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National Geographic Society,
P.B.: Ruppert Report on
Pueblo del Arroyo

[Judd]

As an integral part of the Pueblo Bonito Expedition the excavation of Pueblo del Arroyo was undertaken during the summers of 1923-24-25-26. Pueblo del Arroyo was selected as a subsidiary site because of its proximity to Bonito, its accessibility from the same base camp, its apparent unity of structure and because relatively little work had previously been done there.

Pueblo del Arroyo lies some 300 yards west of Pueblo Bonito and is cut in close on the north and west by the Arroyo which drains the canyon and from there receives its name. Before excavation the site appeared as many other prehistoric pueblos in the southwest, a large mound with here and there walls protruding which gave in a general way, the outline and arrangement of the ground plan.

The final ground plan shows the pueblo proper to take on the form of a capital U with the open portion to the east. The two somewhat uneven wings of the U are connected by a semicircular group of single tier rooms. On the west the pueblo measures 203 feet. The south wing measures 131 feet east and west by 75 feet north and south, the north wing is slightly shorter and correspondingly wider. The area between the two wings of the U and that enclosed by the semicircu-

lar tier of rooms unites to form a large court. The total area enclosed in the pueblo group is approximately 49,808 square feet or one and one-eighth acres. There are 110 rooms shown on the ground floor which, with the known second and third story rooms and even portions of fourth story walls showing in both wings, would give a total of over 252 rooms for the pueblo.

Excavations were started along the south side uncovering a group of secondary rooms built against the main south wall of the pueblo. (This group of rooms and their relationship to the main pueblo will be considered later). From here activities extended to the south wing, the central portions and the final season to the structures west of the pueblo. In all 51 secular rooms and 8 Kivas were excavated.

In general the masonry may be said to represent the type II B of Pueblo Bonito. There are, however, some marked divergences from the common type. The substructures on the south and west, and the masonry composing the rooms included in the semicircular group to the east, are of inferior masonry. Large irregular blocks with much clay mortar often a single stone in thickness or of dressed friable sandstone.

Even in the pueblo proper there is much variation and small sections resemble type III of Toluca. Sometimes banding with dressed sandstone blocks is affected, and in the same wall the use of carefully selected thin laminate sand stone is noted. The general impression seems to be that the masonry is the result of a number of different builders carrying over various ideas and utilizing what materials they found about after the choice selected stone had been employed elsewhere.

The excavations in the pueblo showed in general a uniformity of room size. Of the originally planned rooms the smallest, Room 35, measures 12 feet 8 inches by 8 feet; Room 55, the largest, measures 25 feet 9 inches by 13 feet 2 inches, excluding the long room, No. 9, on the south side of the pueblo which now measures 5 feet 10 inches by 58 feet $3\frac{1}{2}$ inches.

Room 27 is a typical secular room and its features will serve as an example of the general arrangement for a room of the pueblo. The masonry is similar to that throughout the pueblo in that it represents little uniformity. That of the first story is characterized by banding produced by the use of large blocks of both dressed friable sandstone and laminate sandstone. This is most noticeable in the north

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wall but the great use of small stone chips as chinking is common for the four walls of the first story.

The second story wall on the north shows fine banding of large blocks while the east wall is entirely lacking in this, being composed for the most part of laminate sand stone of even size.

The third story shows no true banding. It is more uniform in the use of laminate sand stone blocks of smaller size approaching but not realizing the true third type. The floor is of packed clay. The walls extending beneath the floor to a depth of 5 inches, there resting upon a three inch foundation of large unworked stone.

A doorway in the east wall is 7 feet 10 inches from the north-east corner of the room. It measures 42 inches high, 26 inches wide and has the sill 6 inches above the floor. This doorway is blocked with masonry fill which is in line with the face of the wall.

A second doorway to the room is in the west wall. Its north jamb is 7 feet from the north west corner of the room. It measures 44 inches high, 26½ inches wide, with a sill 8 inches above the floor. This doorway has been blocked with masonry fill from the room to the west leaving a recess 15 inches deep in Room 27.

A third doorway is in the south wall. The east jamb is 54 inches from the Southeast corner of the room. This doorway is 45 inches high, 26½ inches wide and 26 inches deep. The sill is 6 inches above the floor.

