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EXCAVATIONS AT CASA GRANDE, ARIZONA, IN 1906-07

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INTRODUCTION <sup>1</sup>

Casa Grande is an Indian ruin of undetermined antiquity situated in Pinal County, southern Arizona, a little more than a mile from the left bank of the Gila River. It lies twelve miles from Florence and about eighteen miles from the Casa Grande station on the Southern Pacific Railroad. Casa Grande was given its name about 1694 by its discoverer, the celebrated Jesuit, Father Eusebio Francisco Kino, and has been repeatedly described and figured since that zealous and intrepid pioneer made his missionary trips across the deserts of southern Arizona.

This great house is the most important ruin of its type in the Southwest, and as such has strong claims for archeological study, repair, and permanent preservation. It has a peculiar fascination for the archeologist on account of its age and also because of the incompleteness of our knowledge of the ancient inhabitants of the Gila Valley.

The main building and its surrounding mounds, when considered together, may be called the Casa Grande group of ruins. Very little

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<sup>1</sup> This paper is a report of progress on certain unfinished archeological work conducted by the author under a special appropriation for the exploration, repair, and protection of the Casa Grande ruins in Arizona. This appropriation was disbursed under the auspices of the Smithsonian Institution, and the field work extended from October 24, 1906, to March 24, 1907. Provision has been made by Congress for the continuation of the work during the fiscal year 1907-08, and it is anticipated that on completion of the exploration a final report will be published by the Bureau of American Ethnology.

attention had been paid to the mounds, and little was known of their contents and their relation to the main building up to the inception of this work. The mounds are arranged in several groups or clusters, that for reasons which it is hoped may appear sufficiently good are called "compounds." To distinguish it from other groups of the same type, the cluster chosen especially for excavation in 1906-07 is called Compound A.

The appropriation for 1906-07 sufficed to open the mounds and to remove the accumulated earth from about three-fifths of Compound A. In the course of this work there was found a wall which surrounds not only Casa Grande but also forty-three large rooms forming several clusters, some of which are larger than the historic Great House of Father Kino.<sup>1</sup>

The newly discovered walls have been repaired and protected from future harm, so that the visitor may now have some idea of the original appearance of the compound. The *débris* that had accumulated for centuries about the walls has been removed to a considerable distance, and they now stand out in bolder relief than they did when the Spanish padres first saw them. Where six months ago were mounds now rise houses with walls, floors, and doorways through which the visitor can walk, as did the ancient people before the place was deserted.

The removal of earth that had accumulated in the rooms and plazas from the surface down to the floor was in itself no small task, but this was only one phase of the work accomplished in making Casa Grande an "exhibition ruin." For the first time in the history of archeological excavations in our Southwest, an effort was made to repair and protect the walls that were uncovered, so that they should not suffer from the elements. As the walls of the houses are constructed of material which is easily eroded, their permanent preservation necessitated drains for carrying off the water, lest it penetrate the foundations and cause disintegration. The bases of all the walls excavated were treated with cement laid on an inclined plane of clay, forming a watershed by which the rain is deflected from the walls into small drains opening into a large ditch at the northeast corner, which ultimately conducts the water to a distant depression. About three-fourths of a mile of wall was given this basal protection.

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<sup>1</sup>This wall is figured by Font and Bandelier, but is not recognized as such by Cosmos Mindeleff.

Before the excavations were begun, the old stage road from Florence to the Casa Grande station on the Southern Pacific Railroad entered Compound A east of the main building, crossing it diagonally between the ruin and the two fragments of walls forming the southwest corner of the compound. The opening of rooms directly beneath this road made it necessary to divert it around the south end of the compound. The road-making incidental to this change in the highway necessitated grading and leveling in that vicinity. The level area thus formed would be a good place on which to construct one of the old circular huts of the Pimas, in order to show the character of the dwellings of the common people in prehistoric times.

As work progressed in this cluster of mounds it became evident that with proper treatment Compound A could be made a type ruin, representing many others scattered throughout the valley of the Gila and its tributaries. With this idea, therefore, the work at Casa Grande has been carried on—the idea of restoring for posterity a representative prehistoric settlement of the deserts of southern Arizona.

It is hoped that the plan of developing type ruins to illustrate culture areas of the Southwest may be carried out also in the Little Colorado, Rio Grande, and other river valleys of Arizona and New Mexico. Representative ruins, properly excavated, repaired, and protected, will greatly increase the interest of tourists as well as scientific students in the antiquities of our country. Needless to say, this plan would merit the support of the settlements near which the ruins lie.

The main objects of the work at Casa Grande are to bring to light rooms and walls, to repair and protect them, and incidentally to make a collection of objects for the National Museum.

#### CLASSIFICATION OF CASA GRANDE MOUNDS

The artificial mounds at Casa Grande may be grouped into five classes, distinguished as follows:

1. Multiple or single mounds scattered over a rectangular area surrounded by a defensive wall. These enclosed areas may be designated *compounds*.
2. Single mounds covering buildings, but not surrounded by a wall. These may be called *clan houses*.
3. Oval mounds, ordinarily called "hollow" on account of central depressions, the bottoms of which are generally lower than the level

of the surrounding plain. These mounds, of which there is only one at Casa Grande, are supposed to be communal wells.

4. Mounds made up of refuse, sometimes sparsely covered with fragments of pottery. This type of mound passes without structural differences into the last class.

5. Earth mounds or chance accumulations of earth, without pottery fragments or other objects of human manufacture.

The first two classes of mounds under consideration are spoken of in the plural, as Great Houses (Casas Grandes) by many of the early visitors. For instance, Mange, a military officer who accompanied Kino, after having mentioned these Great Houses, says of one of them: "One of the houses is a great building." This he proceeds to describe so graphically that there can be no doubt that he has in mind the building we now call Casa Grande.<sup>1</sup> There were evidently other great houses standing near it when Mange visited the place, as he speaks of twelve other buildings in sight of the main house. The name Casa Grande is now applied to but one building, while the name "Casa Grande group" refers to the whole cluster of houses which were known to early writers as the "Casas Grandes of the Gila."

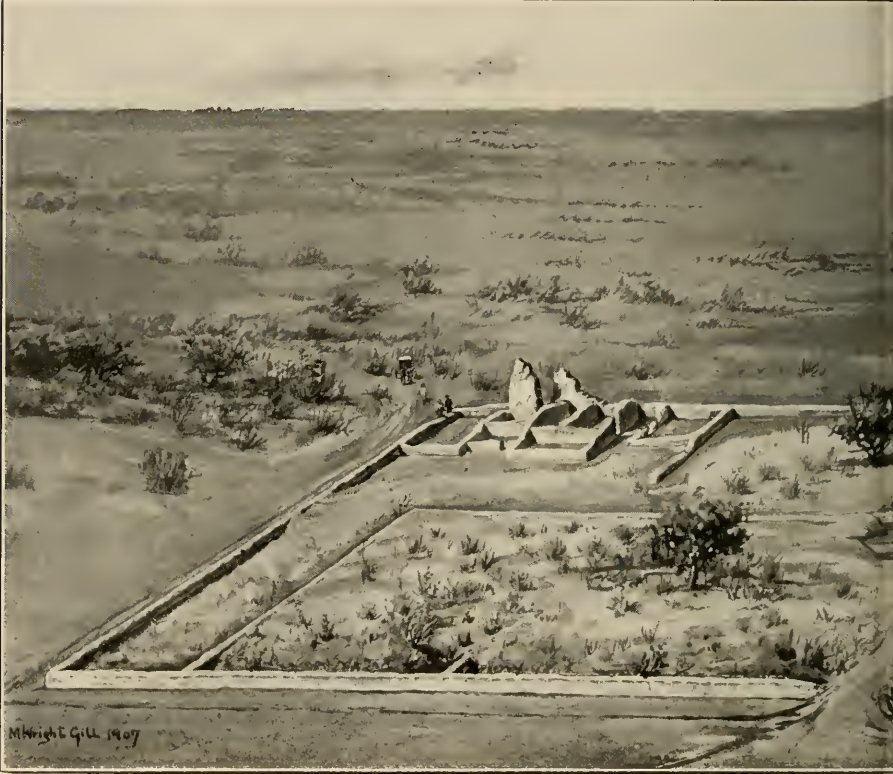
The mounds of the first two of these classes which were excavated were formed by ruined houses covered with débris so great in quantity that the walls were almost completely concealed, although in the latter part of the seventeenth century, when Casa Grande was first visited, both the surrounding walls and enclosed rooms were plainly visible. When the work here described began nothing could be seen but the rooms of the main building and three fragments of walls projecting above the ground (plates XXIII, XXIV).

It is difficult to determine exactly the source of the great quantity of débris forming the mounds that conceal the walls of the prehistoric buildings of the Gila Valley. This material is largely adobe mixed with small pebbles, forming a grout like that of which the walls themselves are constructed, and probably consists of fallen

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<sup>1</sup> Between the visits of the discoverer, Father Kino, in 1694, and Major Emory, the first American to describe them, in 1847, there was considerable change in the general appearance of the Casas Grandes of the Gila. The falling in of walls and the consequent filling up of rooms progressed rapidly after once the walls began to crumble. There has been little change in the skyline of Casa Grande since 1847, judging from Stanley's excellent view of the south wall, reproduced in Emory's Report, but sections of the east and south wall fell when the building was repaired a few years ago, considerably altering the appearance of the eastern side.





BIRD'S-EYE VIEW OF COMP

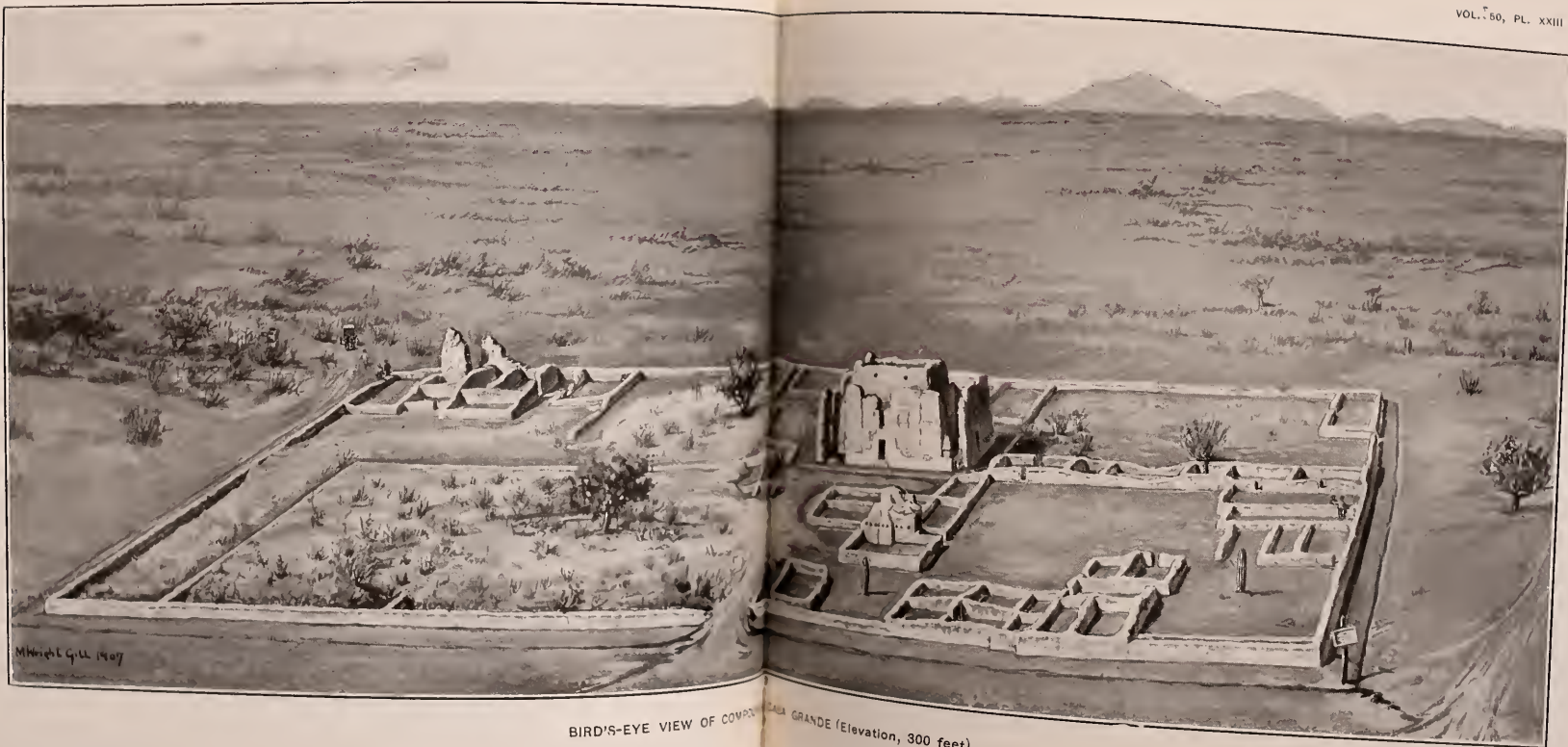




GRANDE (Elevation, 300 feet)







M. Wright G. U. 1907

BIRD'S-EYE VIEW OF COMPLEX AT CASA GRANDE (Elevation, 300 feet)



roofs, drift sand, and other accumulations. In places the former height of the walls has undoubtedly been reduced several feet by portions falling down, and the earth about their foundations has gradually been raised to a level with their tops.

Some excavations were made in mounds of the fourth and fifth classes to determine their structure, but most of the time was devoted to the most important, or those containing rooms, as this seemed the best use to make of an appropriation allotted for excavation, preservation, and repair of the ruin. The work was largely devoted to one of the first class.

### COMPOUNDS

The first class of mounds, consisting of those called compounds, is the most important of the above-mentioned divisions of mounds in the Casa Grande group, and is typical of the Gila Valley. Since the word compound<sup>1</sup> is here formally introduced to archeologists as the name of a new type of prehistoric structures of the Southwest, it may be well to dwell in detail on some of the salient features of the structure thus designated.

