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Summarizes excavation of Chetro Ketl in 1930, including further work on the East Tower and the refuse heap, the material recovered, and the tree ring study.

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WINIFRED STAMM, EDITOR.

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FIRST MONTH'S EXCAVATION AT CHACO

COMPLETED

The first month's work on the Chetro Ketl dig was rounded out on June 27. The results of the work are extremely interesting. They have been very unexpected and have upset a great many of the theories regarding the ruin.

The most startling discoveries were made in the Ceremonial Bowl, first excavated in 1921. During the 1929 season, an attempt to clean up the weather worn floor of the bowl revealed a wall a few inches below the surface where no wall had ever been suspected. It was only partially traced during that season. During the first week's work this season, an older bench beneath the present one was uncovered and some feet lower, a third.

The lowest bench was traced to its base with a wide trench. The trenching uncovered three parallel walls running diagonally across the bowl. They are of the better type of Chetro Ketl masonry and are described as "foundation walls" though their real purpose has not yet been determined.

These discoveries made a comparison of the Bowl with the large kiva at Casa Rinconada imperative. A small group was detailed to run a trench across the west end of

the kiva to find out if it at all resembled the great bowl. That part of the structure which remains standing above the drift fill seems to have the same features that are found in the Chetro Ketl bowl and the indications were that the hidden features would also resemble those at Chetro Ketl.

They were not, however, quite the same. Two benches, corresponding with the first two in the Great Bowl, were found, but no third one and no foundation walls of a different masonry. A few feet below the top of the second bench a hard shale floor that could not possibly have been built after the kiva but which must be bed rock was discovered. It was impossible to go through this with picks so the trench was abandoned until another season.

Further discoveries were also made in the East Tower Kiva which was the principal project during the 1929 season. At that time a narrow trench was sunk on the east side to a depth of 7 feet where a second floor level was discovered. This season the trench was widened into a segment and sunk to a depth of nine feet.

During the process of making this trench, a section of the wall of the bench caved in showing that, as in the Great Bowl, the known bench was built over an older one of a different masonry type. The work of tracing this had not been completed at the end of June but will be continued during July.

New work in the rooms in the East Tower Sector which were excavated last year showed that one of them was built upon an old kiva that appears to run partly under the Tower, and upon a foundation wall similar to those in the Bowl. The kiva bench seems to go down indefinitely. The kiva wall will be traced in the adjoining room in an effort to study it without endangering any room walls.

In the rooms north of the tower, a great deal of clearing was done. In one of them the wall was discovered to go down three stories and keep on going with a change in masonry type just under what should have been the ground floor level. The six foot trench put this interior wall three feet lower than the measured depth of the outside wall. Further work will be done in this room during the remainder of the season.

Further work will also be done in the underground rooms that are turning out such a wealth of material, and in the corner sections of the tower kiva.

EXCAVATION MATERIAL

Not very much material has come out of Chetro Ketl dig this year. The most interesting finds have been made in the great sanctuary where quantities of beads, mostly of shell but some of turquoise have been taken out. In one instance nearly six hundred beads were found together in one place. Their string had gone to dust but the beads were lying as they had fallen or been placed years ago. The black and white were rather evenly divided. It has not yet been determined just what makes the black beads black; whether they are burned turquoise or burned shell or some other material.

The "underground room"—one in which the ceiling has held and refuse has not entirely filled—was the richest in material. Practically every shovel full of dirt removed contained a scrap of textile material. Some of it is made entirely of yucca. Some of reeds. Some is made of very fine yucca strands woven around twigs. There were three large pieces of mattings, one of yucca, the other two of rushes. The rush matting has a wide border

of braid and is woven in a pattern. Large quantities of yucca string, rushes, willow twigs and unprepared yucca were also found. There were also two wads of human hair, carefully folded and wrapped around the center. It is very coarse and jet black.

The usual quantity of shards were found, but among them were several that could be reconstructed. One, a pitcher with a tall neck, narrow and tapered, of black on white ware with a negative meander design. Another, a large cooking pot of black ware with the coils poorly obliterated and no design. It had been broken and mended by boring holes through the pieces and tying them together with fiber. The most interesting pot is the polished red ware piece that came out of the underground room. The paste is hard but not very thick. The interior is sandy colored and the exterior red. The design is in the coils. Some of them have been entirely obliterated. Some not at all. Other bands have an incised design. It was apparently a low bowl with a flat mouth and is an unusual type to be found at Chetro Ketl. The entire bowl was not found but enough of it was present to make a fine restoration.

