

Chetro Ketl Still a Riddle

Great Chaco Canyon Site Offers Problems Still To Be Solved by Archaeologists

The mystery of Chaco Canyon remains a mystery and promises to offer baffling problems to archaeology for many years to come, if not forever. The summer's work this year has answered some of the questions with which the ruin fairly bristles, and has raised new ones to take their places. The puzzling lack of burials has been answered with the finding of burial grounds in the tufa on the south side of Chaco Canyon. More pottery and ornaments that have been found before at Chetro Ketl were unearthed this year. Some new light has been thrown on the great bowl and the sub-structures. For the first time, systematic work is being done on the great refuse heap. The meaning of the great bowl and similar structures, many of the details of their construction, and the meaning of much that is found in them, remain food for speculation. The chronology is being slowly worked out by the tree-ring method, but the story of the people who lived in the great pueblos, who they were, their history at these sites, and the reason for their leaving, are unanswered.

It is tradition among archaeologists, that the last day brings the most important discoveries at excavations. A year ago, toward the close of the summer session at Chetro Ketl, the sub-structures under the surface ruin were discovered. This year, in the final week, a find of great importance was made by accident, and may necessitate a change in excavation plans. A necklace of 1,045 jet and shell beads, approximately six feet long, was discovered in a pocket in the masonry of the lowest part of the great bowl structure; and in a similar pocket nearby were found more than a thousand turquoise bits, apparently in the process of preparation for a piece of mosaic work. This recalls that last year, a string of 567 beads was found on the bench which circles the bowl, in a niche. Are there, now, secreted in pockets in other parts of the building, similar caches of valuables? It seems logical that there are, which makes necessary a renewed examination of sections of the bowl in which excavations were thought completed. The longer necklace takes rank amongst the most important archaeological finds in the southwest.

Excavations of this summer have shown consistently that the masonry of the lower structures is superior to that of the surface ruins first laid bare. In fact, the farther down

the excavations have been carried, the better the masonry has become. This would indicate either a degeneracy of the people who dwelt in the Chaco Canyon during their long period of occupancy of these now ruined towns, or the loss of the building arts during periods of exile. A third alternative would be that the first builders vanished, and later dwellers on these (sic) sites were not the excellent builders that the founders were. At any rate, there is offered a problem worthy of much study.

Chetro Ketl, on the whole, has greatly strengthened its position as one of the most important of archaeological sites in North America because of this summer's work. The size of the ruin as now known, the height of the walls as deeper excavations have revealed them, place it ahead of Pueblo Bonito, the first of the Chaco Canyon ruins to be excavated. When the debris which has accumulated in the centuries since the town was abandoned has been properly cleared away, it will present fully as imposing a spectacle.

The summer field school, under joint auspices of the University of New Mexico and the School of American Research, had enrolled seventeen advanced students of archaeology. It was conducted personally by Dr. Edgar L. Hewett, assisted by an able staff, including Mrs. Hewett as chaperon; Reginald G. Fisher, of the staffs of the School and University; Miss Florence Hawley, of the University of Arizona, and W. W. Postlethwaite, of Colorado College. Students and auditors were Marshall Clinard, of Stanford University; Ann and Susan Kent, of Vassar College; Janet and Margaret Woods, of Bryn Mawr; Ruth Blackwell and Mrs. Lydia J. Trowbridge, of Chicago; Fern Johnson of Tucson, Ariz.; and Fletcher Cook, Marjorie Ferguson, Grace R. Fisher, Margaret Foraker, Sara Goddard, John Linkins, Paul Reiter, Richard Vann, and Gordon Vivian, of the University of New Mexico. Miss Ferguson, who studies at Colorado College and the University of New Mexico, was examined for her Master of Arts degree at the field school camp. Dr. B. F. Haight, dean of the University of New Mexico graduate school, and Miss Mamie Tanquist, of the department of archaeology and anthropology, visited the camp to conduct the examination, the second of its kind which has been held at a Chaco Canyon field school.

