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## THE EXCAVATION AND REPAIR OF QUARAI MISSION

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[EDITORIAL NOTE: The excavation and repair of the Quarai Mission and Monastery has been one of the most important projects of the past two years undertaken by the School of American Research, the Museum of New Mexico, and the University of New Mexico. An article in the first December number of EL PALACIO, 1934, by Donovan Senter, gave an account of the first season's work and a historical sketch of the mission. The present article covers the entire work up to June of this year. Albert Ely was in charge of the project from September, 1934, to June, 1935. He presented a thesis on the repair and excavation to the faculty of the University of New Mexico in June as a basis for his Master's Degree, which he received at the summer commencement. This article is a digest of the thesis.

The accompanying pictures show some of the highlights developed in the work: the rare Spanish porcelain bowl, the iron celts and Indian pottery, the metal heart and buckle that record the passing by of United States soldiers at a time when a room long since filled must have been still open. The ground plan gives an idea of the immensity of the structures and the picture of the interior shows the beautiful stone flagging. The grandeur of the mission and the picturesque setting must be visited to be appreciated. The Mission site was made a state monument last summer,

thus recognizing it as a part of New Mexico's rich heritage from the past that must be preserved for posterity.]

THE RUINS of the Tiwa pueblo of Quarai are situated in the eastern foothills of the Manzano mountains in the southernmost province of the Tano speaking people. Quarai lies eight miles northwest of Mountainair, New Mexico, and one mile west of the small Mexican settlement of Punta de Agua. The pueblo was built in a small fertile valley opening out into the Estancia Valley. Around the ruin water is plentiful.

The mission is located in the northeast quarter of the Quarai Pueblo, and, according to Bandelier, was founded by Fray Geronimo de la Llana in 1629, or twelve years after the missions of Pecos and Jemez.<sup>1</sup>

Sometime between the years 1664 and 1669, an alliance was formed between the Apaches and Quarai. An attempt at insurrection was planned against the Spaniards. The Apaches were to rob the Spaniards of their horses, then, on the eve of Holy Friday, each pueblo was to launch its attack to wipe out the whites. This plot, however, was averted.<sup>2</sup>

It is believed that continued raids by the nomadic tribes from the plains to the east caused the abandonment of the Salinas Pueblos. The inhabitants of Quarai, when they abandoned their town, fled to Tajique twelve miles north. They remained there for a short time, but were again forced to flee. The second time they moved south to a location on the Rio Grande, near El Paso, Texas, which later came to be called Isleta del Sur.

Previous to 1934, no scientific work had been done on the Quarai mission. Since May of that year work has been proceeding rapidly, both on the mission and monastery.

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1. A. F. Bandelier, *Final Report of Investigations Among the Indians of the Southwestern United States*, Vol. II, p. 258.

2. Bandelier, *op. cit.*, p. 264.

Through the co-operation of the Department of Agriculture and the United States Forest Service, the excavation and repair of Quarai mission was made possible. The Civilian Conservation Corps provided a crew of twenty men for the labor. Repair work was done for the preservation of the ruin. In some cases lintels were reset to prevent the collapse of walls overhanging the doorways and windows. In no instance were repairs carried beyond the evidences existing for reconstruction. Had the repair been delayed for many more years, the walls of the church would have collapsed.

Excavation was begun at the south entrance of the church, and proceeded north through the nave, transept, and apse. The earth was removed by wheel-barrows. The fill here averaged six feet in depth on the floor. In the fill were several distinct levels. On the flagstone a half-inch of broken gypsum plastering was found. On top of this were three feet of fallen earth and stone. At intervals in this level charred rafters, fallen from the roof, were removed; they were in a poor state of preservation. The top three feet consisted of wind-blown sand, and stone from the walls. Forty-one burials were removed from this fill. These burials had been made since the abandonment of the mission.

Vandals searching for buried treasure had sunk pits through the floor of the church. In the north wall of the apse, a tunnel, five feet wide and four feet high, had been dug. The high altar had been completely destroyed, and also the greater portion of the three steps which lead from the transept to the apse. Due to the fact that nothing remained of the altar, it was not reconstructed. The steps to it remain in the condition in which they were revealed by excavation.