These three examples give the prevailing type of doorway for del Arroyo first floor rooms. Sill very low, soffit high. Some doorways may have the sill 24 inches above the floor and not be more than 29 inches high but this type is only seen occasionally in rooms of the first floor.

No fire box was noted in this room. Their absence as a general thing is noted in ground floor rooms. The absence here may be due in part to it being a first floor room and in the third tier from the outside, with poor ventilation and no light it seems quite likely that it was a storage room and not used for living and sleeping.

The roof beams for this room were three in number and extended east and west. The base of the beam levels being 6 feet 2 inches above the floor. Openings in the north and south walls indicate where the small pine or cottonwood poles were tenoned, which rested on the large roof beams. Here the poles were placed singly. This method is most

common at del Arroyo; although in Rooms C and D they are arranged in pairs and in the north east corner of Kiva C the small poles are in series of three. Only in Room 40 west wall are these poles not tenoned in the masonry. Here a large beam, slightly smaller than the average roof beams, is placed directly against the west wall and acted as a support for the ends of the poles. At the east end of this room the poles are tenoned into the wall. This may have been due to reconstructions at the time of the building in of Kiva D to the west. Directly above the poles and extending in the opposite direction was placed a layer of split juniper. Occasionally this was followed by a layer of juniper bark. The general practice seemingly was to place a 5 or 6 inch layer of packed clay directly above the split juniper, thus forming the roof of the first story and the floor of the second.

The doorway in the west wall is 7 feet $4\frac{1}{2}$ inches from the southwest corner. This doorway is 47 inches high, 23 inches wide and 28 inches deep. The sill is 25 inches above the floor offset.

The doorway in the south wall is 20 inches from the southwest corner. It is 40 inches high, 24 inches wide and 25 inches deep. The doorway has been blocked to a height of 11 inches and the sill is 19

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inches above the first floor offset. The doorways in the third story room are again placed over the doorways of the lower rooms, with the exception of those in the south wall. In this case the third story doorway has its jamb in line with the west wall of the room. This doorway is 41 inches high, 26 inches wide and 24 inches deep with the sill 22 inches above floor offset. This then illustrates the change in the height of the door sill from that in first floor rooms where it is from 6 to 8 inches above the floor to the second and third floor room where the sill varies from 19 to 24 inches above floor offset.

This room as well as those to the south, east and west were filled to the sill of the second story doorways with fallen wall and roof material, charred wood and blown sand.

Room No. 9 has several features of special interest. In the original construction of the pueblo this was a long room in the outer tier on the south side measuring 3 feet by 3 feet 10 inches without partition walls in the first story. There were however, in the second story five partition walls in the original construction as indicated by the tiering of these walls and the insertion of two large beams in the south and north walls to bear the weight of each. The

south wall, and the north to a lesser degree, settled outward so that in time it became necessary to construct a series of eight buttresses against the outside of the south wall. These buttresses average 57 inches high, 15 $\frac{3}{8}$ inches wide and 45 $\frac{1}{2}$ inches long. Some time after the south wall began to lean outward two partition walls, which conform to the angle of the north and south wall, were placed in this long room forming a small room 15 feet 9 inches by 5 feet 9 inches. This materially reduced the size of the original long room, which, however, still measures 58 feet 3 $\frac{1}{2}$ inches east and west by 5 feet 10 inches north and south.

The only outside opening to the original long room was through a doorway which now is in the small room partitioned off at some later time by this addition of the two walls. This doorway had subsequently been blocked with masonry fill. In the present long room a doorway had been broken through at the west end on the south side, opening into room No. 1.

Two inside doorways, one in the north wall and one in the west wall lead only into long series of rooms without openings on the first floor. In the floor of this room 24 feet from the east wall and 3 feet from the north wall is a clay lined fire box measuring 18 inches

by 11 inches and two inches deep.