The compound is the characteristic structure of the Gila and Salt River valleys, as the pueblo is the type of the Little Colorado and Rio Grande drainage areas. The name is applied to a rectangular area bounded by a wall enclosing rooms, some of which are joined to the surrounding wall, while others are independent of it. A compound recalls Mexican rather than Puebloan architecture, although it has features in common with the latter. The compound was something more than a building for habitation; it was a gathering place for a much larger population than could be domiciled within it, and was apparently for assemblages both sacred and secular, for ceremonies, trade, protection from foes, and storage of food. The enclosed houses are comparable to composite kivas or ceremonial rooms. While the shape of a compound is, approximately, rectangular, it is not perfectly so, as no two sides have the same length and no angles are right angles; nor is the ground plan of any room exactly rectangular. This imperfection is believed not to have been a matter of design, but rather the result of a lack of instruments for precise measurement. A compound shows a preconceived plan of construction in contrast with a pueblo, to which additions were made as necessity required. Its ultimate form was apparently thought out

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<sup>1</sup> From the Malay *kampong*, according to the Standard Dictionary.

before the bounding walls were constructed. The compounds are simple architecturally and their construction is rude. They do not show the daring in building exhibited in cliff houses, nor the skill displayed in pueblos built on the edges of precipices. They give no evidence of any great skill in masonry or in overcoming difficulties of construction. This compound type of architecture is represented by many examples in the Gila drainage region, and may or may not be associated with other classes of mounds. It is only rarely that the type is duplicated in the same cluster, as at Casa Grande.

#### I. COMPOUND A

Two or possibly three compounds have been recognized in the Casa Grande group, and of these Compound A is the largest, although it contains no building equal in size to the main house of Compound B. Compound A is believed to have been the last of the three compounds to be deserted by its inhabitants, for it is the only one with fragments of walls standing above ground. The longest side of Compound A is oriented  $3^{\circ}$  east of the true north-south line.<sup>1</sup> The surrounding wall has been traced throughout and laid bare on both sides, without and within. Its former height varied a little at different points, having been greatest near attached rooms, where the wall is also greater in thickness. The bounding wall of this compound averages two feet in thickness, and was originally not far from six feet high.

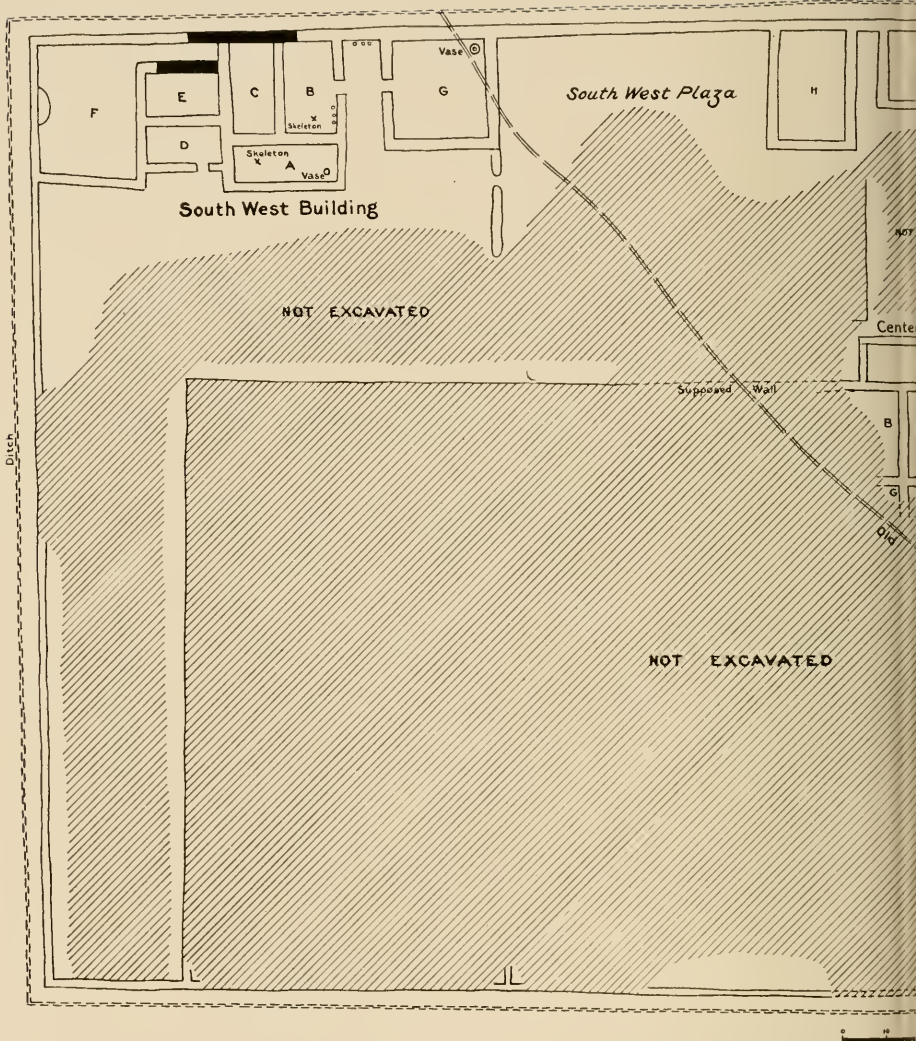
In Kino's time, and as late as 1775, when Font visited the ruin, the surrounding wall and many enclosed buildings were probably in a fair state of preservation. The latter in some instances had roofs supported by rafters, and plastered walls which rose somewhat higher above the ground than at present. There is evidence that all sections of the outside wall of Compound A were not constructed at the same time, but that the structure was enlarged after a few generations. Considerable intervals of time may have elapsed between the erection of the six ceremonial rooms and the large walls east of the north room of this series. The outside wall of the compound shows evidences of having been successively extended, the oldest part being the western half, or that which contains the historic building, Casa Grande. The east wall of the six ceremonial rooms extends east of Casa Grande, and once formed a retaining wall about

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<sup>1</sup>The west wall of Casa Grande, however, is north  $4^{\circ} 30'$  east. The south wall of the compound measures south  $8^{\circ} 35'$  east.

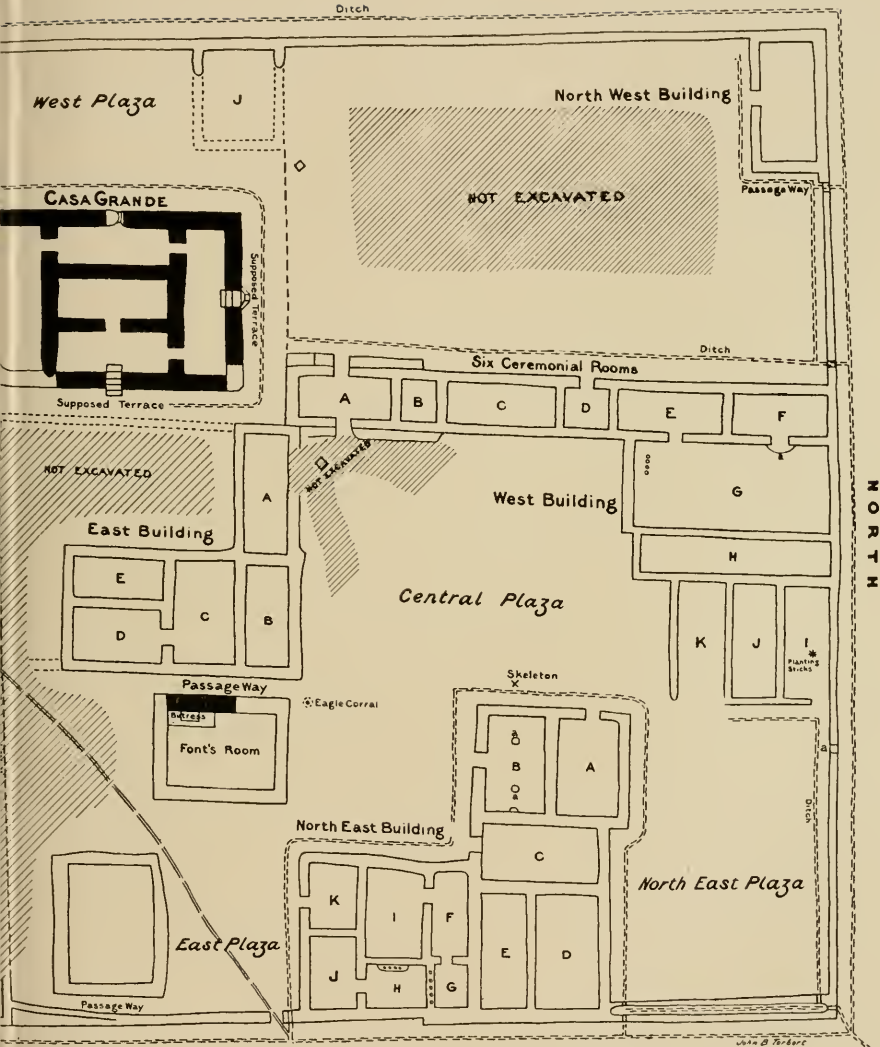






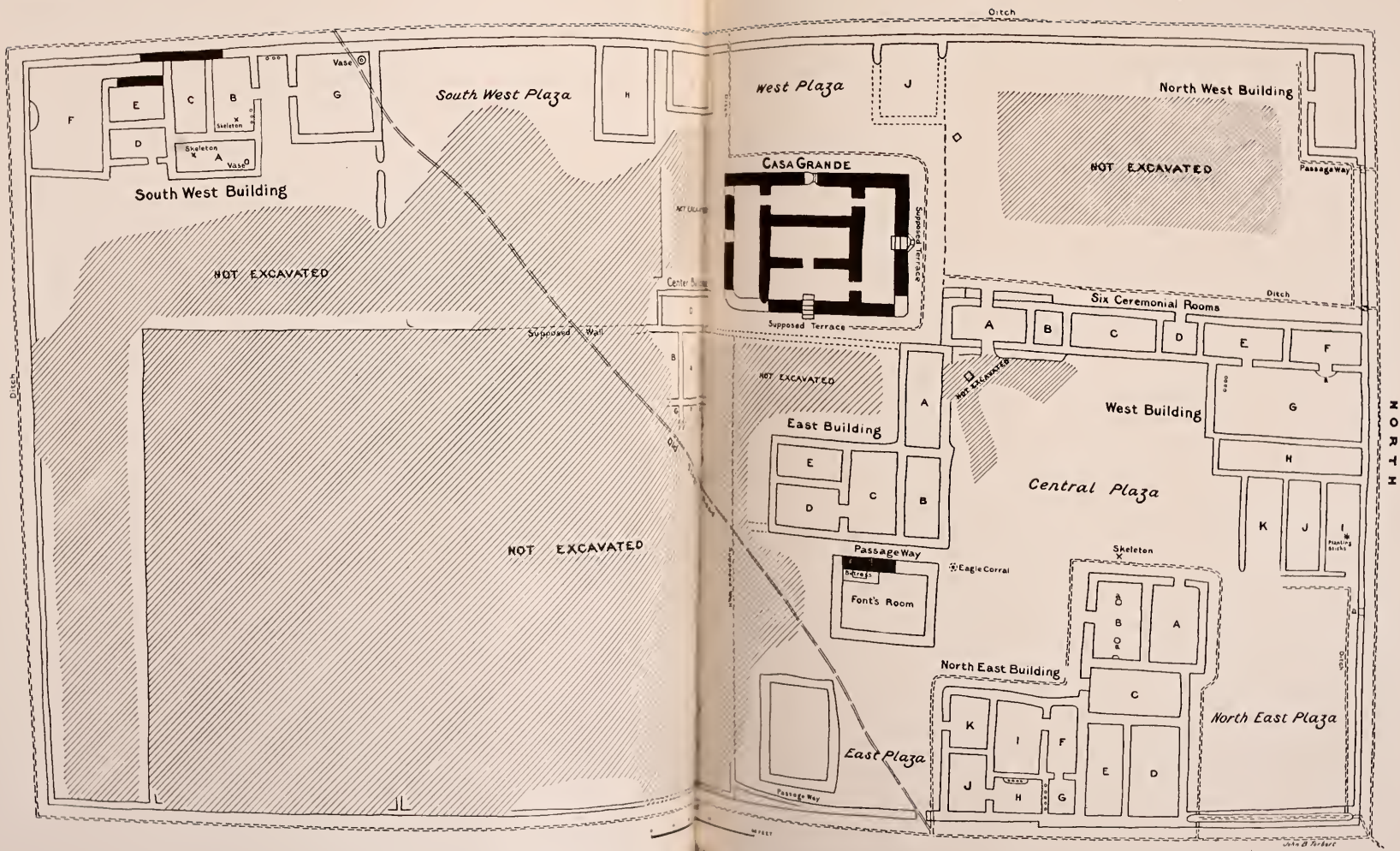
GROUND PLAN OF COMPOUND A, SHOW





D WALLS EXCAVATED IN 1907-8





GROUND PLAN OF COMPOUND A SHOWING WALLS AND WALLS EXCAVATED IN 1907-8



eight feet from the main building. It extended southward, forming the main wall of the central building and the east wall of the southwest plaza. This extension of the ceremonial rooms may once have been the east wall of a narrow compound containing the main building and the cluster at the northwest angle of the original compound. On this hypothesis the rooms east of Casa Grande may have been additions, the buildings of the northeast, central, and east plazas not having been included formerly within the walls that surrounded the main building.

It appears from the author's explorations that the main building does not stand in the middle of Compound A, but is nearer the west and south sides than the east and north. The most important buildings of the present enclosure are situated on the east, north, and south sides of Casa Grande, those on the west being small and inconspicuous. This arrangement was evidently intentional, primarily heliotropic, that is, for the purpose of allowing outlooks from roofs to the east for sun worship or other ceremonial purposes.<sup>1</sup>

The main building was not isolated from the others, but connected with them at its base on the east, north, and south sides. The roofs of neighboring buildings communicated directly with a terrace on a level with the lower rooms of the main building, which opened upon the terrace through low, narrow entrances. By the use of ladders one could mount to the doorways of the second story of the main building, which were situated on the east, north, and south sides.

The south wall of Compound A is curved slightly outward, the curvature reaching its maximum at the point of union of the north wall of the six ceremonial rooms, where it is over two feet, or a little more than the width of the wall. The west wall is without curve from the northwest to the southwest corner, and is a fine specimen of aboriginal masonry constructed without instruments of precision. The south wall, which is a little more than half the length of the west wall, is likewise straight. This is also true of the east wall, which, however, is double at the northeast end, being broken by a small jog or reëntrant angle about a hundred feet from the northeast corner of the compound.<sup>2</sup>

The purpose of the double wall at the northeast angle of the compound is not known; perhaps it is connected in some way with the

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<sup>1</sup>The openings in Casa Grande through which the sun priest watched the rising and setting sun are still visible. Their use, as mentioned by early writers, will be discussed in a final report on the building and its purposes.