On the interior, not a great deal of repair work had to be done. The loose rock was removed and the facing stone relaid. The floor, on the whole, was found to be in an excellent state of preservation. It was constructed of

dressed sandstone flags averaging 24x18 inches in size. The top surfaces of the flagstones were smoothed. The stones were fitted together and covered the entire interior of the church (see photograph). The central portion of the nave had sagged and warped. These sections were raised or lowered wherever necessary.

On the exterior, a great amount of repair work was necessary. The facing stone that had been removed by natives was replaced. The loose stone and dirt of the core was first removed, and this was followed by replacing the red sandstone, set in mud. The facing was carried out so as to conform to the general appearance of the archaic walls. By this repair work the walls have been given added strength. The walls have been built no higher than they were in the ruined condition. They were capped after the system used by the School of American Research in its masonry wall preservation in the Chaco Canyon.

A window in the west nave was repaired. Its construction is typical of the Spanish colonial architecture of the sixteenth and seventeenth centuries. The sides slope inward so that the exterior dimensions are greater than those of the interior. The base of the window has a slope of six inches to permit the drainage of water to the outside. The lintels were of logs. A second window in the east transept has been left in its ruined condition since no repair work was necessary, and since data concerning its original height were lacking.

The remnants of three steps leading to the high altar were uncovered on the east and south of the apse. Only three feet one inch of the seventeen-foot-long steps were found. The first step at least had a wooden tread upon it, and there is a possibility that the remaining two steps had similar treads. The wood was too badly decayed to be saved.

In the east transept, near the northeast corner, a small altar was found. It was constructed of red sandstone, laid in mud mortar, with the outer surface plastered with

gypsum. This altar differed from the one found in the west transept in that it was only ten inches high in the front and seventeen inches at the rear; it was terraced and reminded one of an Indian rain altar. The altar in the west transept is one foot three inches thick, stands one foot six inches above the floor on both the east and west sides, and is two feet high at the center. Its length is seven feet three inches.

The following measurements pertain to the inside of the mission. The long axis, extending north-south from the entrance to the apse, is 100 feet. The east-west axis through the nave is fifty feet, and its north-south axis is twenty-five feet. The south end of the apse is sixteen feet seven inches wide; the north ten feet two inches wide; and both the east and west sides measure thirteen feet eleven inches.

Adjacent to the east wall of the nave is the confessional. Passing through the east entrance of the transept one enters the sacristy. Entrance to the monastery was through the passage opening at the southeast corner of the church, also through the doorway in east transept, and by means of a second opening to the east, formed by the walls of the rooms numbered 10 and 11 (see ground plan).

The fill from the church to the eastern end of the east hallway had the following stratigraphy. Gypsum plaster, fallen from the walls and ceiling, directly upon the floor. This plaster averaged one-half inch in thickness. Six to eight inches of wind-blown sand covered it in fine layers from 1/16 to 1/8 inch in thickness. The next three feet consisted of stone and dirt mortar fallen from the walls. On top of this was a ten inch layer of sheep and goat dung, interspersed with numerous bones of these animals. Portions of the monastery had apparently been used, at one time as sheep and goat corrals. The upper two and four feet consisted of more debris from fallen walls, and of wind-blown sand.

The excavation of the monastery began at the north-west corner. The doorway forming the entrance to room 1 had been changed twice during the room's occupation. Originally it had been four feet nine inches wide, but was narrowed to an opening two feet eight inches. This was accomplished by building in the north side of the doorway. That this had been done during the occupation of the mission was revealed by the gypsum plastering on the section rebuilt. The smaller entrance was roughly sealed during a much later occupation; this was probably done by shepherders. This later sealing did not extend to the original floor level.

The westernmost portion of this room 1 is terraced to a level three feet higher than that of the eastern portion. The terrace is walled up and is flushed with the first offset of the church wall. The floor of this higher portion consisted of packed sand. In the northeast corner of room 1, a three inch fill of wood and ash were found. Imbedded in this deposit three celts and a ring, all of wrought iron, were found as shown in the photograph (A) on back cover.

Room two probably served as living quarters for the resident priest. It has a flagstone floor, similar to that in the church. In it was found an altar, built of sandstone and covered over with gypsum plastering. The altar was built against the north walls. Along the north and east walls of the room, sandstone slabs were set on end into the walls to form a base-board. Two distinct floors showed that this room had two occupations.