Fifteen feet six inches of the west end of this room still retains the roof. The beam holes are 7 feet above the floor. Directly above these roof beams which are arranged in pairs are small poles (3" dia.) extending east and west. At the west end they are tenoned into the wall. These poles are also arranged in pairs and average 7' long. They show considerable variation in diameter from tip to base so to equalize the thickness in each pair one pole is reversed, thus giving a base and a tip at each end. There is an average of six inches between each pair of poles and six pairs extend across room. Above the poles a layer of split juniper extends north and south with the northern and southern limits tenoned into the masonry of the respective walls. Directly above this split juniper and also directly above each pair of small roof poles is a single strip of split juniper. Here and there bands of yucca extend across the long separate pieces of juniper, down and around the roof poles binding tightly and holding flat the layer of split juniper. Above this a very thin layer of clay followed by juniper bark and a 5 inch layer of clay.

Resting on this floor and also on the first floor offsets and tenoned in the north and south wall are pairs of beams averaging

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8 inches in diameter which support the partition walls of the second story. These beams are enclosed in masonry. Such second story partition walls were noted 15 feet 6 inches, 33 feet 11 inches and 51 feet 2 inches west of the west wall of room 9A.

The buttresses mentioned above which were built as supports for the south wall are of inferior masonry to it. At some later time these buttresses were connected one to another by walls built along the south, forming a series of small rooms of irregular shape. The masonry connecting the buttresses is inferior to them, being composed of roughly worked sandstone blocks not always laid in regular courses. These walls have an average thickness of 14 inches and the rooms formed have an average size of 8 feet by 6 feet. Roof poles 4 feet 8 inches above floor.

Throughout this series of rooms but two had doorways opening through the south wall and one of these had been blocked. Entrance must of necessity have been through the roof as was seemingly indicated in the southwest corner of room No. 3. Five of these rooms have fire boxes. Room No. 5 has a mealing stone embedded in the floor. Room No. 3 has a masonry lined fire box in the northwest corner, a foot

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and a half south of this fire box are two upright stone slabs serving as a deflector far in the south wall, flush with the west wall, is an opening six inches above the floor level. This opening is 19 inches high and $6\frac{1}{2}$ inches wide. It continues thirteen inches beyond the outside wall as a masonry lined box where it extends upward for 15 inches. The opening measures 6" x 13". Over the top has been placed an old metate that has been worn through and the hole rechipped. Room No. 1 has a stone lined fire box in the center of the room with a fire screen formed of two worn metates set 8 inches to the south.

There seems to have been second story rooms above the two western-most of this series of rooms. Associated with this group of secondary structures on the south side of del Arroyo is a small irregularly shaped Kiva. This Kiva is at the extreme west end of the main south wall. The masonry is rather crude, composed of both laminate and soft sandstone; blocks of the latter being both worked and unworked. At the top of the bench the kiva has an average diameter of 13 feet 6 inches. The walls and bench had been plastered.

The bench which lacks pilasters is 1 foot wide and 34 inches high. The bench is of solid adobe except for the south recess where it

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has a veneer of rather poor laminate sandstone. This south recess is 47 inches wide and 6 inches deep.

The ventilator shaft enters the recess inches from its eastern limits. The shaft is 10 inches wide and 21 inches high, the floor of the shaft being 7 inches above the Kiva floor. The ventilator shaft continues south for a distance of 44 inches from the inner face of Kiva wall when it turns upward in a shaft 12 inches square. On the floor of the Kiva directly before the ventilator shaft opening in the recess is a platform 7 inches high 29 inches wide at the south and 24 inches wide at the north. It is 2 feet 5 inches long. North of this platform a distance of 18 inches is a fire box measuring 20 inches east and west by 16 inches north and south and 5 inches deep. The roof was flat as evidenced by traces of beams which extended across the kiva at height of 7 feet 9 inches above the floor. Entrance was no doubt through the customary opening in the roof.

On this roof, extending out from the main south wall of the pueblo, were ~~thru~~ low short walls serving as wind breaks for fire places where the people might sit and work on the open space provided by the Kiva roof.

Of the ten Kivas in the pueblo proper, seven were excavated.

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These vary in size from the smallest, Kiva D, which has a diameter of 12½ feet to the largest, Kiva C, having a diameter of 30 feet 8½ inches.

The Kivas have a somewhat regular arrangement in the pueblo. One in the south wing and two in the north wing. In the central portion towards the east there are five on the first floor. The largest of these five, Kiva G, is in the center with two smaller Kivas directly to the north and a like number to the south. West of Kiva G and having its floor on a level with second story rooms is Kiva D.