<sup>2</sup>A similar break in the wall is also found in the Casa Blanca compound.



jog, above mentioned, in the east wall opposite the northeast building. It may have been that the inner of the double walls was built first, and that, when finished, failing to please the builder, a new wall was constructed to replace it.

The height of the wall surrounding the compound can only be conjectured, but from the amount of débris six feet would be a conservative estimate. Of course, when any part of the surrounding wall formed the wall of a building, its height was greater, rising near the southwest angle to over 20 feet. The width of the wall also varied in different places, being, as a rule, greatest where it served for walls of enclosed buildings. At points where the component blocks of this wall are clearly to be seen they are identical with those of the main building. The walls of the enclosed rooms were also constructed in the same way as those of Casa Grande—of huge blocks of grout, the outlines of which are still visible. It is not wholly clear, however, that they were made in movable frames, as is generally believed, but rather laid in courses, the lines of separation representing periods of labor. As in the main ruin, the prints of human hands and fingers can be seen on component lumps of "*caliche*," as if they were patted into shape after the lumps were laid on the walls. Each of these component lumps of clay was a good basket load for transportation on a man or woman's back. The walls are sometimes strengthened with upright logs, and in a few cases the base of the wall is increased in thickness, as shown in plate xxxv, *b*.

The outside surface of the buildings seems to have been originally smooth, perhaps plastered, but was generally found to be so eroded that the superficial covering had been worn away. In a few places the warm orange-red color of the historic structure was detected on the newly exposed walls.<sup>1</sup> The inner surface of most of the walls of the buildings is blackened by smoke, while the beams of the floor or roof are generally reduced to charcoal. This black mural discoloration is laminated, showing that the rooms were freshly plastered from time to time. Green paint appears on some of the walls, but no drawings or figures are visible. There are hand and finger prints in the clay of which the walls were made, but they are very indistinct. Most of the corners of the rooms are not bonded, and there are cracks wide enough to admit the hand be-

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<sup>1</sup>It cannot be denied that the outer wall of the historic building, Casa Grande, has a marked reddish color on its surface; but whether this color resulted from paint or oxidation is as yet undetermined. The color of Casa Grande is not white, as some have stated, but red.



tween the end of one wall and the face of another upon which it abuts. This failure of union is due to the method of construction of the walls themselves, for they evidently were not carried up at the same rate on all sides. In some instances these cracks were visible on the surface of the mound before excavation began, indicating the corners before the rooms were opened. While the majority of rooms in the enclosure adjoin the surrounding wall, so that it serves as one or more sides, there are two rooms that are free on all sides from any connection of this kind. These independent buildings are separated from others by courts or plazas. The most conspicuous of these is a room, formerly two stories high, called after the zealous priest, Father Font, who first gave its dimensions and correctly mapped its location in respect to the main building (plate XXIII).

Relic-hunters have dug into several large mounds of the compound and left their marks on some of the best walls. This mutilation is particularly noticeable in some of the rooms of the northeast cluster, especially the northeast corner room, where much of the wall had been practically destroyed before the author began his excavations. Necessary repairs were made, however, and what remains of the wall is protected from harm for the present.

### BUILDINGS

The following buildings, plazas, and courts were excavated in Compound A:

(1) Southwest building; (2) northeast building; (3) rooms on west wall; (4) six ceremonial rooms; (5) central building; (6) Font's room; (7) rooms between Casa Grande and Font's room; (8) rooms adjoining ceremonial rooms on north wall; (9) northwest room; (10) room near east wall; (11) northeast plaza; (12) central plaza; (13) east plaza; (14) southwest plaza; (15) south court.

These house groups and plazas shown in the accompanying bird's-eye view and ground plan (plates XXIII and XXIV), in which the unopened part, buildings and plazas, bear appropriate legends, will be considered in the order given above. Of the 43 new rooms considered, the majority were excavated to the floor, and in several the excavations went to a greater depth, where many of the best objects were obtained. The existence of a majority of the buildings was recognized superficially by mounds or small elevations, but the

course of the walls generally had to be traced by following their connection with other walls already discovered and excavated.<sup>1</sup>

### I. SOUTHWEST BUILDING

Father Font wrote of Casa Grande as follows: "The house Casa Grande forms an oblong square facing to the four cardinal points, east, west, north, and south, and round about it there are ruins indicating a fence or wall, which surrounded the house and other buildings particularly in the corners, where it appears there has been some edifice like an interior castle or watch-tower, for in the angle

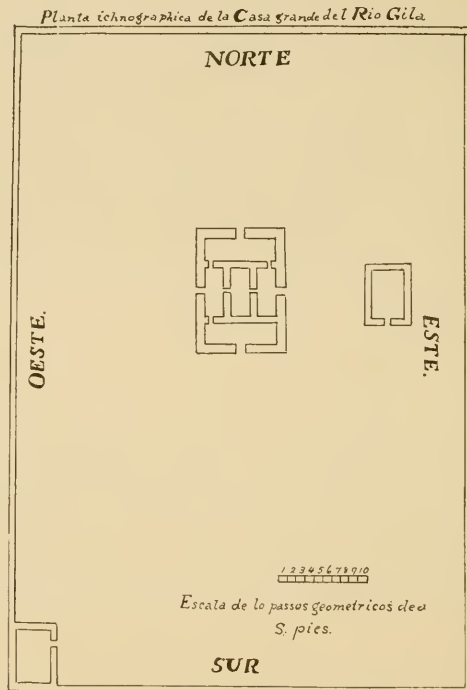
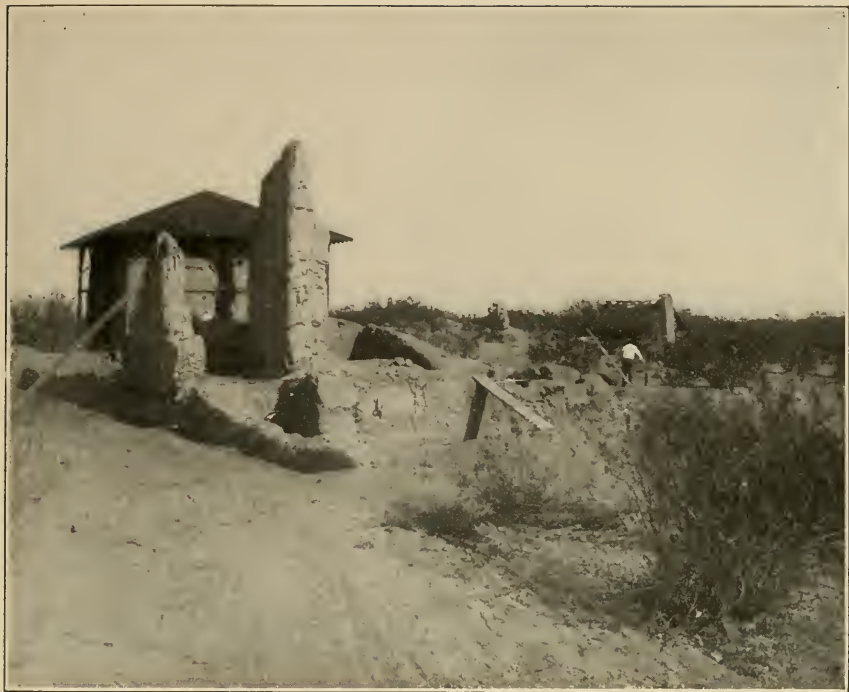


FIG. 117.—Font's ground plan of Casa Grande

which faces towards the southwest there stands a ruin with its divisions and an upper story." This southwest building is undoubtedly one of the "other buildings" above referred to.

<sup>1</sup> It will be noticed that none of the walls of the main building are exactly parallel to those of the compound, and that its plan is different from that of any other house in the area enclosed.



*a* View from southwest before complete excavation



*b* View from northeast before complete excavation

SOUTHWEST BUILDING





*a* View from northeast



*b* View from north  
SOUTHWEST BUILDING





In Font's plan (figure 117) of Compound A, a single chambered room is represented in the southwest corner. Bartlett gave a ground plan of the cluster of rooms in this angle, but neither Bartlett's nor Font's plans are complete, for there are in reality six rooms in this corner of the compound, not counting an adjacent rectangular room separated from this cluster by a court. Several later authors have mentioned and figured these two fragments of walls standing above a mound southwest of the main building, and one or two have suggested that they were formerly connected with Casa Grande by walls. The best view of these pinnacles appeared in Cosmos Mindeleff's valuable account<sup>1</sup> of the ruin.

The author's excavations of Compound A were begun at the base of the more western of these two standing walls, at the level of the ground, where it was found that the wall was so eroded as to be seriously undermined. It was recognized that extensive filling in was necessary at that point, and that other repairs were imperative to keep this fragment from falling. The fragment east of the last mentioned was, if anything, in a worse condition, and also required protection.

Digging down below the eroded portion, there came into view a fine smooth-faced wall, which extended several feet still lower. The excavations were then continued north and south, following the face of the wall to the northwest and southwest angles, laying bare the whole west wall (plate xxxiv, *a*). After having traced this wall, attention was directed to the general character and arrangement of the walls hidden below the mound near the bases of the two fragments of walls where the excavation started. It was found that the southwest corner of the compound is occupied by a cluster of six rooms (plates xxv-xxvi), the most picturesque of all those uncovered during the winter.

## 2. NORTHEAST BUILDING

As may be seen from the ground plan (plate xxiv), the first historic building, Casa Grande, was not the largest in Compound A. The combined length of the six ceremonial rooms is double that of the main building, although their width is much less. A building standing northeast of Font's room is the largest yet excavated and contains many more rooms, some of which are larger than any in the historic building.

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<sup>1</sup> 13th Annual Report of the Bureau of Ethnology.

The arrangement of the rooms in the northeast building (plate XXVII, *a, b, c*) is different from that of Casa Grande,<sup>1</sup> but is typical of others, especially the extra-mural clan houses. This similarity would lead one to suspect that this building was not, like the main building, a ceremonial, but rather a residential house. The typical form, to which reference is made, is that of a carpenter's try-square, or that of two sides of a rectangle—a form that reappears in the most southerly situated of the two clan houses on the east and the cluster of rooms in the southwest corner of Compound B. The six ceremonial rooms, together with those extending eastward from the most northern of these along the inner surface of the north wall, make also a group of the same try-square shape. Since one arm of the northeast cluster is formed by the east wall of the compound, it follows that this arm extends approximately east and west, and necessarily the other arm of the try-square lies at right angles, or north and south.<sup>2</sup>

There are five rooms in the east-west arm of the northeast cluster (plate XXIV), two at each end, separated by a single room. All of these rooms have comparatively massive walls, and in most the superficial covering, or plastering, is fairly well preserved.

Room A, at the west end of the eastern arm of this try-square, had been partially excavated before the Government began work at Casa Grande, but was left in such a bad condition that parts of the east and south walls were practically destroyed. The author repaired them, filling in the badly eroded holes and walls with adobe bricks and restoring the wall as best he could to its original condition.

Room B is one of the best-preserved rooms of those excavated. It was opened down to the level of the floor, which was found to be hard and well plastered. Midway through the center of this room,<sup>3</sup> at equal distances from east and west walls, there are two holes, *a, a*, in the floor, in each of which was an erect log, charred by fire, but

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<sup>1</sup>No building in the compound has the same arrangement of rooms as Casa Grande. It will be instructive to see whether the pyramid of Compound B resembles Casa Grande in this particular.

<sup>2</sup>The theory that the historic Casa Grande is composed of two of these try-square-formed buildings, constructed at different times and united, is not wholly evident, nor is it clear that certain rooms, as the northern, have been added to this building since the others were built.

<sup>3</sup>The arrangement of rafters in this roof recalls that of a Pima round house.



*a* View from southeast, outside compound



*b* View from northwest plaza

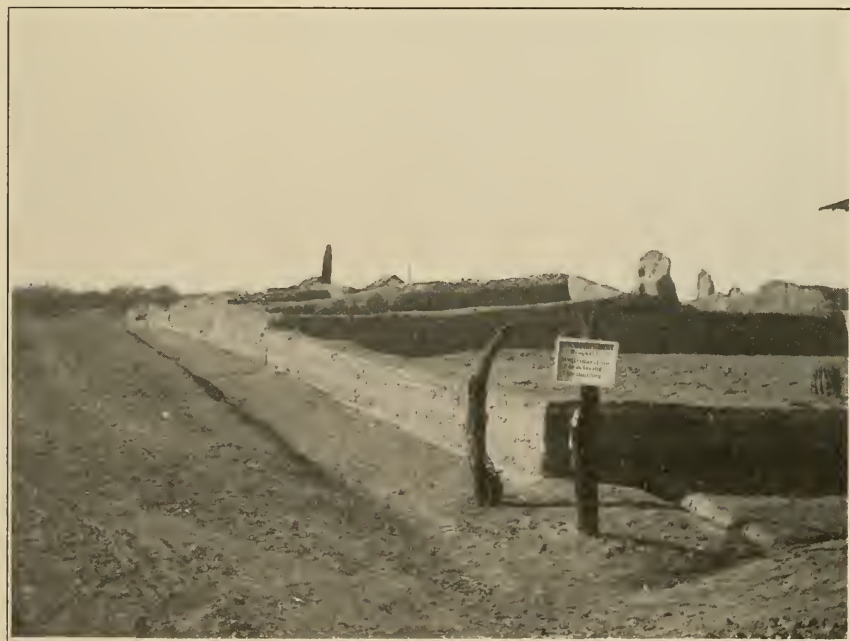


*c* View from outside north wall  
NORTHEAST BUILDING





*a* Northeast angle and plaza



*b* East wall

COMPOUND A





still standing erect. These vertical logs once supported a horizontal rafter extending from the east to the west wall, resting on both and on the vertical supports. Side rafters were supported by this middle log, with ends resting on the north and south walls. Upon these smaller rafters was the roof covering of reeds and clay.

The other three rooms, C, D, E, of the east-west arm of the north-east building, were excavated to their floors. Their walls were found to have good surface finish, "as fine as Puebla pottery," and in one instance, D, showed superficial painting. These rooms, D and E, have no lateral doorways, a significant fact, which strengthens the belief that their former entrances were hatchways on the roof. None of the above-mentioned rooms open into one another. Large stones were found to have been used in the construction of the foundations of the north wall of room D.