In the sacristy—room 3—the small pottery wine cup shown on the front cover was found. This wine cup, which was of brown color, seems probably to have been of Indian manufacture. A few pot-sherds of Indian manufacture and of post-Spanish date—of the so-called Glaze VI type—were found on the flagstone floor of the confessional, room 5. On the plaster of room 6, a fragment of fresco remained. It consisted merely of a band of

orange color between two narrow black lines. Room 8, a storage room, contained several post-Spanish sherds of Indian manufacture. In the southwest corner of this room, on the floor of the bin was found about two-thirds of a porcelain bowl, the only pottery find of Spanish origin (front cover). The bowl is about  $\frac{3}{8}$  inch thick and is decorated on the inside with a blue flower of yellow stamens.

The reception room, number 7, is located east of the vestibule, and south and west of the patio. Entrance to it is gained from the south hall of the patio. The doorway is directly in the center of the north of the room. The floor of dressed flagstone is in a good state of preservation, and the flags have remained fairly level. A bench, a little more than a foot in height, was built against the east, north, and west walls of this room. The bench was constructed at the time of the original building of the room, and was plastered. At some later date, two pillars were constructed in the west and east corner, at the south side, directly over the bench. Mortises were provided, and in the southwest corner, on the floor against the bench, a portion of the footrest of wood remains intact. It is probable that these logs extended around the four sides, both on the floor and on the bench. This seems to be the only plausible explanation for the mortises. That the pillars were built secondarily is shown by the one-quarter inch of gypsum plaster between the pillars and the west and east walls.

A hallway with packed sand floor surrounds the patio, and provides entrance to all rooms of the monastery. The average width of the hall is seven feet four inches. From the hall on the east side, a doorway leads into a second hallway which extends north-south and gives entrance to the dormitories, kitchen, refectory, and storage room. On the north, the patio hall opens into room 9, and into the church through the sacristy. On the west there is an en-

A



B



A. Spanish-type Fireplace in Kitchen at Quarai  
B. Section of Floor of Church Showing Stone Flagging



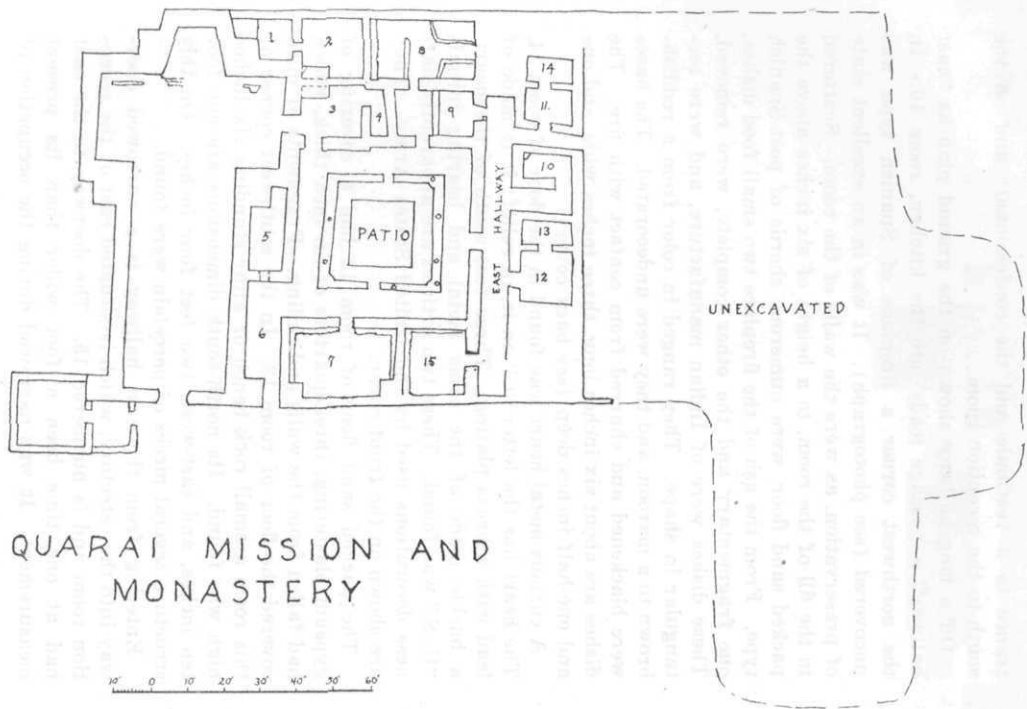
trance to a vestibule and the confessional; and on the south to the reception room.