These Kivas (D, G,) seemingly were not included in the original planning of the pueblo for in every case it appears that walls of secular rooms were razed to allow for the admission of the Kiva. In some cases where the Kiva was large it became necessary to raze two cross walls; in others the Kiva was placed in a single room, here it was only necessary to block doorways; or even to construct crude enclosing walls. One evident practice is the tenacity with which they held to the local custom of placing the circular Kiva within a square masonry enclosure.

The kivas show considerable variation as to levels. The single Kiva in south wing extended through the first and second stories

and had its roof on a level with the floor of the third story. Thus the people living nearby in the third story might utilize this Kiva roof as a court or plaza. Of the two Kivas in the north wing, one seems to have had its roof on the third, and the other on the fourth floor level.

In the central area the five Kivas to the east had their roofs taken on the second floor level and the two in the western section extended through the second floor placing the roof on the third floor level.

The masonry throughout for the Kiva construction, with little exception, shows much variation and mixture. The most common is perhaps an approach to the 2 B type of Bonito. This runs through two thirds of the kivas but is not constant. It seems, however, to be the predominating type shown in any one kiva. Kiva I is a notable exception. Here the masonry is very poor, being of friable sandstone and so badly weathered that it was necessary to refill after excavation. Kiva J approximates more nearly the 2 A type of Bonito. It is formed of large dressed blocks surrounded by small chinking. The masonry of its bench is of laminate sandstone with the use of some dressed blocks and is far superior to that of the walls. In all cases the walls and bench show

repeated replastering, in some cases aggregating 20 layers, equaling an inch and one half in thickness. This may show the use of different colors as in the case of Kiva J, where yellow and white were used.

The bench is a consistent feature but shows some modifications in the various kivas. With the exception of Kiva B, mentioned above, in each case it is of masonry, closely resembling or more often superior to that of the wall. Kiva C shows that the masonry core of wall and bench are continuous, at the bench level this core or wall foundation extends outward forming core or backing for the facing stones on the side of the bench.

The bench in the various Kivas varies in width from 12 to 29 inches and in height from 19 to 34 inches. There is a general relationship to this height-width in that a bench with great height is narrow. Kiva B with bench 34 inches high has width of 12 inches. Where the bench is low it is correspondingly wide as in Kiva C, where height is 22 inches and width is 29 inches.

Of the 8 Kivas excavated all have a bench recess to the south or south east. The recess takes on two forms - (1) a mere inset in the bench and the other (2) where the recess extends to the Kiva wall, the latter forming the rear wall of the recess. Kivas F, J, and I were

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of the first class and varied in depth from 8 to 18 inches according to the width of the bench and in length from 4 feet 4 inches to 9 feet. In two of the three Kivas where the main wall forms the rear of the recess there are no pilasters on the bench. The recess in Kivas 13, C, E, G and H is formed by an inset in the bench which varies in depth from 6 inches in Kiva B to 20 inches in Kiva H. The variation in length of the recess is 4 feet to 7 feet 3 inches for Kiva B and H respectively. In all cases the recess is slightly longer in the rear than in the front. The recess in Kiva H is wider than the bench due to the fact that the Kiva wall is also recessed.

On the benches of four of the Kivas are low pilasters. Three kivas have six pilasters each, and the remaining Kiva eight. The pilasters are evenly placed on the bench and are of two types according to construction. (1) Formed of a round log enclosed in square masonry shell and (2) formed of a square log which is only covered with plaster of bench rounding up over it. In all cases the core of the pilaster is formed of a log tenoned into the Kiva wall to a depth of 12 to 20 inches. Traces of coal generally noted around the portion of the log embedded in the wall. The face of the pilasters are set in from front of bench an

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average of two inches. The pilasters average 8 inches in height, 21 inches in length and have a width of 15 inches.

Traces of offering holes in the logs of the pilasters were noted in each Kiva. The hole is circular, generally not more than 2 inches deep and $1\frac{1}{2}$ inch in diameter. The hole is placed in the log from 5 to 12 inches from the wall. In some cases a groove surrounds the opening for the placing of a cover in the form of a disc which may be either of wood or stone. The offerings include turquoise in the form of beads, inlay and unworked pieces; clay stone and shells. In many cases the logs are so badly destroyed by fire that no offerings or recess for such offerings were noted. In both Kivas E and G where the pilaster is formed of a round log there is no west subfloor chamber. This, however, does not hold true for Kivas at Pueblo Bonito.