A number of arrow-heads were found, ranging from very fine to very crude. One in particular is worthy of notice. It is made of white quartz very carefully and beautifully chipped and has a fine point on it. It is an inch and a half long, and three quarters of an inch wide at the butt end, tapering to a joint. It was found near the floor of one of the rooms.

Another find was a wooden plaque three inches wide, four and a half inches long and three-eighths of an inch thick. It is undecorated. Its use is unknown.

The northwest corner of the square within which the east tower was built has not yielded the wealth of ma-

terial that the two corners excavated last season did. One sandal, badly worn but practically whole was found near the top but nothing else of particular interest.

The trench dug across one side of Rinconada was barren of material. Not even shards were found. The wealth of arrow points, beads, shells, and turquoise that have been picked up on the surface of the mound belong, apparently, to other structures close by and not to the kiva.

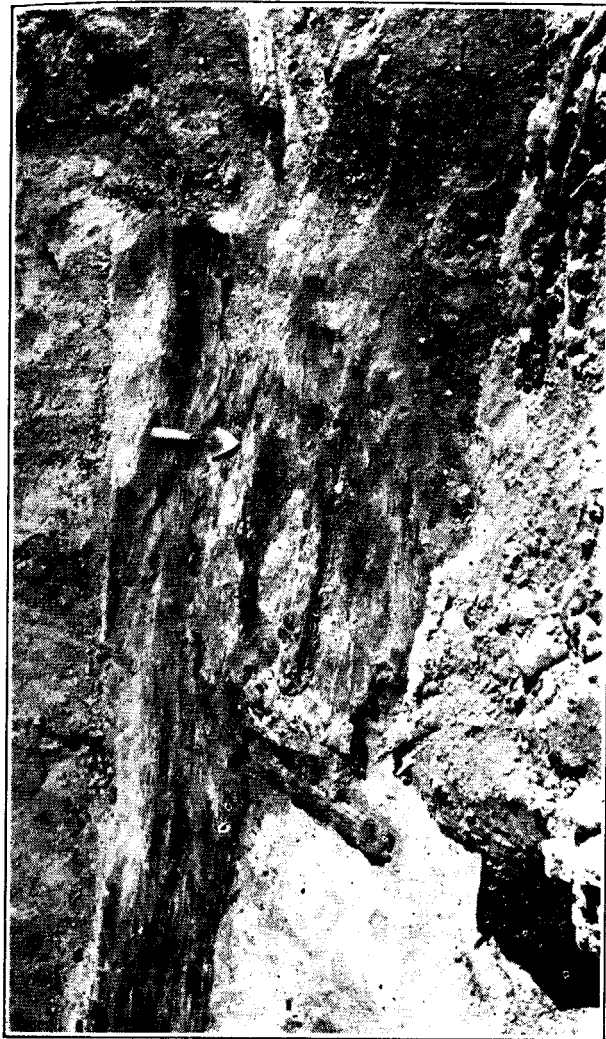
The refuse heap has, as usual, yielded nothing but shards, a few smoothing stones and a bone awl or two.

PROGRESS ON REFUSE HEAP

The jumbled, much worked refuse mound of Chetro Ketl was thoroughly reworked this season by Miss Florence Hawley. Reasoning that the logical direction for the formation of the mound would be from the house out, she chose a section that had had no pits sunk in it and ran a trench out from the east wall of the pueblo half way across the width of the mound, proving her theory by close observation of the stratification.

The trench was sunk to the bottom of the mound in three sections four feet square. The material was removed in eight inch levels. In the center a twenty foot pit was sunk to check on the stratification. Every bit of material was preserved and carefully studied in an endeavor to make a chronological chart for the pueblo based on pottery types. The work, however, has not been completed and will be continued another season.

Study of the material removed indicated that the whole dump belonged to a late period in the occupation of Chetro Ketl and had been hurriedly built up. If this



Detail of plank and cross poles of roof, found on floor of Room No. 2, Site No. 3.

