

shown by the engineering as well as the architectural skill manifested in its erection. It is so arranged that every point on the face commands a direct view of the one avenue of approach. Furthermore, the front wall is relieved by round and square towers, provided with portholes, in addition to the open windows. Then a tower, erected on the north side of the gorge, about a hundred yards from the large building, commands a view of a portion of the main canyon, and is provided with portholes, doubtless to enable the watchers to warn the inhabitants of the main building, of the approach of a foe.

The mason work is very skillful. In erectness of wall, squareness of corners, regularity of outlines, and smoothness of pointing, the work compares favorably with our modern stone masonry. This skill is most apparent in the circular architecture. The circles are perfectly regular, and in some instances squares are so inserted in the circles as to show some acquaintance with geometrical principles. In passing, the remarkable fact may be mentioned that the walls of nearly all the circular apartments are blackened with smoke, while in one of them is what appears to be an altar, with a basin below it, as if to catch the blood of the sacrificial victim.

It is impossible to tell how many rooms or stories there were in the building originally. This is due to the fact that the upper portion of the house has fallen down, and the tons of debris have not only formed a huge landslide into the gorge, but have done much toward filling up the lower part of the building. Even in the present dilapidated condition of the ruin, 112 rooms have been discovered and explored, and it does not require a stretch of the imagination to believe that the edifice must have consisted originally of fully 600 rooms. Every available cubic foot under the great arch has been utilized in the building. The crumbling of the main walls has left exposed a few pieces of rude masonry, high up in the back roof of the cave; and in the small rooms thus formed, buzzards and other scavenging birds of prey find a refuge. These places can be reached only by means of long ladders.

The stone walls were braced and strengthened with cedar poles, willow withes, and cedar bark. The poles have been cut off with rude stone axes, and may have served as joists between the different stories. There is no sawn timber in the building, so far as explored. Windows and portholes look out of the front wall down the canyon, but all the entrances must have been situated near the bottom of the wall and they were all, doubtless, very small. Lintels are formed of long blocks of stone. No doubt ladders were used to ascend and descend from one story to another, as there are no signs of permanent stairs.

Some of the rooms were plastered inside with a kind of terra cotta, and portions of this smooth surface have been painted in red, yellow, or black. The most characteristic painting represents, quite skillfully, three pyramids on a level plain, very closely resembling our pictures of the pyramids of Egypt. Just above this is a perfect rectangle, traversed with zigzag lines. It is impossible at present to tell what the latter figure represents. Both of these paintings are in bright red.

Apparently the dead were buried in a large chamber in the extreme rear of the building. Here have been found the perfectly dried and preserved mummies of persons of both sexes, one woman having red hair. Large pieces of pottery, skillfully moulded and burned, stone axes and grinding mills, and other rude utensils, have also been found. Unfortunately, relic hunters "for rev-

enue only," have been at the ruins, digging for mummies and pottery and destroying more of the walls in a few years than the elements would have destroyed in as many centuries. Nor has any study been made of the relative positions of the relics found, in order to discover the historical lesson such relationships would teach.

The position occupied by this structure, is apparently impregnable to any force, no matter how large. This is due to the fact that no more than one man can approach the building at a time, and he only by dint of climbing with both hands and both feet. Approaching in such a way, a whole army could be vanquished by a few men. From this fact it will be seen how great was the labor required to collect the large mass of building material used in the construction of the "palace." I could see no sandstone of the kind in the immediate vicinity, although it is possible that it was found in the bottom of the gorge. But nearly all the rock in the vicinity is partly igneous, having been in such heat as to melt the almost pure iron out of. If all the rock was carried up that difficult trail, and there hewn into shape and laid in mud, the water for which was doubtless carried a long distance, the task must have been herculean. To judge of its magnitude, one needs only to think of a building 350 feet long, 100 feet wide, and 300 feet high, divided by stone partitions into rooms, some of them scarcely eight feet square. Even the broken debris almost forms a mountain of itself.