Both the domed and flat roof for the Kiva was found at del Arroyo. In the eight Kivas excavated there were four examples of each. All timbers were badly decayed or burned so that no complete roof could be traced, however, in the Kivas with pilasters the decayed or charred remains of the poles extending from one pilaster to another were noted, the arrangement being similar to that at Bonito. Only ⁱⁿ Kiva C were the

remains of small poles noted which were placed upright in the bench near the Kiva wall and behind the horizontal beams which extended from one pilaster to another. These poles no doubt served as extra braces or support to the lower beams. The poles averaged 14 in number between the pilasters.

In two cases traces of the roof poles of Kivas with flat roofs were noted during excavations. These were 7 feet 7 inches and 7 feet 9 inches above the floor of the respective kivas. Of the two other Kivas with flat roofs, one was abandoned and filled with adobe spoils and floor sweepings; the walls of the other stood 8 feet 11 inches above the floor. This may well have been the height of the beams as it places the roof on a level with that of nearby rooms.

The ventilator shaft is represented in each Kiva, but has undergone change in some and shows variations and modification in others.

The typical ventilator shaft for Chaco Canyon Kivas is a subfloor shaft without deflector. Kiva C is the purest example of this type at del Arroyo. In Kiva C the ventilator shaft opening measures 16 inches wide by 15 inches long and is 5 feet 6 inches north of the south recess. The floor of the shaft is 28 inches beneath the floor of the Kiva and is lined with large stone slabs. The shaft is of uniformly selected

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lamine sand stone. The roof of the shaft is formed of small poles, above which is a course of stones followed by the packed clay floor of the Kiva. The shaft extends S 1' W under the Kiva wall for a distance of 18 inches beyond the face of the Kiva wall when it extends upward, measuring 18 inches east and west by 15 inches N and S, where it opens at the surface.

Some of the variations of this formal form are quite interesting and of considerable importance. In all but one instance the ventilator shaft proceeds under the recess. In Kiva H, which has a flat roof and recessed Kiva wall as well as bench recess the ventilator shaft while subfloor extends under the Kiva wall to the west of the recess at an angle of S 30° E. It continues through the south east corner of the enclosing room of the Kiva and under the east wall, extending upward on the east side of the wall in the South west corner of enclosing room for Kiva I. At this point there is a blocked T-shaped doorway which forms the west side of the vertical ventilator shaft. The directions of the ventilator shafts vary from S 10½° W to S 30° E. Kivas F, G, I and J which closely approach the normal type of Chaco Kiva show that the ventilator shaft was subfloor and extended southward under the recess and Kiva wall. Later

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the subfloor shaft was filled and a new opening made above the floor in the recess bench. This second shaft has its floor from 2 to 3 inches above that of the Kiva floor in three Kivas and on a level with the Kiva floor in Kiva G. Where the sub-floor ventilator shaft has been filled and has its later entrance in the recess wall the shaft proceeded directly above the lower one. Only in the case of Kiva J were two separate shafts constructed. Here the later shaft entering the Kiva wall in the recess is 8 inches east of the first shaft. The former having angle of S 21° E and the latter S 24° E.

In Kivas G and F where the subfloor shafts have been filled, masonry deflectors have been added, the former 34 inches and the latter 62 inches long, both deflectors are 10 inches wide by 15 inches high.

North of the ventilator shaft opening is invariably a fire box. This may be masonry or clay lines and vary in shape from semi-circular, circular, oval, square to rectangular. In some cases the size of the fire box has been reduced by later partition walls. The fire boxes are filled with wood ash.

In excavating the vertical portion of the ventilator shaft of Kiva I, a circular stone disk 15 inches in diameter and three inches

thick was found wedged in at the top of the shaft as if it may have served one day as a cover.