Off a long hallway shown on the ground plan as "east hallway" a passage leads into the kitchen, room 10. In the northwest corner a fireplace of Spanish type was uncovered (see photograph). It was in an excellent state of preservation, as were the walls of the room. Scattered in the fill of the room, to a height of six inches above the packed sand floor, were numerous sherds of post-Spanish type. From the ash of the fireplace two small food dishes, one fragmentary and the other complete, were removed. These dishes were of Indian manufacture, and were rectangular in shape. They ranged in color from a reddish-brown to a maroon, and they were undecorated. The bases were blackened and charred from contact with fire. The dishes are about six inches long, three inches wide, and one and one-half inches deep (see back cover).

A curious metal heart was found in the floor of room 14. The heart has the letter "C" on it, in relief; it is made of lead with a brass plating. Three feet south of the heart, a buckle made of the same metal and bearing initials "U. S." was found. These two articles are apparently harness decorations used by the United States Army. They are shown on the front cover.

The packed sand floor of room 12 had a covering of gypsum plastering, three-quarters of an inch thick, which had fallen from the walls and ceiling. Fragments of mica covered the floor of room 13. In the southwest corner of this room a small rock bench or altar standing six inches high was found. Its north-south dimensions are one foot ten inches, and east-west, two feet four inches. On this structure several pieces of porcelain were found.

Entering from the east hallway is a narrowed doorway into the refectory, which is situated east of the reception room and is numbered 15. The doorway to the east had at one time been a foot wider than its present measurement. It was narrowed during the occupation of



# QUARAI MISSION AND MONASTERY

the mission. The north side of the doorway slopes toward the interior. This sloping of one side of the doorway was probably to provide a larger opening when the wooden door was swung open. In the southeast corner of this room a fireplace was constructed of two slabs of red sandstone set into the floor and rising above it. A hole in the roof probably existed for the smoke. The slabs rose about four inches above the floor. These stones form the north and west sides of the pit, while the other two walls are formed by the walls of the room. The east-west measurement of the firepit is two feet four inches, and the north-south, two feet eleven inches. The average thickness of the slabs is two and one-half inches. Along the west wall of the room there is a bench, standing two feet three inches high and having a thickness of seventeen inches. It was constructed on top of the floor and was plastered with gypsum.

At Quarai, the baptistry is formed by the two rooms that adjoin the southwest exterior of the church, while at Gran Quivira it is built into the north wall of the church, at its east end, and is entered through the nave wall.

Summary: Excavation has resulted in complete removal of the fill from the interior of the church, and in removal of debris from the entire north side of the mission and from the west and south sides of the church. Seventeen rooms of the monastery, its patio, and two hallways, have been completely excavated. Forming the baptistry, two of the rooms adjoin the west portion of the south facade of the church. One of these rooms, with the walls built up and roofed, serves for the time being as living quarters for those in charge of the work. Later repair work on the church consisted of replacing stone facings which were removed by natives; inserting lintels over the west window and south and east doorways to support the overhanging walls; and repairing of the walls, the latter including the construction of a crude buttress to prevent the collapse of the east wall of the transept.

It is probable that the entire interior of the mission during its occupation was completely covered with gypsum plastering. Portions of it must have had frescoes. No great amount of refacing the walls of the monastery was necessary and, on the whole, the walls were found to be in a good state of preservation. Only the replacement of the weathered out stones was needed in the repair of the walls.

In the cottonwood grove, 150 yards south of the church, recreational facilities have been provided by the United States Forest Service, for the convenience of people who may desire to study the ruin. The facilities consist of four rock fire-places, the interiors of which are lined with fire-bricks; four tables, to complete the set; two garbage pits, each located to serve two sets conveniently. Two toilets were also constructed.

The area surrounding the sets has been graded and cleared of all man-made debris. The cottonwood trees were trimmed and pruned. Walls of the spring have been built up with sandstone rock, in keeping with the general landscaping, and a cover to keep dirt from collecting within it will be provided.