The field school session opened June 10 and camp was broken July 8. Dr. and Mrs. Hewett, at that time, left for Mexico City to conduct the archaeological field school there,

planning to return early in August to open the general field school at the Battleship Rock camp in Jemez Canyon. Excavations at Chetro Ketl are being continued for a few weeks under direction of Paul Reiter, curator of archaeology of the Museum of New Mexico, and several assistants.

Prepare Field Museum.

An important part of this summer's work was the establishment at the summer camp site in a building leased from the Pueblo Bonito Lodge, of a field museum. This building, containing a number of large rooms, has been leased from Gus Griffin, owner of the old Wetherill trading post and homestead adjoining the Pueblo Bonito ruin, now a national monument. Three rooms of the leased building are set aside for the museum. In one of these rooms, is being installed material taken from the Chaco Canyon sites, as much of it as possible as it is taken from the ruins. In order to prepare this material, one of the museum rooms is being used as a laboratory and work room, where material may be prepared immediately and expertly for exhibition, instead of having it sacked and sent to the museum at Santa Fe for mounting. An interesting feature of this room will be a model of the great bowl Chetro Ketl. The model will show the great bowl as it was laid bare to its first, or latest, floor level. The top part, however, will be removable, to show beneath the substructure as it is now being uncovered by deeper excavation. The model will be four feet in diameter. Copies of the model will be made for the museums at Santa Fe and at the University. This museum will be a branch of the State Museum, and the second field museum to be so established, the first being at the Puyé. The Chaco Canyon museum will be open to the public the year around, and should add greatly to the interest of the ruins. The second display room of the museum will contain a general exhibit of the pueblo region, both ancient and modern, offering material for comparative study of the Chaco Canyon exhibits. The museum will offer opportunity for rather detailed study of pottery, artifacts, fabrics, masonry, and tree ring samples. The work of preparing the material for exhibit will be done, in part, by students, after they have had preliminary training at the University. Large amounts of tree ring material from old timbers at Chetro Ketl are being gathered, and specimens sent to Dr. A. E. Douglas, at the University of Arizona, to aid in his study of tree-ring chronology. Similar specimens will be exhibited at the field museum, and labeled, eventually, with the dates as

ascertained by Dr. Douglas' study. Photos, maps, and charts will form important parts of the displays, and so that they may be exhibited properly, the cases will be low enough to leave a large part of the walls exposed. The special studies carried on by archaeological students will be illustrated by exhibits. The whole plan is, not only to exhibit much of the material found near the location, but also to permit of much more of the finishing work in preparing the material than has been done before in the field, where, if facilities are available, it may often be done much better.

Other rooms of the building have been fitted up for use as an office for the director of the work and a class room and library for the students. In all, this arrangement adds much to the permanent equipment of the camp school. It is hoped, eventually, to make further additions, including living quarters for the students, who this year and in former years, have lived in tents; and a blacksmith shop for work on equipment during excavation seasons.

New Excavation Methods.

Innovation in excavation methods this year have proven very successful. One problem confronting the workers this year was that of removing debris and earth from lower levels of the excavations, which in the past has been slow, tedious and costly. Under supervision of Professor Fisher, who is a graduate engineer as well as an archaeologist, this difficulty was overcome. By erecting large frames, higher than the standing walls of Chetro Kettle, he installed a tramway, by means of which buckets could be hoisted from the deeper parts of the excavation and moved to the dump rapidly. By this means it has been possible to move, this year, dozens of tons of earth a day at comparably low cost. It permitted of rapid work in clearing portions of the great bowl and of interior parts of the pueblo which had been below the ground surface. The camp is now amply equipped with trackage and dump cars for efficient work.

Professor Fisher also devised a plan for supporting walls of the superstructure of the ruins to permit tunneling under them. This type of work is necessary to uncover rooms which underlay the top part of the pueblo. Concrete pillars are being placed under points of great stress, and across the tops of these, supporting the upper walls, railway rails are

used, giving a support capable of bearing any weight which might be placed on them, and equal to any strain. Workers may tunnel beneath walls so supported, safe from the danger of having walls crumble in on them.

Treating Wall Tops.