The west subfloor chamber which is always present in the normal small type Kiva of the Chaco is here noted only in two instances, Kivas C and F. In the former, which is a true Kiva of this type, has a west^{sub-}floor chamber, 8 feet 6 inches long by 46 inches wide and 18½ inches deep. The sides are unplastered masonry with a clay floor. The chamber shows some small secondary partition walls at south end. The whole had been filled with ash and sand and then floored over. In the second case, Kiva F, the subfloor chamber had been filled with ash and sand and then a new floor 2 inches above top of chamber was placed in the Kiva.

As was mentioned above none of the present Kivas seem to be in the original plan of the pueblo. However, beneath the floors of Kiva E and F are partially razed sub-floor Kivas. In the former three Kivas have their razed walls within the circumference of the latest used Kiva. One in the S E corner has its floor 10 feet below floor of Kiva E. This sub-floor Kiva has bench with four pilasters. The low pilasters are of masonry with four small poles placed above in the Kiva wall. These poles do not have offering holes, but bone awls and flints were placed between

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the poles. This Kiva had approximate diameter of 13 feet.

In the north east corner of Kiva E a second sub-floor was noted. This wall was traced to its base 9 feet 4 inches below the floor of Kiva E without encountering the floor of the lower kiva. No bench was noted. The diameter of this Kiva which also has a portion of its arc in room 52, north of Kiva E, is approximately 35 feet.

The third subfloor Kiva is in the west half and has the same floor level as Kiva E. The only remaining walls are foundations under the bench which extend 47 inches below the floor. This Kiva had a diameter of 12 feet at floor level. West of Kiva E wall the bench was noted. It was 15 inches wide and 22 inches high with no trace of pilasters. The fire box of this Kiva is partly under Kiva E bench and the subfloor ventilator shaft extends S 7°W, to the south wall of Kiva E square where it turns upward.

On the west side of Kiva F a subfloor Kiva has its floor 11 inches beneath floor of the later Kiva. ~~The walls of this subfloor~~
~~Kiva was 11 inches beneath floor of the later Kiva.~~ The walls
of this subfloor Kiva rise only to height of 9 inches above its floor. This is at base of foundation of the bench of Kiva F. The walls were

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plastered and the kiva had a diameter of 17 feet 9 inches.

This shows the persistence of kivas in certain areas. Even though the earlier Kivas were torn out others rose in approximately the same position to take its place, so that it may not be a far cry to suppose that one of these razed Kivas was in the original plan of the pueblo.

Traces of other subfloor Kivas were found but they were beneath secular rooms. In Room 40 is a fire box and subfloor ventilator shaft of a Kiva having its floor 13 inches below that of the room. The shaft extends under the wall of the room below the blocked south doorway and 40 inches into Room 36 where it turns east to the east wall of that room at one time it continued beyond this wall but was apparently torn out and filled with large blocks which serve as foundation of the north and south wall. No trace of the shafts was found in Room 37 to the east.

The other subfloor Kiva is seen in Room 55. It is only represented by the foundation stones outlining the southern half of the kiva extending south of the north wall of the room. The foundation stones were noted 32 inches below the floor of the room and traced to an additional depth of 12 inches. Thirty five inches below the floor of the room a

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one inch layer of shale was placed inside the kiva walls. This is the only instance of the use of shale below the kiva floor at del Arroyo, although a common practice at Bonito. This kiva had an approximate diameter of 9 feet. Room ⁴⁴41 has its first story roof partly intact. The room measures 16 feet by 12 feet 6 inches.

A doorway in west wall has its sill $18\frac{1}{2}$ inches above the floor. At some later time the room was filled to depth of from $13\frac{1}{2}$ to $15\frac{1}{2}$ inches with sand, clay and floor sweepings and a new floor level established. On this level a masonry bin having outside measurements of 44 x 44 inches was built in the south east corner. The bin has height of 17 inches and is not finished on the inside. It was filled with stones and sand, three stone hammers and parts of three stone slabs. On this same floor was a circular fire box being 32 inches in diameter and 32 inches north of masonry bin. The stone slabs lining the fire box project 2 and 3 inches above the floor.