The rooms of the east section (plate xxiv) vary in size, and apparently some had lateral doors, others hatchways. The narrow wall of the small room, G, was supported by upright logs. A section of the fallen roof was laid bare in room H, in which the rafters and the clay upon them were well preserved. Apparently the rafters in this room had simply fallen against a side wall, the ends that formerly rested on the east wall having decayed.<sup>1</sup>

The walls of rooms J and K show plainly the action of fire, for large quantities of charcoal filled these rooms. G has a good floor and fine surface finish on the walls. The partitions between these rooms are, however, much broken down. In view of their supposed domiciliary character, it is interesting to point out the absence from these rooms of domestic utensils.

### 3. ROOMS ON THE WEST WALL

Between the cluster of rooms occupying the southwest angle of the compound and the single "bastion" or "castle" at the northwest corner, there are several rooms, the walls of which appeared when the soil was removed from the inner or east side of the west wall.

The most characteristic of these dependent rooms, G, is separated by a narrow court from the northern wall of the southwest cluster. Unfortunately, one corner of this room was cut down before its existence was detected, but wherever its four walls were revealed

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<sup>1</sup> No hatchways or roof entrances had previously been reported from prehistoric houses in the Gila drainage.

they indicated a room of large size.<sup>1</sup> In one corner there stood a large vase, too fragile to remove, which was consequently left in the place where found. The Casa Grand-Florence stage route formerly crossed the compound over the corner of this room directly above this vase.

On the west side of Casa Grande, or directly between the main building and the west wall of the compound, there were excavated several rooms, H, I, and J, the walls of which are low and single-storied. One of these rooms, J, is situated on the northwest corner of the ruin, and has its west wall continuous with that which forms the retaining wall of the north terrace. There are also two rooms on the southwestern corner which bear the same relation to the terrace wall of the south side. These two are separated by a court<sup>2</sup> and have low walls. There does not seem to have been a building directly west of the main ruin and no sign of a terrace now remains on that side.<sup>3</sup> The exact connections of the rooms along the west wall, southwest of the main ruin, with those on the southwest corner can be made clear only by continuation of the work in the unexcavated part of the compound. As shown in the ground plan (plate XXIV), there are walls standing in that part of the compound; there is also a level space called the southwest plaza, situated between the wall of the most southern room at the southwest angle of the main ruin, and the northern wall of the room on the west wall adjacent to the building in the southwest angle.

#### 4. SIX CEREMONIAL ROOMS

Linear arrangement of rooms is exceptional in this compound. This row extends from the northeast corner of the main building to the north wall of the compound, with which the most northern room is united. The line of these rooms is not parallel with either the east or west walls of the compound, and their longest measurements vary, although the widths of the rooms are about uniform. Although the connection which formerly bound these rooms to the main building has been destroyed, there is no doubt that such a union once ex-

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<sup>1</sup> It is often difficult to follow the walls of these buildings, because they are so soft, but on exposure to the air they harden very much.

<sup>2</sup> There are several instances where walls of adjoining rooms are separated by blind courts. As there were no openings from the rooms into these courts, the reason for their existence is problematical.

<sup>3</sup> Most of the exterior openings of the west room of Casa Grande were filled before the building was abandoned.



*a* View of east wall showing basal erosion



*b* View of north room from outside compound

NORTH ROOMS





*a* View from outside west wall of compound



*b* View from north room of Casa Grande

SIX CEREMONIAL ROOMS







*a* View from six ceremonial rooms



*b* View from northwest  
NORTHEAST BUILDING





isted, and that they were probably united to a solid terrace which we must suppose existed on the north, east, and south sides of the main building.

Before excavations were begun, the row of ceremonial rooms was indicated only by a ridge<sup>1</sup> of earth extending from the northeast corner of the main building northward. It is evident that the roof of these rooms was on a level with the floor of the lowest rooms of Casa Grande,<sup>2</sup> which communicated with the roofs of these ceremonial rooms on the north, east, and south by means of the basal terrace, of which mention has been made. In this way one could pass directly into these rooms through the doorways in the middle of the sides of the main building.

The form, size, and general appearance of the walls of these six rooms are shown in the accompanying plan (plate XXIV) and in plate XXX, *a* and *b*. All these rooms were excavated to their floors, the soil from them being removed beyond the surrounding wall of the compound. Earth was likewise taken from the west side, opening the east portion of the northwest plaza, so that the walls on that side now average five feet in height.

## 5. CENTRAL BUILDING

When work was begun on Compound A the central building was a low, regular mound<sup>3</sup> situated near the southeast angle of the main building, occupying a somewhat similar relation to that corner that the first of the six ceremonial rooms does to the northeast angle. This mound was opened to the base, revealing several intersecting walls and rooms (plate XXIV). When one stands at the north wall of the compound and runs his eye along the east side of the six ceremonial rooms, it is found that the middle wall of the central building is in the line of the eye, which also follows the supposititious retaining wall of the east terrace of the main building and the east

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<sup>1</sup>This was a favorite camping place of visitors, being in the shade of the old building.

<sup>2</sup>It is much to be regretted that the union of the buildings around Casa Grande and the main house was cut away by contractors without tracing these connections, for it is now impossible to find out the exact relationship.

<sup>3</sup>When Casa Grande was first repaired the section of wall forming the east end of the south room fell to the ground near this mound. This unfortunate accident was the first radical change in the outer walls of the building since 1847. The author removed the fallen material and placed it in the south room, which had been excavated too deep below its floor.

boundary wall of the southwest plaza. The southeast corner of the main building, Casa Grande, is broken in much the same way as the northeast angle near the six ceremonial rooms, possibly from the same cause.

## 6. FONT'S ROOM

Mange states that Father Kino said mass in the Casas Grandes, and it is generally believed that this ceremony was performed in one of the rooms of Casa Grande. As there were at the time of Kino's visit several other rooms in the group, some of which were more commodious, it is interesting to speculate on the possibility of one of these being that referred to.

Just east of Casa Grande was a large building (plate xxiv), formerly two stories high, which was apparently in a fair state of preservation when Father Font visited it in 1775. So accurately has this zealous priest described<sup>1</sup> and mapped this room, that it is called after him and is referred to as "Font's room," in this article.

Mange states in his diary that "a crossbow-shot farther on, twelve other houses are seen half tumbled down, also with thick walls and all with roofs burnt except one room beneath one house, with round beams smooth and not thick, which appear to be cedar or savin and over them rush reeds very similar to them and a layer of mortar and hard clay, making a ceiling or story of very peculiar character."

Font, 70 years after, wrote: "In front of the east door, separated from the Casa, there is another building with dimensions from north to south 26 feet and from east to west 18, exclusive of the thickness of the walls."<sup>2</sup>

Although it was possible in 1694 for the observer, standing on the roof of Casa Grande, to see the walls of all the buildings which were excavated by the author, the best preserved of all, judging from Font's account, was that named after him. At that time this was apparently the only two-storied building in good preservation east of the main one, which could be designated as "one room beneath one house." The general appearance of this building last October (1906) is shown in the accompanying plate (xxxiv, *a*, *b*). The upright wall of this room was the only fragment besides the main

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<sup>1</sup>Diario a Monterey por el Rio Colorado del Padre Pedro Font, 1777. Copy of the original manuscript, which is in the John Carter Brown Library, Providence, R. I., now in the archives of the Bureau of American Ethnology.

<sup>2</sup>Font's measurements correspond very closely to the dimensions of the room here referred to.



*a* View from outside east wall



*b* Rooms between Casa Grande and passageway west of Font's room

NORTHEAST BUILDING AND EAST ROOMS



building above ground, with exception of the two walls at the south-west angle. The condition of the base of this wall necessitated immediate repair; for, although three feet thick, it was so undermined that light was visible through holes in the base. The author erected on its east side a buttress of adobe bricks to strengthen it, and took other precautionary measures to keep what was left from falling. The row of holes in which were formerly inserted the ends of the rafters of the upper chamber can still be seen in the east face of the wall.

Directly west of Font's room is a passageway communicating with the central plaza. The floor of this passageway is hard and very compact, and on one side there were excavated an eagle skeleton and bones of several rabbits.

#### 7. ROOMS BETWEEN CASA GRANDE AND FONT'S ROOM

East of Casa Grande there were several large rooms, A-E (plate XXXII, *b*), with low massive walls, evidently of one story. It would appear that in ancient times these rooms joined the terrace at the base of Casa Grande, and we may suppose that their roofs were on the level with the floor of the lowest room of the historic building. Apparently these rooms were not all constructed at the same time, the two at the north showing evidences of being older than the southern pair.<sup>1</sup>

One of these rooms, C, was found to contain much débris, consisting of pottery fragments, charred basketry, cloth, maize, mesquite beans,<sup>2</sup> marine shells, and other objects. It appears to have been a dumping place, and, as it has every appearance of having once been a room, we may suppose that it was deserted while some of the other rooms of Compound A were still inhabited.

#### 8. ROOMS ADJOINING THE MOST NORTHERN OF THE SIX CEREMONIAL ROOMS

Adjoining the most northern of the six ceremonial rooms on its east side, there lies a room, or court, G, surrounded by walls, which appears to have been without a roof (plate XXIX, *a, b*). Its floor is

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<sup>1</sup>This conclusion was arrived at by study of the connection of the walls, the northern or more recent having been built into eroded portions of the older.

<sup>2</sup>Flour cakes made of ground mesquite beans was a favorite food of the Pimas. Alarcon, in 1542, was given loaves of "mezquiqui (probably mesquite meal) by the California tribes.



hard, as if made so by the tramp of many feet; its walls are massive, with smooth surfaces. A walled-up doorway, recalling a similar feature in the west room of the main building, occurs in the wall separating this room from the most northern of the six ceremonial rooms.

In the surface of the west wall of this room, at the level of the floor, there is a deep erosion of the wall, shown in plate XXIX, due to former weathering. The south wall of this enclosure was evidently built since the erosion took place, for its end is so constructed that it extends into the eroded region, following the imperfection in the surface without being itself weathered at that level.

The five rooms, G-K, forming the west building are large and have massive walls. No evidences of roofs occur, and lateral doorways are absent except in the east side of I. K shows evidence of an east wall, and the narrow enclosure H is more of a court than a room. A pile of wooden hoes or planting sticks (plate XXXIX, *g*) was found on the floor of room I.

#### 9. NORTHWEST ROOM

The dimensions of the room occupying the northwest angle of Compound A appear in the accompanying plan (plate XXXIV, *b*). This room is single-storied, with free walls on two sides, the other sides being the walls of the compound. An entrance into the compound on the north side is situated near this corner room.

The excavations revealed many ceremonial objects on the floor, which would appear to indicate that the room was used for other than secular purposes. Household utensils, as grinding-stones, which would be expected in a living chamber, were absent. No soot or other evidences of a fire were observed on the walls, and there were no charred logs or rafters.

#### 10. ROOMS NEAR EAST WALL

South of the plaza which lies to the eastward of the two-storied building known as Font's room, are situated the remains of some massive walls which formed a large square enclosure separated from the east wall only by a narrow passage.<sup>1</sup>

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<sup>1</sup>The old stage road from Florence to Casa Grande took advantage of a low place in the east wall for its entrance to the compound. The author suspected the presence of a doorway at this point, but did not find it. The east wall was unbroken by any openings.



*a* View before excavation



*b* View from same point after excavation

WALL OF FONT'S ROOM ABOVE GROUND BEFORE EXCAVATION, FROM NORTHEAST





*a* View of west wall from northwest



*b* View of northwest room from northwest



This building was evidently formerly one story high. Its size is so great that it is doubtful whether or not it was roofed, but if it had a roof it would be one of the largest rooms of Compound A.

### 11. THE NORTHEAST PLAZA

The removal of earth to a depth necessary to show the original height of the walls about this plaza was a work of some magnitude, but was accomplished in a short time.<sup>1</sup> The plaza (plate XXVIII, *a*) was not apparent until after the position of the northeast angle of the compound had been determined and the walls of the northeast building had been excavated.

The situation of this plaza and the fact that no doorways opened into it or terraced roofs looked down upon it, implies that it was not a favorite one for ceremonial dances or spectacular performances. As the walls about it are, as a rule, massive, the plaza may have served as a safe place to which to fly for protection, and it is probable that cabins, not unlike the Pima huts of the last generation, were temporarily erected in this and other plazas.

### 12. CENTRAL PLAZA

The centrally placed, and on that account probably the most sacred, plaza (plate XXIV) of Compound A is surrounded by buildings, the roofs of which no doubt served as elevations from which spectators could witness the sacred dances and games. The floor of this plaza was solid, apparently hardened by constant tramping of feet. The labor involved in cutting down the earth in this plaza to the former floor was considerable, it being necessary to remove many cubic yards of grout that had fallen from the thick walls of the northeast building and the six ceremonial rooms. The southwest corner of the plaza was not excavated because of a large stake to which is attached the iron rod that serves as a guy for the northeast corner of the roof built over the ruin.

The plaza appears to have been used as a burial place, for a human skeleton was dug out of the floor near its southeast corner, but the body might have been buried after the compound had been deserted.

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<sup>1</sup>The author employed as laborers in this work Pima Indians from the village of Blackwater. He found them very efficient workers and universally honest in their work. It is believed that the \$2,400 of the appropriation paid to them was of great material aid, and that the work stimulated their mentality and did much to intensify their self-respect.



There was excavated from this plaza, near the passageway west of the tall wall of Font's room, the skeleton of an eagle and several rabbit bones. It was probably customary at Casa Grande to domesticate eagles for their feathers and to keep them in confinement.

### 13. EAST PLAZA

This plaza was almost wholly surrounded by rooms, and from its position was evidently one of the most popular of all the enclosures of this kind. From the roof of the main building one could probably look over Font's room into this plaza. Although the plaza is a small one, its eastern position would give it considerable ceremonial importance. The accumulated earth was cut down to the original level and removed outside the compound. There does not seem to be sufficient evidence that there was an eastern entrance way to this plaza, although it was looked for when excavations were made.<sup>1</sup>

### 14. SOUTHWEST PLAZA

This plaza adjoins the west wall of the compound, extending from the rooms southwest of the main ruin to the first of the cluster of rooms in the southwest angle. Although large quantities of earth were removed from this enclosure, it has not been wholly leveled to the floor, especially on the east side, near a wall which is a continuation of the rooms at the southwest corner of the main ruin. This wall was exposed along its whole length, but showed no rooms on the west side, although probably there are several on the east, or unexcavated, side.<sup>2</sup>

### 15. SOUTH COURT

A long court extends across the whole south end of the compound from the southwest cluster of rooms to the east wall. Its form suggests a ball court or course for foot races. In connection with the former suggestion, it is interesting to note that several stone balls, such as were used, according to Pima legends, in a game of kicking ball, were found in this court; this game is still practiced

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<sup>1</sup>The present passageway was cut by the author, and marks the place where the old stage road entered the compound.