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## PALEONTOLOGY

### *New Montana Fossils.*

PLACE—a Montana swamp. Characters—little insect-eating creatures resembling shrews and hedgehogs. This is the important new scene in man's remote evolutionary past revealed by an expedition of the American Museum of Natural History, reports *Science Service*. Dr. Gaylord Simpson, leader of the expedition, said the new evidence sheds light on a crucial point in the evolutionary sequence. "The new Montana fossils," he said, "tend to show that the immediate predecessors of the primate group of mammals from which monkeys, lemurs and man descended, were small insect-eating creatures, whose mod-

ern counterparts are shrews and hedgehogs." Remains of these earliest known primates are among the 1,500 specimens brought back by the expedition. No complete skeletons were found, though some may exist. The area explored, about thirty miles from Harlowtown, Montana, is the richest quarry in the world for fossils of the period, Dr. Simpson said. The fossils were found in what was once a swamp. They lay buried from one to twelve feet deep, though they were once more deeply covered. It will take over two years to examine fully and classify the seventy-five species of mammals obtained by the excavations. Some thirty new species, including six kinds of early primates, are included in the lot, and it is expected that scientific study will throw light on the relationships and early appearance of modern forms of animal life. Dr. Simpson was assisted by Albert Silberling, amateur fossil hunter who discovered the fossil fields.

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## ANCIENT ORIENT

### *Discoveries at Tepe Gawra.*

A SMALL gaming cube found buried six cities deep in the mound where Tepe Garwra stood, in the Tigres Valley, is pronounced by Dr. E. A. Speiser, of the University Museum, Philadelphia, as evidence that Tepe Gawra traded with the city of Mohenjo-daro, India, 1,500 miles to the southwest, says *Science Service*. In his report of his discoveries, Dr. Speiser shows that dice used in Tepe Gawra were significantly almost exactly like those from the Indian city. The points on opposite sides do not regularly total seven, as in modern dice. Instead, two is opposite three, four opposite five, and six opposite one. A toy four-wheel covered wagon of terra cotta, drawn by a terra cotta animal, is another humble article of that ancient day that now serves to prove international relationships. The toy wagon was a kind not seen on streets of Tepe Gawra at that period, but resembled foreign hooded chariots beyond

the distant Caucasus and the Caspian Sea. Religious figurines of a mother goddess show that Tepe Gawra was in touch with Asia Minor and the Aegean civilizations when Troy was beginning to rise to importance. From objects unearthed in Tepe Gawra's ruins, Dr. Speiser finds proofs that the city's flourishing network of trade also included cities of Babylonia to the south, Persia and the Island of Cyprus.

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## CONVENTIONS AND CONGRESSES

### *Pan-American Institute of Geography.*

**F**OUR nations only—the Federation of the Americas, the Republic of Africa, the Dominion of Europe and the United States of Asia—may well be the names of the ultimate political make-up of the world of the future, says *Science Service*. How present signs point to geographic alliances as more successful than racial bonds, was stressed by Dr. Luis Sánchez Pontón, of Mexico, speaking before the Pan American Institute of Geography and History, at Washington, D. C. The mingling of races in the United States, unified by the land they live in, was cited by Dr. Sánchez as an example of successful experiment. Furthermore, as neighbors on the great continent, Spanish-America and Anglo-Saxon America have found the geographic factor a bond that strengthens co-operation. No bright future for such programs as Pan-Islamism, Pan-Germanism, and Pan-Slavism is seen by Dr. Sánchez. These doctrines, he said, are based on racial unity without regard for the question of geographic unity. "Recent history," he added, "indicates that these movements have not been successful." The present trend toward a world organized by continents is traced to an origin in the industrial revolution. Since then trade and manufacture have bulked large in national friendships and alliances. "Political frontiers are losing their significance to economic fron-

tiers," stated Dr. Sánchez. "Competition in international markets is beginning to be displaced from the nation toward the continent. The future of the world lies in the growth of understanding and co-operation between continents. Politics will not be international but inter-continental. If some day a world federation should come to be realized, it will be due to this concentration of national interests which is due to the geographic factor."