The camp at Chetro Ketl has been making thorough studies of methods of treating walls which have been exposed by the excavations, so that they will not deteriorate. Feeling that methods which have been used in American archaeology are crude and amateurish, they are seeking a way in which the wall may be preserved permanently without spoiling its appearance or the artistic value of the ruin in its original state. Their experiments have extended over a period of years. At Chetro Ketl, they are now using a method which makes the wall thoroughly substantial, and still leaves it extremely difficult to detect that repair work has been done. Instead of capping the walls, with cement, the top layers of masonry are removed and replaced exactly as found, but set in cement. It is expected that a still further improvement can be made by matching the color, and to a degree, the texture of the cement, to that of the original adobe plaster in which the stones were set. In some of the weakened walls, a fill of cement is used to replace the original rubble, and the facing replaced in such a way as to preserve the appearance. The theory behind the new method is to have the cement inside the wall gripping the stones of the facing from within, instead of applying an unsightly capping of cement on the exposed part of the wall. It is found that the water will be shed just as well, the walls have even greater strength and the ruin remains as it was first found for every visitor to see and admire. Such work is tedious in the extreme, but it has been found that the Navajo workmen employed, many of whom are very skilled as masons, are admirably adapted to such work, and will take the pains and the time necessary to reconstruct pieces of the wall in exact duplication of the work of the prehistoric builders.

It has been made a policy at Chetro Ketl that restorations be made with greatest care for accuracy. Where even slight doubt as to the original appearance exists, no restoration is attempted.

Work at Casa Rinconada

Across the Chaco arroyo from Chettro Ketl, and also on lands of the University and School of American Research, Casa Rinconada stands on a rise at the foot of the south cliff. Casa Rinconada is a great bowl quite similar to the Chettro Ketl bowl, but entirely isolated. No house ruins or other sanctuaries are near it. From its commanding position, it can be seen from seven of the ancient pueblos of the Chaco—Casa Blanca, the Yellow House, Pueblo Alto, Penasco Blanco, Pueblo Bonito, Pueblo del Arroyo, and Chettro Ketl. Its general plan of construction is the same, except that it has an entrance and ante-room both to the north and south, while the bowl at Chettro Ketl has only one, to the north.

Belief that this bowl was similar to that at Chettro Ketl led to the decision this summer, to begin parallel excavation there in order that the two structures might be compared as the excavations progress, and thus throw light on each other. The excavations proved the similarity of the two structures. It was found that the bench at Casa Rinconada, like that at Chettro Ketl, contained a layer of very inferior masonry covering much finer masonry beneath. Here again, the finest masonry was found under the poorer and later masonry. One burial was found in the debris just outside the Casa Rinconada bowl. The location and isolation of the Casa Rinconada bowl raised interesting problems as to its probable use for sanctuary or other purposes by all of the pueblos of that part of the Chaco. Dr. Hewett reported that on top of the canyon wall, just south of Casa Rinconada there was the ruin of a house, from which a signal fire could be seen by all of the pueblos in the canyon, including those farther up the canyon which cannot be seen from the bowl.

At the Chettro Ketl bowl, the structure has been divided into two halves. The south half has been excavated to the lowest floor level, where a portion of the sub-structure was laid bare a year ago. The great rectangular pits, which form a peculiar feature of both great bowls, were cleaned out to the bottom, a number of beads being found in them. It is planned soon to lift the large, round, flat stones at the bottom of the circular holes in which supporting posts for the roof rested, to see what may be beneath them. What the nature of the sub-structure underlying the Chettro Ketl bowl may be, remains undetermined.

Florence Hawley, of the University of Arizona, who is gathering tree ring specimens for Dr. Douglas, also has undertaken a systematic and thorough investigation of the rubbish heap east of Chettro Ketl. This heap has baffled all previous attempts at anything like systematic investigation, but it appears that she has succeeded in working out an effective method, making possible a study of every stratum from the original ground level to the top. All materials she finds are carefully labeled and prepared for study. It is largely through this work that more restorable material has been taken out this summer than ever before at Chettro Ketl.

Among those who visited the excavations this summer have been Admiral Roger Wells, member of the managing board of the School of American Research; Vice-Director Paul A. F. Walter, of the School, and Mrs. Walter; and members of the School staff at Santa Fe.

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