<sup>2</sup>A ridge of earth joining this wall with the east wall, upon which the tents of the custodian stand, probably marks the position of a row of one-storied rooms the walls of which have been located on the inner side of the east wall (see plate xxiv).

by the Pimas. Near one end there was excavated a square perforated stone, recalling that through which balls were thrown in the Nahuatl pelota.<sup>1</sup>

#### RELATION OF EXCAVATED ROOMS TO CASA GRANDE

It is not the purpose of the present article to discuss the architecture of Casa Grande, notwithstanding the fact that the author differs somewhat in his observations and conclusions from those who have preceded him. His interpretations of this subject will be made a prominent feature in the final report, but it may be well in this place to point out the relation of Casa Grande to the new rooms brought to light by the excavations, in order to comprehend the former appearance of the compound.

One of the most important facts to be determined, in order to form in our mind's eye a picture of Compound A in its prime, is the number of stories of the main building. There is a want of uniformity in the statements of the most reliable writers regarding this feature.<sup>2</sup> The majority of the older observers state that there were four stories; the more recent find evidences of only three. Both are correct; but, as has been stated, there is evidence that the lowest or ground story was purposely filled in with solid earth, so that the floor of the lowest room was on a level with the roofs of the buildings around Casa Grande several feet above the base of the foundation wall. In other words, when Casa Grande was constructed the walls of the lowest story were first built to the height of seven feet, and then or later filled solid with "caliche," the top of which is the present floor of the second story. Later the walls were carried up to the desired height. The reasons for this conclusion are: First, digging into the floor of the building, we found no trace of beams such as would appear were the floor a roof of a lower room; second, in the south and west rooms, where the solid earth has been removed

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<sup>1</sup> We have good evidence that this game was known and played by the ancient people of the Casas Grandes in Chihuahua, which would indicate that it was not unknown in the Gila region.

<sup>2</sup> The Pimas have a legend that there were formerly more than four stories, and old residents corroborate this, but there is no evidence that Casa Grande was ever more than four stories high. The same Pima legend that speaks of the main building being more than four stories high says that the walls of the Casa were cut down by a great serpent, which a magician of a hostile tribe had created by drawing a human hair through his mouth. This story may refer to the wall surrounding the compound.

from the lowest story, there is no evidence of smooth plastering on the walls; and, third, there are no evidences of doorways or windows in these walls, as would be necessary were there a room in this lower story. There could not have been windows or doorways, because, surrounding Casa Grande on the north, east, and south sides, about eight feet from the base, there was a retaining wall which formerly, it would appear, rose to the height of the floor of the lowest room. Between this wall and the outer surface of the wall of Casa Grande was a space which was probably filled solid with earth in exactly the same fashion as the lowest story of the main building. This construction formed a platform running around the three sides of the building at the same level or elevation as the roofs of the other one-storied rooms of the compound and floors of the lowest chambers of the main building. Unfortunately, when Casa Grande was repaired this surrounding terrace was cut away, but by digging below the surface of the ground the author found evidences of this retaining wall on the east, north, and south sides.

From this terrace the ancients could pass directly, on a level, through the low doorways into the lowest room; here were probably placed the ladders by which they mounted to the doorways of the second story. We can imagine the part this terrace must have played on ceremonial occasions or market days, when the compound was crowded with visitors, or when dances of religious or secular nature were taking place in the plazas. This supposition of a surrounding terrace, which is as yet only an hypothesis, harmonizes the statements of those who speak of Casa Grande as having four stories and of those who record that it had only three. The latter may have referred to tiers of rooms, while the former recorded the total height, including the solid lowest story or that under the lowest rooms.<sup>1</sup>

When Father Kino first saw Casa Grande he undoubtedly had the impression that the lowest story, like those above it, was not solid, but a room. This conclusion was natural, since there were other rooms then visible, and in a good state of preservation, above ground, on that level, all about the base of the building. As he approached from the east, it would have been natural for him to suppose that the middle of Casa Grande had four stories of rooms, one above another.

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<sup>1</sup> On the northwest corner of Casa Grande there is a row of holes in the outer wall on a level with the top of the supposed terrace, in which rafters may have been inserted.

The roofs of the six ceremonial rooms, as well as the roofs of the buildings just east of Casa Grande, united at one end with the basal terrace, from which it was possible to walk to the north surrounding wall on one side and to the passageway west of Font's room on the east. All the rooms were single-storied, having both lateral doorways and roof entrances so placed as to be advantageous for spectators overlooking the plazas.<sup>1</sup>

### COMPOUND B

A few observations made at Compound B may enlighten the reader on the structure of the compound already described. Compound B (plate xxxvi) is situated 748 feet northeast of Compound A, and contains the largest cluster of mounds in the northern part of the area covered by the Casa Grande group. Like Compound A, it is surrounded by many low elongated refuse heaps, which are generally parallel to the walls of the compound.

Although the dimensions of the outer wall of Compound B are smaller than those of Compound A, it encloses a pyramidal mound that conceals a building which will probably be found to exceed in size any house yet excavated in Compound A. The exterior walls of Compound B measure approximately 295 feet long by 165 feet wide and are oriented a trifle east of north. The mounds of this compound and the cluster of smaller elevations near it are among those first seen by a visitor approaching Casa Grande from Florence by the old stage road. This road crosses the southeast angle of the compound (plate xxxvi). Two of the mounds in this compound are of large size, the one the main building and one in the southwest corner of the compound. The mound in the southwest corner is shaped like a try-square, and indicates a building whose walls measure 102 by 82 feet. The main mound has a pyramidal form, its outer walls measuring 90 by 70 feet. Its top is flat and about 8 feet above the base, and the edges are somewhat worn by erosion. There are,

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<sup>1</sup> "One of the houses," writes Mange, "is a great building, the main room in the middle being four stories high and the adjoining rooms on the four sides of it being three stories." The figures that accompany Mange's description also show four stories in the middle room and three on the sides, two of the latter having lateral entrances in the lowest story. If these figures are accurate, of course the hypothesis that the lowest story was solid is untenable; but they are not accurate, or at least do not agree with one another. Mange's ground plan of Casa Grande is faulty, for it has seven rooms, while the elevation represents a doorway which does not appear on the ground plan.

in addition to these two larger elevations, other small mounds in Compound B, indicating rooms, and also depressions marking the position of plazas, but the limits of these can only be determined by excavations. The altitude of the highest mound is such that we have every reason to suppose, when the accumulated débris is removed from the plazas and buildings, there will be revealed in it high-walled houses in a good state of preservation. The statement, made by others, that the mounds of Compound B were erected on an artificial platform,<sup>1</sup> is not supported by the author's studies. The course of the surrounding wall, especially at its angles, is well marked, and the evidence is good that the floors of the plazas and the foundations of the buildings are several feet below the surface of the supposed terrace and on a level with the bases of the surrounding wall. No excavations of importance have yet been made in Compound B, which is reserved for work in 1907-08.

Compound B was first mentioned by Captain A. R. Johnston, who, after speaking of the well, noticed the "terrace" and pyramidal mound. "About two hundred yards from this building" (Casa Grande), he says, "was a mound in a circle a hundred yards around; the center was a hollow 25 yards in diameter, with two vamps, or slopes, going down to its bottom. It was probably a well, now partly filled up; a similar one was seen near Mount Dallas. A few yards farther in the same direction, northward, was a terrace 100 yards by 70.<sup>2</sup> About five feet high upon this was a pyramid about eight feet high, 25 yards square at top."

It would seem from the large size of the refuse mounds surrounding this compound that it was inhabited for a long time, but the fact that none of the walls are now standing above ground would indicate that it has been deserted many years. The evidence proves pretty conclusively that Compound B is somewhat older than Compound A.<sup>3</sup>

#### COMPOUND C

Not much remains of the wall or buildings of the third compound (C) but a section of a surrounding wall which has its longest

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<sup>1</sup> Bandelier (Final Report, pp. 453, 454) gives a ground plan of Compound B, which he calls in his text an "artificial mound resting on an artificial platform."

<sup>2</sup> Johnston's measurements of the compound and the enclosed pyramid differ somewhat from those made by the author, especially if the surrounding wall is the same as the margin of the terrace mentioned by the former.

<sup>3</sup> As originally pointed out by Cosmos Mindeleff, 13th Annual Report of the Bureau of Ethnology.





*a* Compound B from southeast

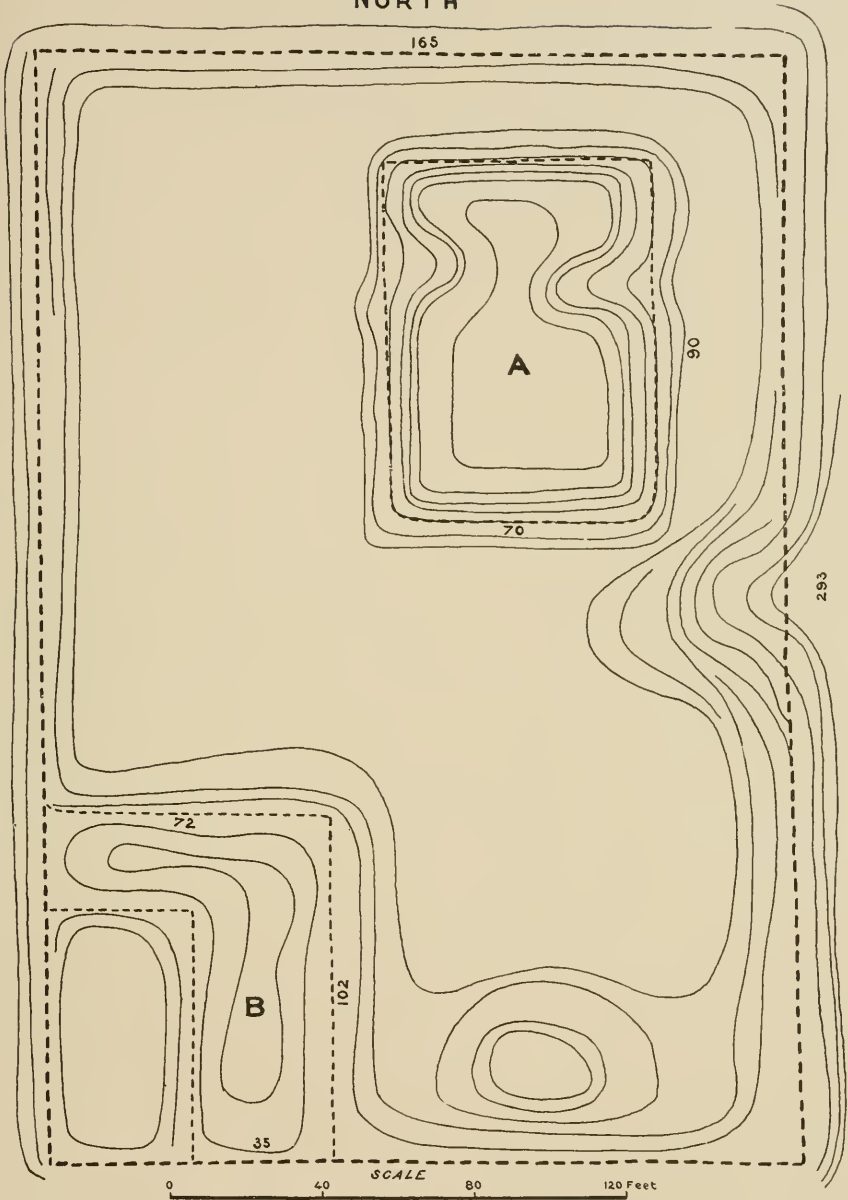


*b* Section of surrounding wall of compound, five miles east of Casa Grande





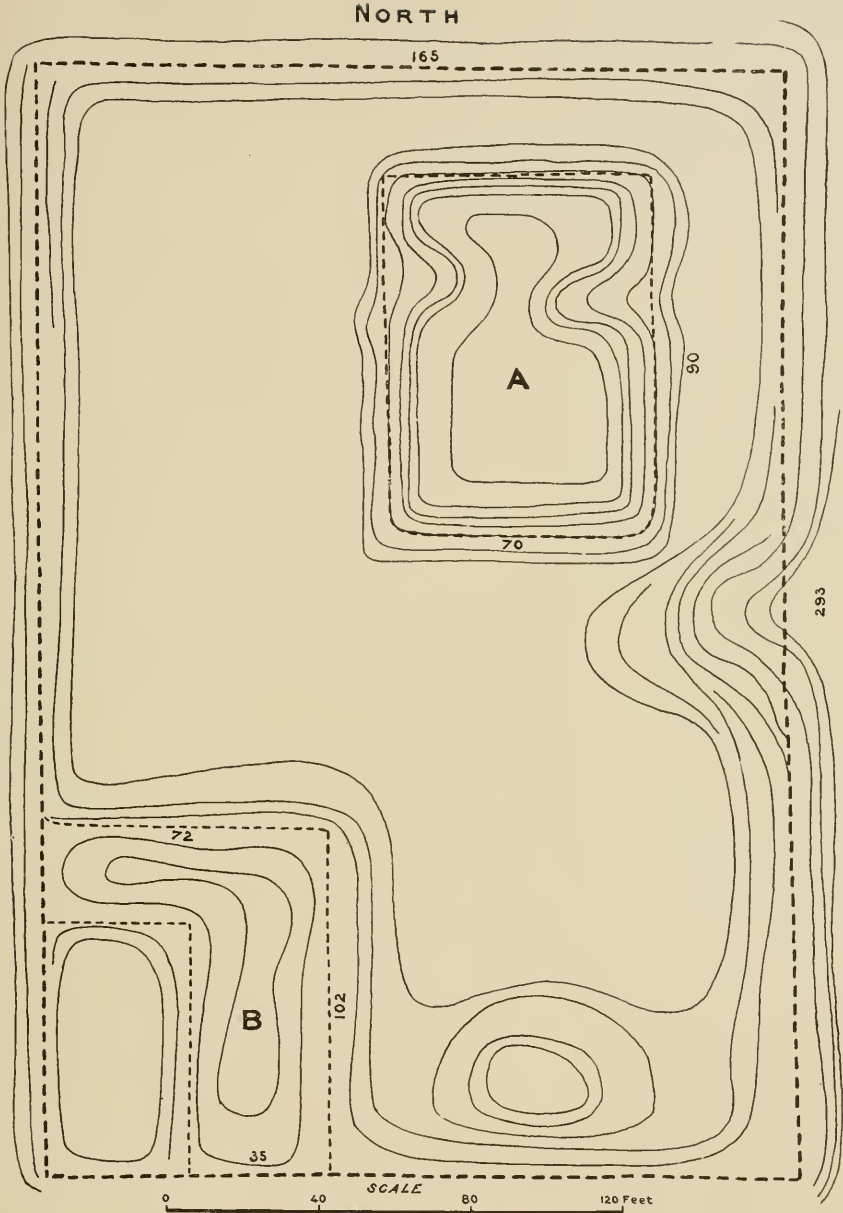
NORTH



A Main building      B Building of southwest corner

GROUND PLAN OF COMPOUND B CASA GRANDE (Approximate)





A Main building      B Building of southwest corner

GROUND PLAN OF COMPOUND B CASA GRANDE (Approximate)



measurement from north to south. The width from east to west is doubtful. The enclosed buildings of the compound were low, one-storied, and are now quite obscure. This piece of construction, provisionally identified as a compound, is supposed to be older than B, and therefore than A, and would well repay excavation.