Research in this ruin has not been thorough or systematic. I am quite sure that if systematic excavating were carried on under the direction of a competent leader, much would be found in the way of mummies, pottery, variously shaped rooms, and, possibly, records, which would be of vast interest to the archeologist. Another advantage would be found in the keeping of the outer and partition walls, and the rooms, entrances, windows, etc., in as nearly as possible their present state of preservation.

All the other cliff dwellings in the canyon sink into insignificance when compared with this. While they are more difficult of access, they are much smaller and less characteristic. But one fact is remarkable in the case of all of them; that the rock of which they are built is different in color and apparently in composition, from any in the immediate vicinity. For this reason they can be readily distinguished at a distance of from half to three-fourths of a mile. The carrying of the rock so great a distance can doubtless be accounted for by the difficulty of quarrying into the vast cliffs of aqueous and igneous rock of which the mountains are composed.

This paper would appear incomplete without a statement of a theory to account for these gigantic buildings in such inaccessible places. In the first place, one point appears perfectly clear, that those who occupied the buildings must have been at deadly feud with some other party. Surely men could have no other reason for living in such a barren, desolate region. The inaccessible, impregnable nature of their buildings and fortifications would also point to the fact that enmity with their fellow men was, no doubt, their impelling motive in seeking such a habitation. It seems unlikely that any settled class of people, following any line of productive employment, would seek such a place, even when fleeing from a deadly foe. Therefore, the idea that they were one faction of the aborigines of our land seeking temporary refuge and protection from another, should in my opinion be abandoned.

As to my own theory, I will say that it has developed from my visit to the place. Before going there I had an

idea that the ruins were in a place easily accessible and in one of the natural highways of the country. In that case it would be the probable natural stopping place, temporarily, of one people fleeing from another. But it is inconceivable that under such conditions men would establish themselves in a place from which egress would be so difficult in case flight should become necessary. But a view of the region, and a contemplation of the nature of the buildings, led me to the opinion that the place was inhabited by a band of outlaws, who may have lived there for generations, and preyed on the inhabitants of the fertile valleys around. It would be practically impossible, as already stated, for an army of less desperate men to effect their capture in such a stronghold. Of course, it might be possible for a state of siege to be maintained, but outlaws, thoroughly familiar with the country they occupy, are generally fertile of resource, as witness our own enterprising friends who occupied the "robber's roost." It would be a comparatively easy matter for them to make occasional sallies into the regions around, and supply themselves in a few hours with enough to support them for weeks. In the winter, the snow would furnish them an abundance of water, and no doubt in the spring and autumn the torrent bed was full of water. Cisterns within the walls of their buildings could be provided and filled with water to tide over the period of scarcity.

Furthermore, robbers are always fearful of attack. That this was the case with the inhabitants of the "cliff palace," is apparent from the above description of their many means of alarm and defense. And when we take into account the further fact that it is natural for outlaws, and not for law-abiding people, to occupy the most barren, inaccessible and forbidding regions, we have strong arguments in support of the theory herein advanced.

How old the buildings are, cannot even be conjectured. That they were erected when the inhabitants of the country were in a state of comparative civilization, is apparent from the skill shown in construction. We need not hesitate in pronouncing them old, notwithstanding their comparative state of preservation; for as before stated, they are measurably safe from the elements. They have been, no doubt, safe from man's vandalism, also, for notwithstanding the fact that white people have lived in that region for some twenty years, and the Indians for a much longer period, the ruin was discovered, entirely by accident, only seven or eight years ago. Whether the buildings belong to a period as far back as the Nephites, it is difficult to say, although the theory has been advanced that these canyons were formerly the stronghold of the Gadlanton Robbers.

But, whatever the true theory as to the ruins, they are still there to attract the attention and arouse the wonder of the visitor. They will fully repay one for all the trouble and expense incident to a visit.

Our little cistern of water was very convenient on our return, and we were able to reach our horses at 6 p.m., in a fair condition. After a three-mile ride up Mancos canyon, we camped for the night. To complete our happiness, a rainstorm occurred during the night, completely drenching us. But it had its compensation in the fact that it furnished plenty of water for us, which we found collected in hollows on the tops of rocks, on our way up the canyon. We reached Mancos at 11 a.m. Tuesday, thirty-six hours from the time of leaving.

WILLARD DONE.