INDIO TRISTE

By Ina Sizer Cassidy

(In Mexico there has been excavated a rudely carved stone statue of an Indian squatting, with arms extended across his knees, apparently having held some object, now missing, the identity of which has caused much speculation.)

Indio Triste! Paleolithic image
 Long buried in the deep black loam,
 There you crouch upon your square stone base
 With face inscrutable
 Your stony eyes stare
 At a Thing unseen;
 Between hard lips you bite your frozen tongue
 To hold back—what is it?
 A message from the gods to a sinful world,
 Or, perhaps, may it be
 A tale of pestilence and woe?

Indio Triste! How long have you sat there—how long?
 Resting your stolid arms upon your cold stone knees,
 Claspings in stiffened fingers a flaming branch,
 Or was it a brimming bowl?
 Were you a Shaman of the ancient day
 Lighting signal fires to the Four Great Bears,
 Imploping the help of Those Above,
 The happy dwellers in the land of Sippopé?
 Or were you a wizard of the honey and corn,
 Now forsaken by the jostling throng
 That once you held in drunken thrall?

is so, there must be other refuse heaps near the ruin that have been buried or washed down so that they are not apparent from the surface.

The lowest level of the dump is loose, soft sand mixed with charcoal. Its structure is small mounds which are made by daily household sweepings over a period. The predominate pottery type is the finest found at Chetro Ketl with smaller and proportionate quantities of the second and third classes which are poorer.

The next level is of hard adobe, unstratified, and poorly mixed with ash and charcoal. It was evidently formed when an unused portion of the town was cleared out for occupancy as it seems to have been dumped all at once. The older types of pottery predominate, though the best type is present. It was probably deposited with the daily sweepings which would not be discontinued during the cleaning out of an old section of the town.

The third level is again day to day sweepings and the best type of pottery predominates. On top of this is a wide layer of trash which is high in the center and slopes to the sides. The whole mound is covered with a layer of sand drift which contains few shards.

The stratification on the sides of the mound is, of course, somewhat confused because of the washing down of the rains which would tend to slough off the top layers and send them down the sides toward the bottom of the mound. The pit in the center of the mound corroborated the evidence of the trench in from the side, however, so it is probably correct.

The west-east trench will be continued and a north-south one run in next season.

TREE RING STUDY

Considerable work has been done this season in the study of the tree rings in beams found at Chetro Ketl. Two students of Dr. Douglass of the University of Arizona, who worked out the system of dating from tree ring study, have been in the camp and they have not only taken sections from all available beams, but have given talks and demonstrations to the entire class in order that they may understand the system.

Pine trees, it is said, show the very best ring structure and whenever possible sections of pines are obtained for dating. Other trees do not show the influence of the weather so plainly, or grow under such favorable conditions that the rings are so nearly the same size as to be useless for study. It is necessary to have as complete a cross section of the log being studied as possible, because rings that are difficult to trace in one spot may be found quite easily in another so whenever it is feasible the end is sawed off the log and used.

Frequently, however, particularly in interior rooms, the ends of the beams are not in sight and it is necessary to take a center section. Sawing a cross section would, of course, destroy the beam so a borer has been devised which penetrates to the center of the log and extracts a core which gives as complete a reading as can be expected from a small section. This borer is somewhat similar to the regular Forest Service borer but gives a larger core and penetrates only to the center of the tree.

The method of using the borer is simple. A zinc plate with an opening the size and shape of the bore bit is nailed to the beam to hold the instrument steady while the first cut is being made. The borer which has large saw teeth

at the end is worked like any bit and driven into the heart of the beam. It is removed and the core extracted with a long, flat spear tool threaded on one end so that it may be forced into the wood if it is necessary. Usually the core is broken while being extracted but this does not damage it for study. It can be glued together and used very satisfactorily.

After the core has been removed, a plug is inserted in the hole it leaves to prevent rot and to make it possible to find the place where the boring was taken again. The same descriptive number is put on the plug that is put on the core. If there should be any doubt or confusion about that particular bore at a future time, it is a simple matter, in a ceiling full of bored beams, to locate the particular one in question by the number.

Wood is prepared for study by carefully smoothing with a knife and shaving with a razor blade. This levels the wood and makes the rings stand out. Oil is applied to make them even plainer. If a log is old and rotted, it must be dipped in a saturated solution of paraffine in gasoline before it can be prepared for study. Charcoal, which gives a very fine ring display, is treated in the same way.