### OVAL, MOUND OR WELL

About 465 feet north of the northeast corner of Compound A is an oval, hollow mound measuring approximately 164 by 95 feet, the longer axis of which runs southeast and northwest. This mound lies almost equidistant from the three compounds A, B, and C and has not been excavated. The various theories of the use of this depression will be considered in the historical part of a final report and need not be dwelt on at this time. Of all suggestions regarding its use, that of a visiting Kwahadt<sup>1</sup> from near Vekol seemed to me the best. This Indian said that in his country there is a similar depression, with steps leading into it, which was once used as a well. Other clusters of mounds in the Gila Valley between Florence and Casa Blanca have similar oval depressions, and the probability is that in all cases they served the same purpose, that of furnishing drinking water to the compounds. Excavations alone, however, will reveal the true purpose of this much debated mound.

### CLAN HOUSES

In addition to the great enclosed compounds, there is another class of houses in the Casa Grande group of mounds, Class 2, which are called "Clan Houses." These mounds evidently contain houses generally of the shape of a try-square, but are destitute of a surrounding wall (figure 118). From a distance they closely resemble some of the enclosed mounds of compounds and have the same bare, gray appearance.

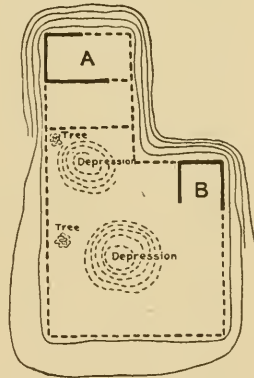


FIG. 118.—Clan house A

The pleasure of excavating one of these clan houses is yet to be experienced, but in repairing the walls of these buildings the author

<sup>1</sup> The Kwahadt are Pimas who live south of the Southern Pacific Railroad, between it and the Mexican boundary. They preserve many ancient Pima customs, and their country is full of shrines and holy places connected with Pima and Papago folk-tales.



was able to observe something of their structure. There are two of these clan houses, A, B, to the east and two, C, D, to the west of Compound A. These differ essentially from the compounds only in that they are small and have no surrounding wall, but as they have no refuse heaps of any size about them, they could not have been long inhabited.<sup>1</sup> Clan houses A and B lie about eight hundred feet east of Compound A.

Although it is very difficult to tell how far to the west the Casa Grande mounds extend, it is believed that clan houses C and D should be included. These two mounds lie to the west of Compound A about six hundred feet and seem to bear the same relation to the compound on this side that clan houses A and B do to the east.<sup>2</sup>

#### OBJECTS FOUND IN WORK

The collection obtained at Casa Grande numbers not far from 1,000 specimens and contains many objects of interest, adding considerably to the small number from this locality in the National Museum. A detailed account of these specimens is reserved for a final report, but a brief reference to some of the more important may be appropriate at this time. As a general thing, there is a close resemblance in these objects to those used by some of the various tribes of Indians which inhabited the Gila Valley at the advent of the whites. They also show a striking similarity to those found in pueblo ruins in the northern part of Arizona, especially on the Little Colorado. On the whole, the objects found in the rooms are nearer to those of the Little Colorado ruins than to those of the Casas Grandes in Chihuahua or any other Mexican ruin.

The form and texture of the pottery are essentially the same as elsewhere in the Southwest. Bowls, vases, and jars, rough and coiled ware, and smooth painted vessels are common, but no fragment shows a glaze. There is one fragment (plate xxxix, *a*) with a representation of a bird's head raised on one side that may be classed as an effigy vase. With this exception, there is little likeness in the pottery to that of the Casas Grandes in Chihuahua, although

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<sup>1</sup> Cosmos Mindeleff believed that they were the last buildings inhabited by the Casa Grande people.

<sup>2</sup> The old traditional irrigating ditch of Casa Grande, which lies some distance west of these houses, is said to have its origin from the Gila at the Mexican house on the road to Florence. It is now so filled up that it can hardly be traced.

the architecture and method of construction of buildings in the two ruins are almost identical. A few specimens of small bowls (plate XL, *b*) with three stumpy legs are distinctly Piman, the author not having found this type in his excavations of ruins in northern Arizona, although they are common in Mexico.

The decoration of the pottery is essentially the same as that of ancient pueblo and modern Pima pottery. The figures are generally geometric and rarely have life forms. The broken encircling line, terraced rain-cloud, combined line and hachure (Zuni type), and swastika are some of the common motives. Among the finest specimens are those in white with black decorations—the so-called gray ware. Red pottery with black or brown figures, or with black lines bordered with white make up the bulk of the painted ware. There is one specimen of fine yellow color which cannot be distinguished from the fine Sikyatki pottery.

In one corner of almost every large room stood an earthen water vase of coarse ware, generally red in color and not decorated. Many of these were broken; but one, elsewhere mentioned, was found in the northwest corner of the room adjoining the southwest building. The author discovered a large quantity of pottery and many other objects, among which were basketry and cloth of fine texture, in one of the rooms east of the main building. The depth at which these specimens were found below the surface would indicate that they had been buried a long time and are prehistoric. Their presence in this room, in what was evidently a refuse pile, indicates that the room was not inhabited when these things were thrown there.

One of the rare forms of pottery was a hat-shaped medicine vessel (plate XL, *f*) of undecorated ware, with a flat circular base and flaring rim. Another exceptional specimen was a fragment of a bowl bearing the beak of a bird in relief. A small clay figurine of a quadruped was picked out of the dump of one of the ruins.

The only metallic object found was an unworked fragment of copper. The bells made of this metal that have been picked up on the surface of Casa Grande mounds are in no respect different from similar specimens from ruins in northern Arizona, and may, like them, have been secured by trade from some southern people.

At about four feet below the surface in one of the rooms adjoining the north wall, seven ancient hoes, or planting sticks, were exhumed. These objects (plate XXXIX, *g*) were immediately identified by the Pimas, one of whom had seen similar planting sticks, or hoes, used

by the old people of his tribe. Some of the Kwahadts from beyond Vekol said that similar sticks were still in existence in their country, and the author was able to obtain at Casa Blanca two Spanish hoe tips made of iron after the same pattern as the wooden implements here mentioned.

Several wooden paddles (plate XXXIX, *b*) used in the manufacture of pottery were found with the hoes, or planting sticks, and one or two were dug up elsewhere. These implements are identical in form and size with the pottery paddles still used by Pima potters.

The stone objects and implements found at Casa Grande are axes (plate XXXIX, *c*), metates, grinding-stones (plate XXXIX, *f*), stone hoes or spades (plate XXXIX, *d*), arrow heads, paint-grinders (plate XXXIX, *f*), and various other specimens. Paint of various colors, beads made of turquoise, and flat slabs of stone for pigment grinding are numerous. Stone balls (plate XXXIX, *e*) like those used in modern Pima games, and round or oval stones upon which the ancients fashioned pottery are represented in duplicate. Of ceremonial stones there are not a few—quartz crystals, botryoidal stones, concretions, and other forms.

An exceptional stone object (plate XL, *c*) from near Casa Grande was purchased by the author. This specimen has a conical shape formed by two serpents sculptured as coiled together, their heads being at the apex of the object. It was probably a pigment-grinder, but reminds one of the coiled stone cast of the interior of a fossil shell, in the shrine at Walla, which is situated half way up the East Mesa Hopi trail from the plain to Hano. It is also similar to the "Heart Twister," or coiled stone fetish of the Awatobi Mazrau Society, now in the Berlin Museum.

The object shown in plate XL, *d* is a paint slab surrounded by a margin in which are parallel grooves, as in the ceremonial stone slabs from Pueblo Viejo, which the author has elsewhere<sup>1</sup> described.

Plate XL, *e* represents a figure of stone, similar to several other in the collection, made of lava rock with a depression on each side, but of unknown use.

Numerous marine shells and specimens made from the same material occur in the collection. Among these are tinklers manufactured from the spires of conus and rings and bracelets of pectunculus, abalone, and turritella shells. One of the best finger-rings is nicely etched on the outer surface. A shell carved in the shape of a frog

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<sup>1</sup> 22d Annual Report of the Bureau of American Ethnology, p. 185.

(plate XL, *a*) and another representing a bird indicate that the artists of Casa Grande were not inferior to those of the old pueblos of the Little Colorado in this kind of work. None of the shell objects differ greatly from those found in the ruins of northern Arizona. In one burial there was a bowl full of marine shells. A perforated pectunculus (plate XL, *g*) from another interment is identical with many specimens from Homolobi, Cheylon, and other ruins of the Little Colorado drainage. Several specimens of bone were taken from the rooms, but not as abundantly as in some other ruins the author has excavated. A fine dirk, apparently made from a deer bone, was taken from the collar-bone of a skeleton of a man; it was so placed that the point rested over the heart.

There formerly grew along the banks of the Gila a reed which was used by the people of Casa Grande for arrows and coverings for the beams of their floors and roofs. In the third from the main ruin of the six ceremonial rooms, a great many reed cigarettes were found. Each of these was about an inch and a half long, wrapped with a woven band by which it was held when hot. The reed was filled with tobacco and was smoked ceremonially, the priest sending forth smoke to the cardinal points. All the reed cigarettes which were found were burned or charred, and lay in one corner of the room.<sup>1</sup>

#### SKELETONS

Human skeletons were found buried a few feet deep in mounds outside the compounds and under the floors of houses. No evidence of cremation was observed, but of such bodies as were found some lay extended at full length, others with leg bones drawn up to the breast. The remains were usually accompanied by a few mortuary objects.

#### OTHER RUINS NEAR THE CASA GRANDE GROUP

The Casa Grande group of mounds is not the only one of its kind in the Gila valley. The traveler on the road west from Florence will frequently have his attention drawn to similar mounds which loom above the mesquite and sage bushes as gray elevations bare of

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<sup>1</sup>In the memory of several of the old Pimas, similar reed cigarettes were smoked when they went to war. The same kind of cigarettes is still employed by the Hopi in some of their ceremonies, and are deposited at cave shrines in the Superstition Mountains, north of Casa Grande, showing that they were sometimes offered to the gods after use.

vegetation and easily distinguished from natural hills by the fragments of pottery or worked stone upon their surfaces. The artificial character of these mounds, suggested by their form and superficial appearance is proved by the walls which sometimes project from them above the surface of the ground. Even when these walls are worn down to a level with the earth so that they appear to be absent and are difficult to discover, it is possible to follow them because of their hardness, compared to the surrounding earth. In the springtime the tops of these walls can be traced with ease by the distribution of small annual plants in their vicinity. After the early spring rains these plants sprout almost spontaneously out of the soil, growing luxuriantly to the very edges of the walls, where they cease, not being able to send their tender rootlets into the hard, moistureless grout of the wall. Although the spade may uncover buried walls in many instances, the majority of these mounds are found to be made up of earth or débris containing many broken fragments of pottery, battered or polished stones, and other artificial objects. Now and then one encounters a mound much larger than the others, surrounded by a low ridge of earth slightly elevated above the surface. At first sight, some of the larger mounds appear to rest on artificial platforms, which is due to the fact that one side of the enclosed building is partly formed by the surrounding wall, but none of the Gila ruins examined by the author show conclusive evidence that buildings were erected on such platforms, as has been sometimes surmised.

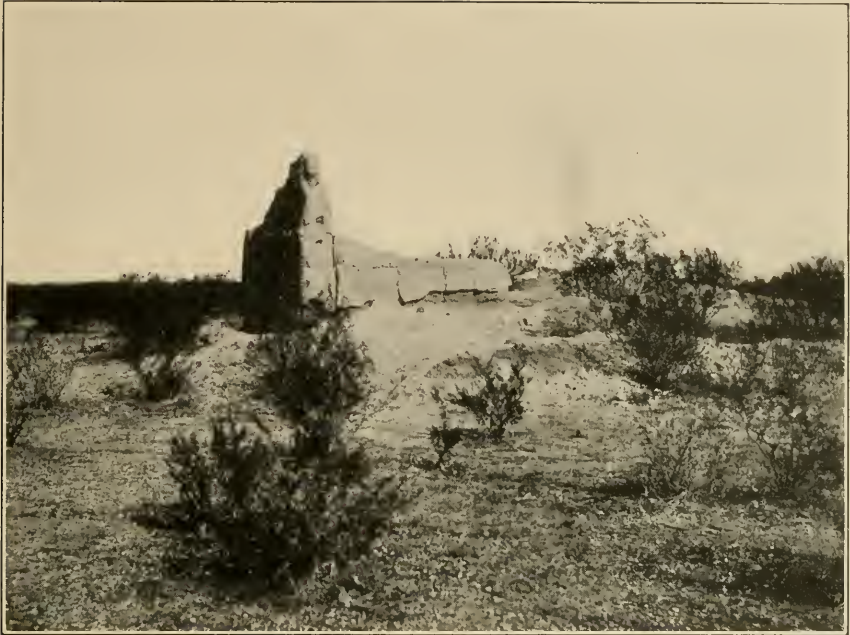
Let us first consider a few of the mounds resembling Casa Grande, in its immediate neighborhood, beginning with that near Florence.

To the left of the road west from that town there is a small cluster of Papago huts,<sup>1</sup> near an ancient mound of considerable size. Although a few unmethodical excavations have been made in this mound, they have revealed nothing of archeological value, and have somewhat injured the walls. The Florence mound is still in a fair state of preservation, and would well repay systematic excavation.

