	10	12	1	11	8	5	10.5	11	10.5	1	3		
XIV	12	11	7	11	6	7	2	7	11	7	6.5	11	6.5	3	8		
XIX	13	12	10	13	2	6	4	6	8	6	6	13		1	7		
XVIII	14	6	4	6	2	12	6	11	11	6	3	12	2.5	1	8		
"	15	7	2	6	4	14	2	13	6	6	9	13	10	2	4		
XVII	16									8	6	11	5	3	3		
XX	17	7	9	8	9	9	1	9	1	8	3	9	1	2	7		
II	19	11		10	11	7	6	7	3	7	4.5	10	11.5	5	9		
I	20	9	10	9	10	6	10	6	10	6	10	9	10	6	5		
"	21									7	6	8	8	3	6		
XXI	22									8		11	8	2			
"	23									9	9	11		1	6		
XXVI	25	8		7		10	4	9		7	6	9	8	2	8		
General Averages										7 1.37		11 .24		2 8.17			