An opening in the east wall 17 inches from the north east corner has its sill 50 inches above floor. The opening is 35 inches high and 26 inches wide. A series of four masonry steps lead up to the sill of this opening. The mass of masonry composing the stairway measures some 47 inches north and south by 52 inches east and west. inches

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below the floor and the plaster ^{of the} wall continues down in behind the masonry indicating that the stairway is secondary. The group of steps have a rise varying from 15 to 17 inches. The tread varies from 11 to 14 inches. From the dirt step in this group there is a 9 inch rise to the sill of the east opening. Extending through this opening and into a passageway that continues for 28 inches eastward are four more masonry steps. Their tread is uniformly 11 inches with the rises varying from 6 to 8 inches. The final step leading out of the passageway opens out on the roof of Kiva F. The masonry of the passageway is much cruder than that of the east wall of R. 44. The steps were heavily plastered.

Later a second fill, 15 inches thick, placed above the floor of the first which covered the lowest step. On this floor a rectangular stone slab lined fire box was placed in the center of the room. In the east wall 6 feet 7 inches ^{North} from the South east corner is an apparent concavity which is 44 inches long and extends 34 inches upward when the straight wall is held in place by a pole embedded in the wall. In the center this concavity is three inches in from the vertical.

In the north wall of this same room, 47 inches above the last floor and $6\frac{1}{2}$ inches east from the north west corner, is a small wall

pocket, a short distance east from this wall pocket and at practically the same height is a painting in whit of a sandal with a notch on the outside. The sandal is for the right foot and has been painted on the yellow plaster. It measures $7\frac{3}{4}$ " long by $3\frac{3}{4}$ " wide. The two large roof beams averaging $11\frac{1}{2}$ inches in diameter extend east and west and are 5 feet 2 inches above the last floor. Upright posts placed against the wall and directly beneath each beam gives additional support.

These posts extend 4 feet 4 inches below the upper floor and rest on stone slabs. The roof construction is somewhat similar to that already described. Here the small poles are tenoned singly into the wall. Above them split juniper followed by a layer of ~~packed~~ clay. Above the clay juniper bark with a three inch layer of packed clay. This forms the floor of the room above. Three additional layers of caly were subsequently placed above this heavy floor. They total $1\frac{1}{2}$ inches in thickness.

In the southeast corner a hatchway at one time gave admittance to the first story room from the one above. The hatchway measured 12 by 17 inches. Later it was closed and tuli were placed across the opening to carry the weight of the clay flooring. This broke through and only traces of the rushes were found in excavating.

In the east wall of Room 51 first floor is a passageway connecting with Room 52 second story room to the east. The passageway is 10 inches from the Southeast corner and has its sill 30 inches above the floor. The passageway at base is 26 inches wide and 23 inches deep, and extends upward to height of ceiling joles which are 9 feet 1 inch above floor of the room or 6 feet 4 inches above sill of passageway.

The wall over the passageway is supported by eleven small polelenticils which average six inches higher at the east side than at the west. The east wall of the room is 29 inches thick. In the rear the passageway extends upward $56\frac{1}{2}$ inches where it has an eastern extension of 21 inches, is 23 inches wide and continues upward 27 inches opening out on floor of Room 52 E. The masonry of this eastern extension is rather crude, having a predominance of large irregular blocks. In Room 51 A, a platform or step has been constructed in front of the opening. It is 31 inches wide by 35 inches long east and west and 10 inches high. The step is of crude masonry heavily plastered and the whole built ajant the plaster of the east wall indicating its addition at a later time.

Room 51 is one of the few inside first floor rooms to have a fire box. It is in the north east quarter of the room and measures 26 inches by 14 inches. It is stone lined and 14 inches deep. On west side

five inches from the bottom there is a western extension of 5 inches, which is clay lines.

In the east wall a ventilator 7 feet $4\frac{1}{2}$ inches from south east corner has its sill 8 feet 2 inches above the first floor. The room to the east has been filled so that the ventilator is closed.

Room No. 55 measuring 13 feet 2 inches on north and 25 feet 9 inches on the south. This room is at the northern limits of the excavations. On the south wall were pressed or drawn in white on the plaster three left hands and two human figures. These figures and the sandal drawing in Room 44, plus the incised lines on wall of Room 41 were the only instances of wall decorations noted. There are four doorways in the east wall. The one to the north has its sill 24 inches above the floor and measures 26 inches wide, 31 inches high, and 27 inches deep and opens into the north west corner of Kiva H.