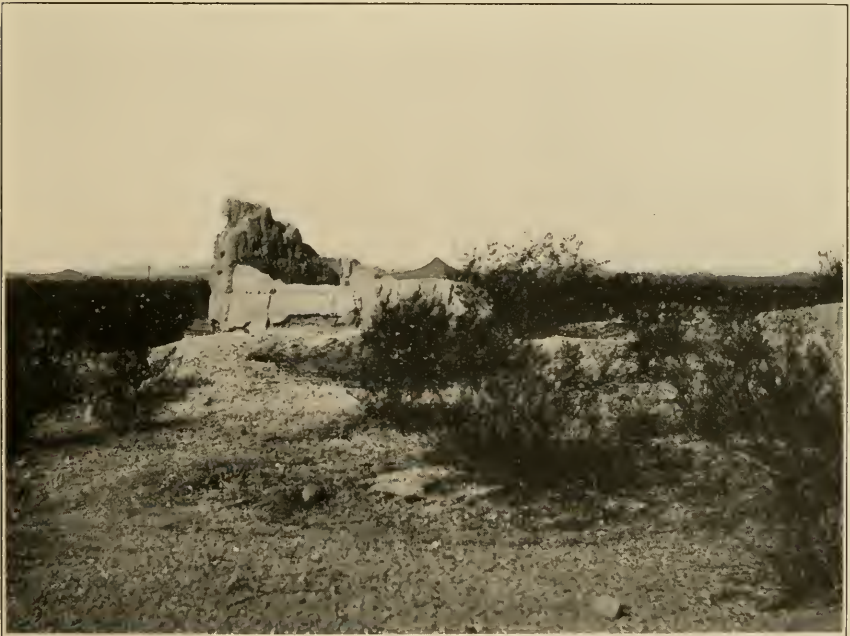
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<sup>1</sup> The Pimas of the settlement, Blackwater, near Casa Grande, claim that this Papago settlement is not very old and deny that its inhabitants are direct descendants of those who built the walls of the neighboring ruin. Blackwater is, however, not an old settlement, but is near that mentioned as follows, by Mange: "On the bank of the river Gila at a distance of one league from the Casas Grandes we found a rancheria in which we counted 130 souls, and preaching to them on their eternal salvation the father baptized nine of their little ones, although at first they were frightened at the horses and soldiers, not having seen any till then."





*a* View of standing walls



*b* View of same from southeast

CLAN HOUSE A OF ADAMSVILLE GROUP





Situated on the mesa, about a mile south of Adamsville and five miles from Florence, there is another cluster of mounds (figure 119), one of which may be called a compound, since it is surrounded by a wall 271 by 173 feet. The three sides of a clan house ruin rise on another of these mounds (plate XXXVII, *a*, *b*). Its walls, which measure 25 feet long by 13 feet wide, above ground, are now badly

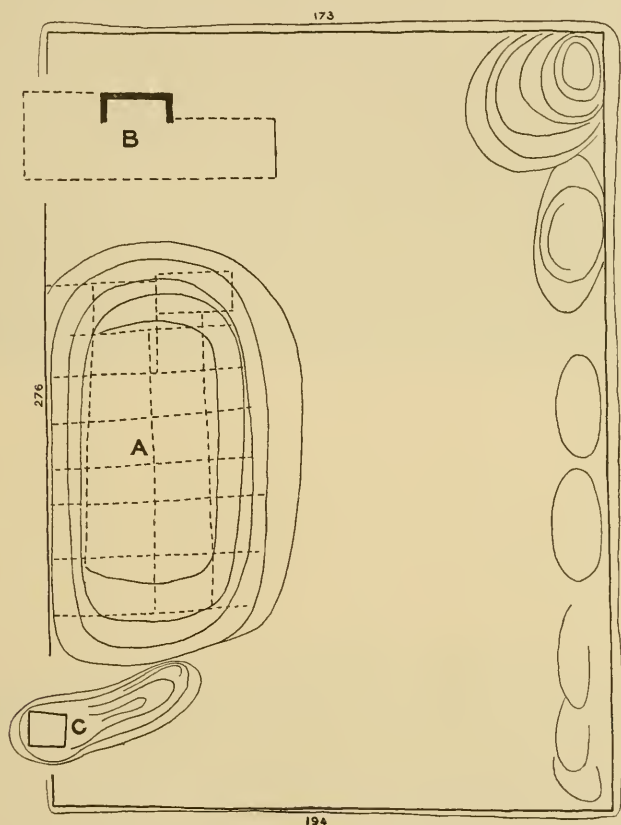


FIG. 119.—Adamsville Compound; A, mound, B, C, clan houses

eroded at their base. Another of these mounds, oval in form, may have served as a well, for it has a central depression and sloping sides at each end of the longer axis.

The mound near Sweetwater (figure 120), about five miles west of Sacaton, is small and low, rising but slightly above the surrounding plain. It shows no remnant of its walls above ground, but, so

far as they can be traced on the surface, they measure 232 by 173 feet.

On the road from Casa Blanca to Sacaton the author's attention was drawn to the grave of an old Pima medicine man near an ancient cemetery, which may throw light on the meaning of certain rectangular figures made of small stones found elsewhere in the desert. The grave was a rectangular enclosure oriented to the

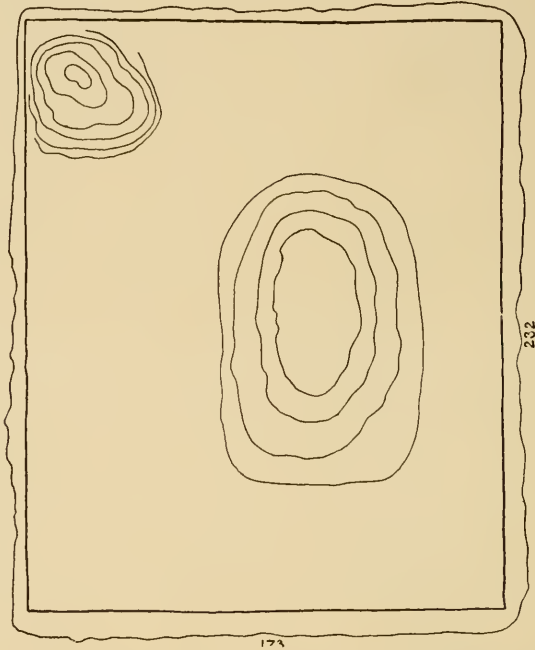


FIG. 120.—Ground plan of Sweetwater Compound

cardinal points, made of small stones, each side being about 20 feet long, with an opening in the center of each side, where there were formerly sticks stuck into the ground. The dead man was buried in a sitting posture within the enclosure, not far from the middle. His face was blackened, and he is said to have been decorated with a head-dress of feathers. Digging a foot below the surface, many beads (former offerings) were found by the author. The guide said that his father used to make offerings at this place, and that *he* believed the magic power of the medicine man could control the sun.



*a* Angle of surrounding wall, as indicated by failure of vegetation



*b* Main mound, showing walls not excavated

CASA BLANCA COMPOUND



In sight of the Adamsville cluster, a mile to the west, rises a large mound of the same general character as a compound, which is especially instructive because of the remains of sections of the original surrounding wall<sup>1</sup> which are still standing (figure 121). This wall (plate xxxv, *b*) is five feet high and is identical in kind of material and mode of construction with the surrounding wall of Compound A of the Casa Grande group. It consists of two sections, both on the east side and about forty feet apart, the larger, situated twenty-five feet from the southeast corner, being seventeen feet long. The length of the east wall is one hundred and seventy-four feet, that of the

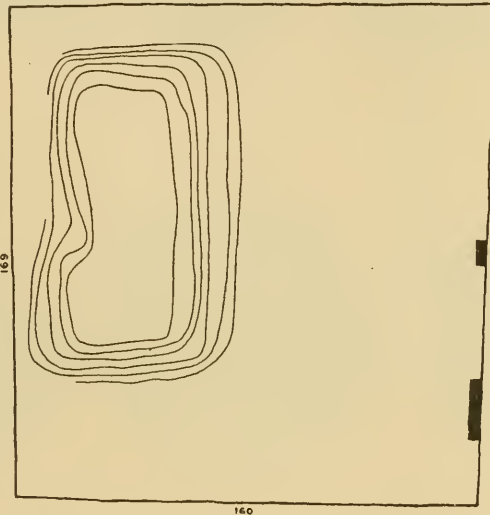


FIG. 121.—Ground plan of Compound between Adamsville and Casa Grande

west one hundred and sixty-nine feet. The south wall of the enclosed building is about fifty feet from the south wall of the compound.

The famous Casa Blanca, or White House,<sup>2</sup> situated about twenty-five miles west of Casa Grande, is one of the most extensive ruins in this part of the Gila valley. The largest mound of this cluster was formerly surrounded by a wall within which were two or three

<sup>1</sup> If the fragments of standing wall in this ruin are not soon protected they will fall to the ground.

<sup>2</sup> Casa Blanca is called by the Pimas Tcoktatai civana'avaki (The House of Chief Black Sineu). The adjacent settlement may be the "Sutaquison" of early Spanish authors.



other artificial elevations. Casa Blanca, like Casa Grande, had its oval mound with well-like interior,<sup>1</sup> besides several other elevations of earth débris. The accompanying plate (XXXVIII, *a*, *b*) represents Casa Blanca from the east, showing, *a*, one angle of the unexcavated surrounding wall as it appeared to the author in March, 1907. No walls now stand above ground, although it is said that

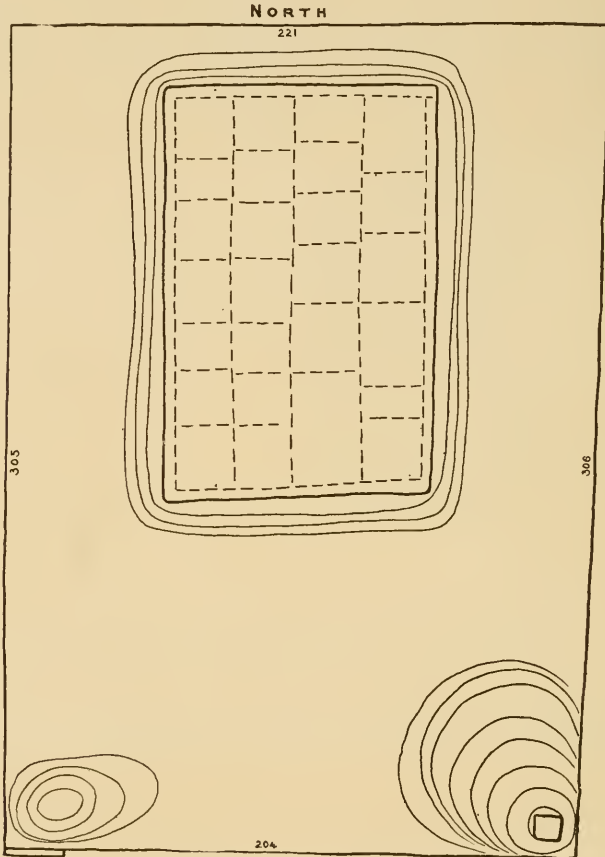
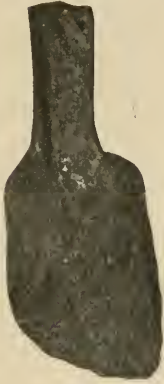
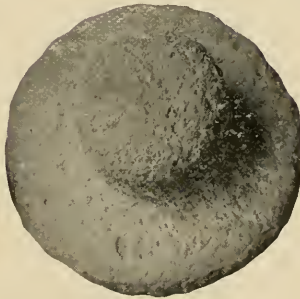
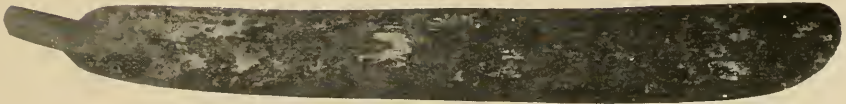


FIG. 122.—Ground plan of Casa Blanca Compound

portions of buildings were visible as late as the middle of the eighteenth century, and perhaps later.

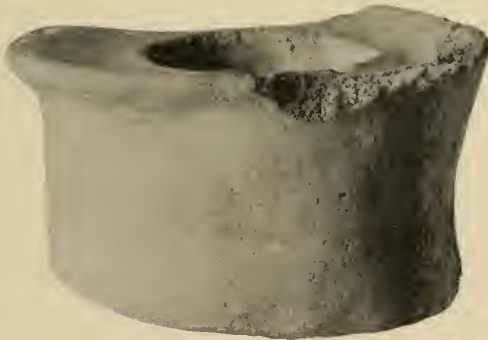
The surrounding wall (figure 122) measures 305 feet on the long

<sup>1</sup>According to Hinton, Handbook to Arizona, p. 413, "There is one large circular enclosure still to be seen near the stage road and within gunshot of the Casa Blanca trading post."

*b**c**d**e**f**a**g*

- a* Fragment of vessel with painted bird's head (clay; length,  $4\frac{1}{4}$  inches)  
*b* Wooden pottery paddle ( $6\frac{1}{4}$  inches x  $2\frac{1}{2}$  inches)  
*c* Double edged stone axe (length,  $4\frac{1}{4}$  inches; width,  $2\frac{3}{4}$  inches)  
*d* Stone shovel (length,  $5\frac{1}{4}$  inches; width,  $4\frac{1}{4}$  inches)  
*e* Stone ball used in game (diameter,  $2\frac{1}{2}$  inches)  
*f* Stone paint grinder (height,  $2\frac{1}{2}$  inches; diameter, 4 inches)  
*g* Wooden hoe (3 feet  $2\frac{1}{2}$  inches -  $4\frac{3}{8}$  inches)



*a**b**c**d**e**f**g*

- a* Pectunculus shell, carved to represent a frog (surface); (length, 2 inches)  
*b* Clay saucer with three legs (height,  $2\frac{1}{2}$  inches; diameter,  $5\frac{1}{4}$  inches)  
*c* Carved stone serpents (surface); (length,  $2\frac{1}{8}$  inches; diameter,  $1\frac{1}{2}$  inches)  
*d* Stone slab for paint grinding (length, 3 inches; width,  $1\frac{1}{4}$  inches)  
*e* Problematical stone (surface); length,  $3\frac{1}{2}$  inches)  
*f* Clay bowl (height, 3 inches; diameter,  $6\frac{1}{8}$  inches)  
*g* Perforated pectunculus shell (diameter, 2 inches)



side and 306 feet on the opposite side.<sup>1</sup> It is 221 feet on the north side; 204 feet on the south. The large enclosed building is composed of many rooms, approximately 140 feet on the east by 147 on the west sides; 69 feet on the north, and 87 feet on the south. Its north-east angle is about 37 feet from the east wall, and its southeast corner not far from 49 feet from the same side. The main mound has many rooms, is about 20 feet high, flat on top, and visible from a considerable distance. The north wall of the main building is about 18 feet from the north wall of the compound. The Casa Blanca mound is the largest within 30 miles of Casa Grande.