From the very hasty and inadequate study that could be made in the field, no certain date for any section of Chetro Ketl could be determined, but the material that was collected will be taken to Dr. Douglass' laboratory and thoroughly studied under his supervision this winter. Dates will be published as soon as they are available.

NEWS NOTES

Just by way of recreation and excitement, the entire class turned out during the last week in the Chaco Camp

to attend a Squaw dance about twenty miles down in the Sargent's Lake country. The road was one of the lost kind that are frequent in the desert. Long and rough with lots of crossings and branches that may go somewhere and may not. Fortunately for the class, one of the cars went out in the afternoon before the dance and investigated the road with Joe Charlie from the dig as guide.

Leaving camp soon after supper, the crowd, strung out in four cars like a regular caravan, rounded up at the dancing ground at 9:15. Nothing was doing except supper. The odor of coffee and cooking kid was heavy on the air. Two fires gleamed. One back of the hogan where a group of men wrapped in store blankets lounged on their saddles, and the other in front of the slat shelter against a hill where the women, more or less assisted by a dozen or so of assorted children, boiled coffee, boiled, fried, roasted and broiled goat, and slapped tortillas out on an iron sheet. A light shone through the cracks in the shelter from time to time and the noises that came forth indicated a rip roaring time within. The women passed in and out with plates and cups and babies and many people laughed.

After more than an hour of just lolling about, the men were collected in front of the hogan—a particularly well built and large hogan at the base of a hill—by a straight old man with a red blanket and a mustache and instructed vehemently. They were all young men, mostly dressed in jeans and striped shirts. They left their blankets behind when they gathered. They laughed while the old man talked and locked their arms about one another nonchalantly. As soon as he stopped, one of them led off on a high shrill key and they all laughed again and joined in, swaying from side to side.

For a full hour they sang, the high-pitched voice carrying on the rythm and stirring them up again when they lagged. From time to time, one would drift away from the group, and from time to time another would join it. The old man beat on a small drum that looked like an oatmeal box. At the end of the hour, the old man moved the group from the hogan to the fire and the singing continued. In a few minutes, a group of girls, very young, trudged into the circle of firelight, the leader bearing a wand with a clump of feathers at the top. They stood in the center of the circle and speculated for some time before one of them, followed by the evident moral support of the others, approached a reclining brave and tugged at his blanket. He let her tug. Another joined her, and he continued to let them tug. They abandoned him and approached another. He rose, slid between them, and joined the chorus on the other side. They returned to the first.

An older woman, apparently the mother of one of the girls, had to intervene before the youth resigned himself to his fate and rose to his feet. The girl immediately took a firm grip on his blanket and backed into the circle, dragging him after her. Then very solemnly and earnestly and as rapidly as possible she skipped around and around backwards, twisting his blanket so that he had to turn with her. He was very tall and she very short. She was very light and quick. He very slow and stolid. She very earnest and intense. He, elaborately indifferent.

They danced alone for some minutes before a second girl succeeded in dragging a man to the floor. The other men remained obdurate and the old man with the drum became exasperated. He stopped drumming and harangued at length. The older women who had gathered in a group seconded all of his motions and the girls in the dance cir-

cle looked wistful but the reclining youths—those that did not immediately king's x themselves by joining the chorus—continued to recline indifferently. The singing started again and beat on and on. The girls walked up and down the line of youths and now and then one of them broke down and came out to dance but they turned out ornery again when it came to the matter of paying for release. Most of them would circle and circle, quite wearing the poor girls out before they came across with the dime or quarter that they considered the girl worth. One or two, however, paid immediately rather than go into the circle at all. One of these was waiting for a particular girl to ask him, apparently, because he paid off two of the girls before he jumped up with alacrity to dance with the third.

Because the dance seemed likely to go on in the same fashion until morning, the school crowd left at twelve, getting into camp, very dead, at one thirty. There were no casualties among the students, but six of the Navahos failed to show up at the dig next morning.

The fossil fever continued to blaze in the camp until the last moment. Specimens were gathered from all over the surrounding country and many of them sent in to the University for identification. The report came back that three of the specimens were types that had never been found in the state before. The last Sunday was spent, as all the others had been, in a cruise across the bad lands hunting for turtles. Some large bones and an enormous piece of coral were brought in but the turtles were too large to move.