The second doorway is blocked and is 11 feet 2 inches from N E corner. The sill is 39 inches above the floor. This doorway measures 23 inches wide and 34 inches high to the broken wall.

The third doorway is 4 feet 7 inches from south east corner. With the sill 3 inches above the floor the doorway measures 4 feet 6 inches above the floor the doorway measures 4 feet 6 inches high and 28

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inches wide. Later the doorway was decreased in size by blocking it to height of 13 inches and adding masonry wings to either side. These wings on south project 4 inches and on the north 5 inches. Thus the doorway measured 19 inches wide, 41 inches high and the sill was 16 inches above the floor. At this time the wall was plastered as well as the added masonry wings and their jambs. Still later the doorway was completely blocked and the blocked in portion plastered. This was probably at the time of the building in of Kiva H to the east.

The fourth doorway is 16 inches from south east corner. The sill is 35 inches above the floor, it is 38 inches high and 22 inches wide. Back from the face of the doorway a distance of four inches is the first of two steps that lead into a small room to the east. Both steps have a rise of 5 inches and the treads are 4 and 6 inches respectively. Pole lentils supported the wall above the steps. The room to the east is little more than an entry measuring approximately 35 by 40 inches. The floor of the room is on a level with the top step.

In the floor in the south west quarter of the room is a depression five inches deep, 38 inches north and south and 18 inches wide. The south wall of the room forms the southern limits of the depression.

This basin is clay lined. Two inches north of this first depression is a second of approximately the same depth and width and 4 feet 5 inches long. The southern half of this depression is stone lined. The use of such floor basins can not be definitely known. However, another depression 19 inches from east and 4 feet from the south wall forms the foundation for a group of mealing bins. This trench extended 12 feet 8 inches north and south. Along the west side of the foundation the trench is 6 inches deep and 13 inches wide. The side and bottom were lined with stones, with a wooden plank (25"x15"x1") in the bottom at north end.

The eastern portion of the foundation for the mealing bins is 23 inches wide and 3 inches higher than the trench to the west. This foundation slopes rapidly upward toward the east so that at the eastern limits it is 5 inches higher than at the west. The trench filled with refuse gives this slope, allowing metates to be placed on it at slight angle for ease in grinding. A groove along the east side between the edge of the basin and the refuse for the placing of upright stones defined the limits of the mealing bin. A number of metates ^{were} found in the room, some inverted above this foundation structure were reembedded in their original base by the Zuni workmen who excavated the room.

Rupperts' cat. cards list
no metates in R. IV
his excav. notes mention
metates

What may be called another foundation for such a group of mealing

bins was found in Room 41. This room is but slightly smaller than Room 55. In the north east and west walls are single doorways. That in the south is completely blocked while the doorways in east and west wall are partially blocked. In the north wall are three openings; the one to the west is 48 inches high, 26 inches wide at bottom and 23 inches wide at the top; the sill is 12 inches above the floor. The central passageway is 45 inches wide, 28 inches high with the sill 31 inches above the floor. These two doorways just described are blocked with masonry fill. The doorway to the east is 60 inches high to broken wall, 24 inches wide and has the sill 22 inches above the floor. Extending through this doorway and into a small entry that has been built on the north side of the wall are four masonry steps that lead out onto the roof of Kiva J. The steps are of later construction than this north wall as the entry has been built against the plaster of the room at the north which now serves as an enclosing room for Kiva J.

A stone lined recess 16 by 23 inches with a depth of 6 inches is 38 inches from the north wall and 7 feet 10 inches from the east wall of room. The stone slabs lining the sides of the recess project some 5 inches above the floor giving the box a total depth of 11 inches. Abutting this recess and extending eastward is a floor depression 6 feet in length,

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19 inches in width and having an average depth of 5 inches. The floor of this depression was somewhat irregularly lined with flat stones as well as the sides where either the stones or their impression denotes their presence^{then} at one time.

Two stones set on edge $13\frac{1}{2}$ inches from eastern limits of the depression form a partition in the recess. This smaller basin had been lined with clay and was filled with ash and charcoal.

The Zuni workmen said the long floor depression was a foundation for a group of mealing bins and that live coals were placed in the clay lined basin at the east to provide warmth for the workers.

The stone lined basin at the western end they claimed was for the meal.