On or near the right bank of the Gila there are likewise several artificial mounds between the limits above mentioned. This series, beginning near the Santa Fé Railroad station, is represented by certain mounds near Blackwater and at Santa Anna, opposite Sacaton and beyond. The ruins near the Santa Fé station were probably known as far back as Kino's time, being those mentioned in the following quotation from Mange's diary.<sup>2</sup>

"On the 18th we continued," writes this author, "westward across an extensive plain, barren and without pasture, and at a distance of five leagues we discovered, on the other side of the river, other houses and buildings. Sergeant Juan Escalante and two companions swam across to reconnoitre, and reported that the walls were two yards thick, but all of ancient workmanship. We continued westward, and after making four more leagues we arrived at noon at the Casas Grandes, in which Father Font said mass, having till then kept his fast."

The narrative that follows the above quotation contains a good description, with measurements, of the main building, showing that Casa Grande was four leagues west of the position of the command when Escalante left it.<sup>3</sup> Counting four leagues east from Casa

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<sup>1</sup> Some of the walls project a little above the ground on top of the mound, and the same is true of the southern wall of the compound.

<sup>2</sup> Documentos para Historia de Mexico, Cuarta Serie I, 250, Mexico, 1856. Ortega. Apostolicos afanes de la Compania Jesus escrito por un Padre de la misma sagrada religion de su provincia de Mexico, Barcelona, 1754, p. 253.

<sup>3</sup> Apparently Font followed the Santa Cruz River down to Uturituc (Tutirituc), near Blackwater, leaving Casa Grande to the right. From Uturituc he visited the old ruin, Casa Grande. His party had apparently crossed the mountains near Picacho Peak by the pass through which now runs the Southern Pacific Railroad, stopping at "Aquituno" or Akutcin, a Pima settlement inhabited up to within a few years. Picacho is called by the Pimas Takom, which appears in some of the older narratives as Quitcak, Ttacca, or Mt. Taceo. About it are several ruins, one of which is supposed to be Aquituno.



Grande, or in the direction Kino approached it, would bring one to the neighborhood of Florence, or about opposite the mounds near the railroad station. Evidently this was the place where Escalante and his two companions left the main force and swam the river to examine ruins on the opposite side.

The Pima Indians call these ruins *Va<sup>a</sup>ki*,<sup>1</sup> but also sometimes designate them *Civan<sup>a</sup>va<sup>a</sup>ki*, to which is prefixed the name of some chief or other great man. Thus Casa Grande is called Sial'tcutuk *civan<sup>a</sup>va<sup>a</sup>ki*, the ancient (?) house of chief (?) Morning Green (Blue). The meaning of the word *Civan<sup>a</sup>* is unknown. The older Pimas gave this name or some modification of it to Kino and Font, the latter of whom translated it "Hombre Amargo," Bitter Man, *civ* in Pima meaning bitter. It has been customary to consider *Civan<sup>a</sup>* as the proper name of a chief, but this is not wholly warranted, especially as the word prefixed to *va<sup>a</sup>ki* is employed to designate several other ruins besides Casa Grande, where it is also used with a special name of a chief, as Black Sinew, String, and White Feather. The author supposes that *Civan<sup>a</sup>* is an old, perhaps archaic, word for chief or ruler.

#### CONCLUSIONS

The scientific results of the work at Casa Grande in the winter of 1906-07 cannot be sufficiently elaborated in a short preliminary article, but they may be in part briefly stated as follows:

Many rooms have been discovered in the surrounding mounds on a level below that of the lowest floor of the main building. These rooms, like Casa Grande, are enclosed by a common wall, the rectangular enclosed area being called a compound. Some of these newly discovered houses are larger than Casa Grande itself, but not one of them has the same number or distribution of rooms. The houses are so constructed that their roofs were on a

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<sup>1</sup>The significance of the word *va<sup>a</sup>ki* is also obscure. *ki* in Pima and Hopi means house; *va<sup>a</sup>ki* recalls the Hopi *patki*, a name applied to those Hopi clans which are said to have come to Walpi from Palatkwabi, or the Giant Cactus country, supposed to border the Gila and Salt rivers. The Hopi claim that some of the Patki clans built the Great Houses of the Gila, Verde, and Tonto valleys is trustworthy and can be verified by archeology. As the Pimas hold that the former inhabitants of the Tonto Basin spoke their language, it is logical to conclude that the ancestors of some of the now composite Hopis were practically in the same culture as the ancestors of some of the Pima clans, and that they were the Ootam or builders of the Great Houses of the Gila and Salado valleys.

level with the lowest floor of the old ruin. The basal story of Casa Grande was made solid by filling in earth between the foundation walls already constructed. Two buildings, Font's room and the cluster in the southwest angle of the compound, were two stories high, but all others, except of course the "Great Casa," were single-storied. The size, structure, and contents of the new rooms indicate that they were erected for public gatherings, and that domiciliary use was subordinate to public use.

The excavations contribute little to our knowledge of the age of Casa Grande. No object of European manufacture was found in the excavations, and the specimens obtained add nothing which would be of aid in determining either the time Casa Grande was built or when it was deserted. The specimens do not indicate Aztec culture or that of any other Mexican race, and suggest no culture higher than modern Hopi or old Pima. While the question as to who built Casa Grande remains as difficult to answer as ever, archeology supports Pima traditions in affirming that the builders of Casa Grande were the ancestors of the Hopis, Pimas, or some closely allied stock.

Some of the rooms of the compound were constructed on the same plan as old Pima houses. They had in the floor two upright logs set at equal distances from the walls to support the roof. Upon these upright logs was placed a median horizontal ridge pole, bearing rafters arranged side by side, the whole being covered with reeds upon which was a thick layer of beaten clay.

Almost every specimen found in the diggings was immediately identified by the Pima laborers, so close was its resemblance to objects used by the old people of their tribe. Thus, the stone balls frequently found are identical with those still used in a kicking game.<sup>1</sup> The wooden hoes and paddles are identical with similar utensils of the Pimas used within the memory of the old people. The reed cigarettes are the same kind as those made by Pimas

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<sup>1</sup>The old Pima Indian, "Thin Leather," declared that a favorite game of the Casa Grande girls was called *toka*, and that the cane game *kinskwut* was also known to the inhabitants of Casa Grande.

In the game *toka* a rawhide rope, knotted at each end, was thrown with sharpened sticks, the contestants being divided into two parties facing each other, a hundred feet apart. It was while the girls of Casa Grande were playing this game that the daughter of Morning Green was abducted by a chief from Gila Crossing.

when they went to war with the Apaches, even after the coming of the whites.<sup>1</sup>

The relation of the builders of the rooms, revealed by the excavations, to modern pueblos is shown in the designs and general character of the pottery, stone implements, shell ornaments, and ceremonial objects. Although the materials used in construction of the walls are identical with those adopted by the builders of the Great Houses of Chihuahua, the pottery, with the exception of the bird-faced vase, of the two localities is quite different. In the Chihuahua Casas Grandes the grouping of the buildings into compounds is not evident; house burials are common to both localities.<sup>2</sup>

There is no foundation for an almost universally accepted statement<sup>3</sup> that a people of superior culture inhabited the Gila Valley, or that Casa Grande was built in very ancient times. The people of the Casas Grandes were not very distant relations of the Aztecs and their kindred, but there is no evidence that Casa Grande was one of the "stations" of the early migration of this people.

From the advent of Europeans, at the close of the 17th century, to the present time, Pimas residing in the neighborhood of Casa Grande have told their legends of it to visitors. Naturally many of the present generation of Indians have declared their ignorance of the makers of the Great House, for only a few, rapidly diminishing in numbers, know the old legends. One or two of the oldest men and women relate stories of the inhabitants of Casa Grande, its chief, and his daughters. The author has collected several of the more important of these legends from an old Pima named "Thin

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<sup>1</sup> Similar reed cigarettes are employed by the Hopis in their ceremonies. Thin Leather claimed that he had in his youth smoked similar reed cigarettes when he went on a war party; that they were kept in a bag and were not used in rain ceremonies. Sala, the best Pima potter, who spent some time at Casa Grande during the author's work there, in order to get new inspiration in her art, said she had seen hoes or planting sticks similar to those found in the ruin, used by the Kwahadt.

<sup>2</sup> It is stated that the River people (Pimas), Desert people (Papagos), Kwahadt, and Rabbit Eaters are all the same stock, called Ootam (people), the ancestors who built the Great Houses. Pima legends tell of the southern migration of the so-called Rabbit Eaters, an offspring of the Pimas, into Mexico in early times. The southern migration of the Rabbit Eaters may have given rise to the story of the relation of the inhabitants of the Gila to the ancient Aztecs.

<sup>3</sup> This theory occurs in many writings of the 16th and 17th centuries, from the time of Ortega, Kino's biographer, or earlier, and undoubtedly accounts for the name, Casa de Moctezuma, applied to Casa Grande.

Leather" and from others, who affirm that the builders of Casa Grande were of Pima blood and spoke the Pima language.

The burden of Pima legends of Casa Grande is that the chief, Morning Green, was a powerful medicine man who controlled the wind and rain gods and accomplished many marvelous deeds by his magic. He was supposed to have been a son of Tcuhu, a cultus hero, sometimes called Moctezuma, and to have had a parthenogetic birth. His two daughters, Van and Natci, were married to neighboring chiefs, the former having been abducted by the ruler of the Great House near Tempe or Mesa during a sacred dance.

The art of irrigation was taught to the Casa Grande people, so the story goes, by the people of the Great Houses on the Salt River, whose irrigating ditch near Mesa was made with the supernatural aid of the woman who controlled hard materials,<sup>1</sup> as stone, shell, turquoise, and other like substances. Her home is reputed to have been among the Maricopas, which is another way of declaring that she came from a tribe living farther down the river.<sup>2</sup>

None of the Pimas whom the author interrogated ascribe the building of Casa Grande solely to the Hopis, for they know very little about the "Moquinos" or Hopis, although they have stories of relatives in the north. One of the most intelligent among them informed the author that his father told him there were formerly people in the northern part of Arizona who spoke the same language as himself, and that the ancients who lived in Tonto Basin were relatives of the Pimas.<sup>3</sup> He likewise said that the word *moki* is good Pima and derived from *mo*, dead, and *ki*, home. It occurs to the author that the ancient Pimas answered the Spanish question regarding the people of the north with the word *moki*, meaning to say that the people who lived in the north had perished.

It is instructive in this connection to note that the Pimas have a legend which recalls a story repeated among the members of the *patki* clans of the Hopis. According to this legend, water at one time mirac-

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<sup>1</sup> This woman, Towa kwaotom ochse, is practically the same as the goddess Huzriwuqti of the Hopis.

<sup>2</sup> The story of how the rain and wind gods were expelled from Casa Grande and how Morning Green brought them back is one of the most ancient Casa Grande legends. Practically the same story told to Font in 1775 was repeated to the author, a highly suggestive illustration of the persistence of folk-tales.

<sup>3</sup> The author believes that the word Totontecac is a Pima word from *tonto*, crazy, *toac*, locative, and that this province was not the modern Hopi country, but Tonto Basin. The root of the word *pima* is probably the same as that of the Hopi word *pii*, I do not know.



lously spouted out of a hole in the ground, and a sacrifice of children was made to stop the flow. The place where this occurred is still pointed out and is called "Where the women cry" (for their children). It is situated far south of Casa Grandes, among the Kwahadts.<sup>1</sup> Evidences from both archæology and migration legends are corroborative, and point to ancestors of both Hopis and Pimas as original inhabitants of Casa Grande and other *vaaki* of the Gila Valley between Florence and Casa Blanca.

But if that is true, why, it may be asked, have the Pimas lost the custom of building great houses, and why did they inhabit such small huts when the Spanish explorers came? In reply, it may be said that they were forced to abandon their great houses, being unable to defend them on account of their unwieldy size. Hostile invaders found these conspicuous structures easy prey and broke up this phase of Pima culture, scattering the chiefs and defenders of the compounds.<sup>2</sup> But, although scattered, they still held to the inconspicuous huts in which the common people had always lived. They abandoned their great houses, or temples, storehouses, and citadels, but still lived in the same kind of houses as before. This apparent change of culture is paralleled among other sedentary tribes of the United States and Mexico. Forced to desert their temples and great houses, the people still clung to the only houses they ever had—the inconspicuous huts, in which nothing remained to tempt the cupidity of their enemies.

The preceding conclusions may be summarized as follows: In ancient times the valleys of the Gila and its tributaries as far down river as Gila Bend were inhabited by an agricultural people in a homogeneous stage of culture. There existed minor divisions of this stock, as Sobaipuri, Pima, Opa (Cocomaricopa), and Patki. The Pima name Ootam may be adopted to designate this ancestral stock, to which may be ascribed the erection of the Casas Grandes of the Gila.

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<sup>1</sup> Many of the legends are connected with locality in the country of the Kwahadt, a group of Indians who speak the Pima tongue, living far south of the Southern Pacific Railroad, on the borders of Mexico. The "Kwahaties" are clever potters and basekt-makers and form the most primitive of all the Pima communities.

<sup>2</sup> The ancestors of the Patki clans of the Hopis were closely allied to, if not identical with, the ancient Pimas. We may regard the "Ootam," or builders of Casa Grande, as ancestors of both Pimas and Patkis. Some of these ancestral clans may have gone to Zuni, which explains the claim, if any there be, of the people of this pueblo that their ancestors built the Great Houses of the Gila.

These great houses were places for refuge, ceremony and trade. They were inhabited and ruled by the chiefs whose names they bear. The people dwelt in small huts of perishable character, not unlike the old Pima round houses, a few of which still survive.

In the course of time hostiles bent on pillage swarmed into this region from east and west and drove the agriculturalists out of their Casas Grandes. But, although dispersed, they were not exterminated; some of the refugees migrated south into Mexico, others followed the Verde and Tonto into the northern mountains, others still remained in the Gila Valley and were the ancestors of the present Pimas, Papagos, and Kwahadts; those who went north, later peopled the now ruined houses in the Little Colorado Valley and ultimately joined the Hopis, with whom their descendants still live.