Dr. B. F. Haught, dean of the Graduate School of the University, and Dr. S. P. Naninga, director of the Summer Session and member of the Graduate Committee came

out to camp during the last week to give Miss Sara Goddard an examination for her Master's Degree. She has been working, all during her stay here, on a thesis on Zuni. She and Natchapani have worked hours every day on botanical and geological material as well as on mythology, language and religion. Miss Tanquist and Miss Fricke of the University faculty accompanied Dr. Haught and Dr. Naninga and took part in the examination. This is the first time that such an examination has been given off the University campus.

In the course of a walk along the cliff, Dick Vann, a member of the class, came upon a most interesting cache of cultural material under an overhanging ledge of rock on the north side of the canyon. There were beads and arrow points and a pair of shoes that are entirely new and different from anything that has been found in the vicinity before. They are woven of what appears to be cotton string and human hair. The soles are made of broad leaf yucca. The feet are very long and broad and the tops come up to what would be ankle height on a man. They are remarkably well preserved.

During the days just before breaking camp, the students were invited in groups to visit the studio of Mr. W. E. Rollins, the painter, who makes his home at Pueblo Bonito. He has a collection of desert paintings that is well worth seeing. A great many of them have Pueblo Bonito as their subject, but there are many others, both idealistic and realistic, of other places and objects that are equally interesting. One in particular of a Navaho horse left out in a blizzard is striking. The prize of the collection, however, in the estimation of most of those who saw it, is Puebblo Bonito in the moonlight. The spirit is

so true, the lights and shadows so well handled that the effect on the mood is just as if one sat in the canyon and looked at Bonito as the moon rose behind it. Mr. Rollins is at present doing some vivid crayon sketches that rival his oils. Visitors to the camp during the last week were Mr. Ambrose, State Senator from Crownpoint, and Mr. Pinckley, Park Inspector. Mr. Ambrose stayed only one afternoon and spent the time inspecting the work at Chetro Ketl. Mr. Pinkley stayed several days at the home of the custodian of the Chaco Canyon monument, Mr. Palmer.

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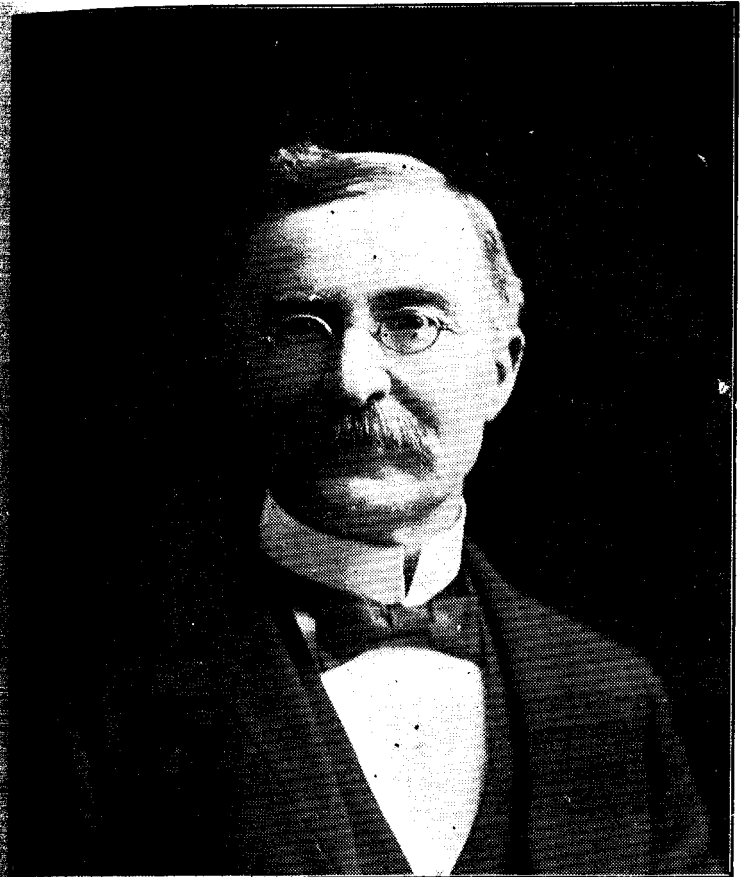
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