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## AMERICAN INDIAN

### *Curious Customs of Caribs.*

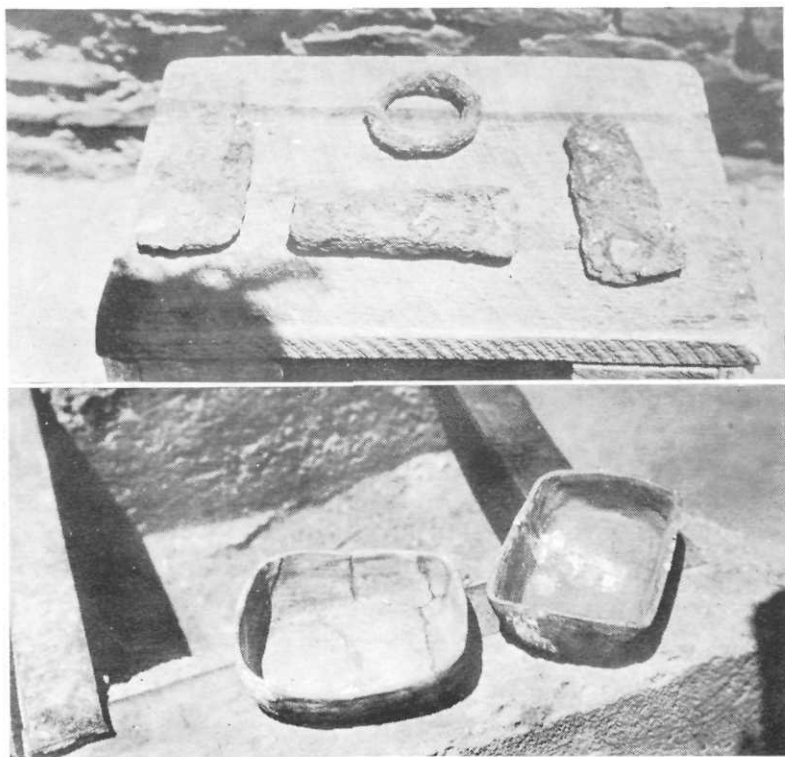
**T**RIO Indians, whose captive the missing aviator, Paul Redfern, is reported to be, are a tribe that has so far escaped first-hand scientific study. They are known vaguely as one of the tribes of fierce Carib Indian stock. Living far in the tropical forest of Dutch Guiana or near its southern border, they are presumed to use food and other materials similar to neighbor tribes. But so far as their beliefs and their customs go, these may be distinctive in many ways. There are some real cannibals in isolated parts of this jungle world, says an ethnologist of the U. S. National Museum. Poisoning is something of an art. Poisoned arrows and poisoned drinks are real dangers of life there. Typical Indians of the region live in thatched homes, depend heavily on cassava root for "bread." Men eat together, apart from their women folk, says *Science Service*. Curious customs have been reported by those who have studied some of these jungle tribes. At the U. S. National Museum is a pair of extraordinary marriage bracelets brought back from the region in 1858 by naval officers. By daring to wear these, a young Indian would prove his worthiness for marriage. The wristlets look harmless enough, but before the aspiring bridegroom put them on, they were filled with stinging ants of a most vicious kind. Bravely wearing them, the suitor

would dance from one end of the village to the other, pausing before each house. If he did not flinch in this grim dance, he was "approved," and presumably he and the bride lived happily ever after. Between the Indians supposed to be holding Redfern captive, and civilization are remarkable natives of a different sort. These are Djukas or Bush negroes. Transplanted from Africa to Guiana in slave trading days, these Negroes escaped and buried themselves in the jungle. There they live more or less African lives on American soil—a fascinating problem for students of human culture. A scientific expedition which succeeded in studying the Bush Negroes a few years back, found them still decorating benches, combs, and other possessions with art that suggests old Africa. They send long-distance messages by African drum telegraph, and follow witch-doctor practices. Reports of the white man captive among the Indians in this South American region say that Bush Negroes and Trio Indians are notably hostile to one another, and that these formidable one-time Africans would have served as an effective barrier to his escape by overland travel. Even if Trio Indians were willing to bring a white man out of their country, it is pointed out, they would not run the gauntlet of their enemies.





Quarai Mission, Showing Repair Work in Progress Last Year



Iron Ring, Celts and Pottery Bowls Found at Quarai