

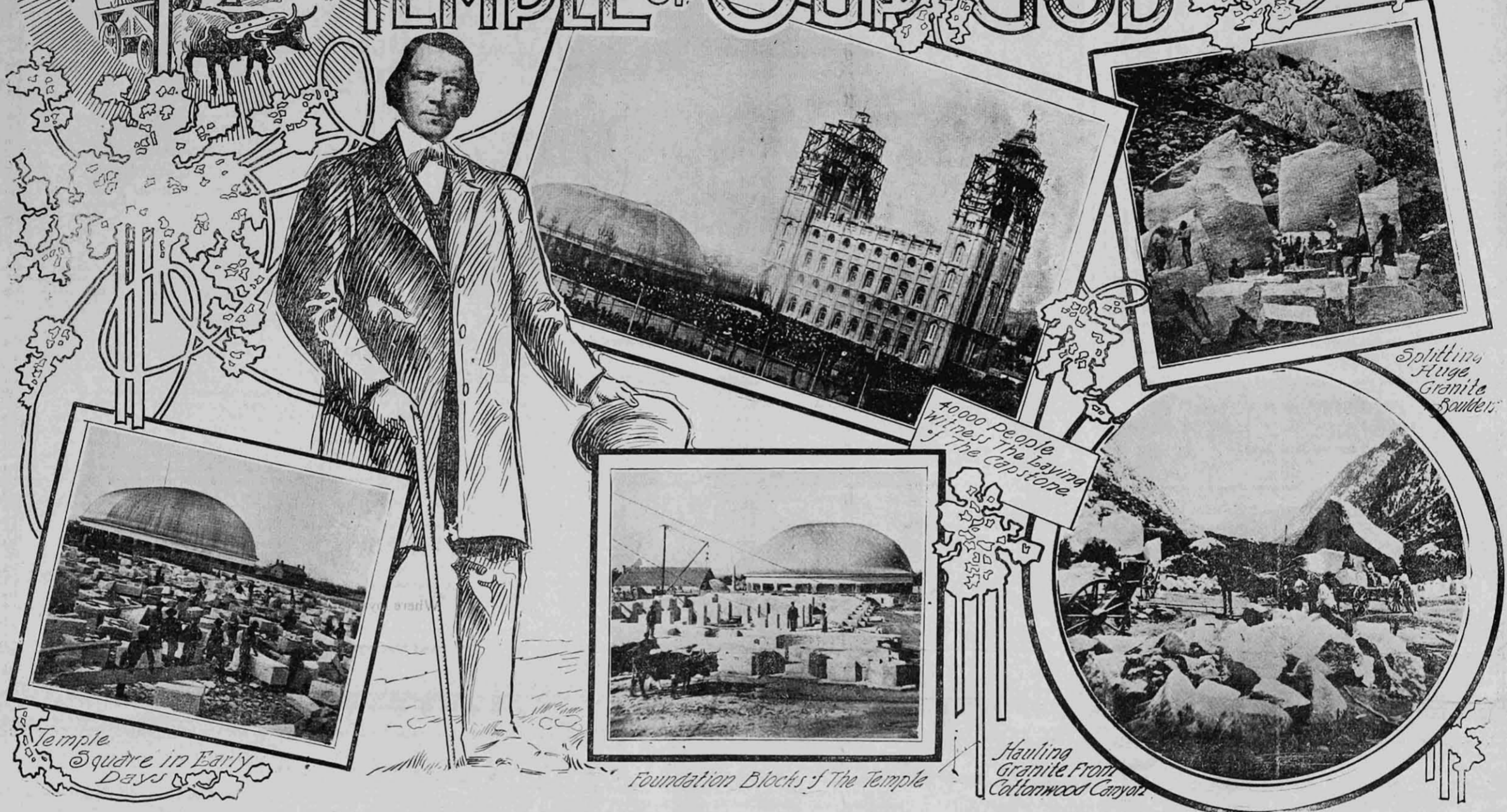
The Christmas News

How Salt Lake Temple Was Built

GRANITE QUARRIED WITHOUT BLASTING

Dec. 18 1909

“HERE WE WILL BUILD THE TEMPLE OF OUR GOD”



THE history of mankind contains few enterprises of moment that have called for or received greater exhibitions of self-sacrificing devotion and ceaseless toil than did the building of the Salt Lake temple. Conceived in the mind of the great founder of this commonwealth when first the pioneers trod the desolate sagebrush plains surrounding the shores of the inland lake the task of carrying the work through to final completion was accomplished in the midst of poverty the most dire and over obstacles the most formidable.

Actual work on the structure began in 1852; it was completed in 1893—its construction covering a period of just forty years, and its cost, in money and labor was not less than \$4,000,000. The building of this temple was one of the objects of the people in coming to this country. To erect a temple to their God in the great western wilderness was one of the prime purposes of the sacrifices which were so patiently borne by that people in crossing the great desert and pitching their tents upon this then barren soil.

Four days after the arrival of the pioneers in this valley, on July 28, 1847, President Brigham Young, while walking over the ground with his associates, suddenly stopped, and striking the point of his cane into the soil, exclaimed, "Here we will build the temple of our God." One of his companions, the late President Willford Woodruff, drove a small stake into the hole made by President Young's cane, and later, when the ground for the building was surveyed, the stake was in the center of the plot laid out as the spot on which the temple should be reared.

At the general conference held in April, 1851, the formal proposition to build the temple was made to the people, which was unanimously adopted. Nearly two years later, on Feb. 14, 1853, the site for the structure was surveyed, the block was solemnly dedicated and ground was broken for the foundation of the temple.

QUARRY'S BEGINNINGS.

It was about this time that active operations began in securing the stone of which the structure was to be built. To the southeast of the then diminutive settlement, a distance of about 20 miles, at the mouth of Little Cottonwood canyon, a mountain of hard gray stone had been discovered and after tests had been made it was decided that the temple should be built of Little Cottonwood granite.

The stone lay bare to the sight. It was a veritable mountain of solid granite. There seemed to be no end to the reaches of the flinty material, and before the building was completed the boulders from the main body of the mountain of rock had been gathered for a distance of three miles up the canyon from its mouth, so that it was not necessary, during the whole time of construction of the building, in securing the enormous mass of material required for its completion, to use a pound of powder in blasting stone out of the mountain. There was enough in the blocks which had broken off the main ledges

and lay in boulders often times as large as a two story residence, waiting for the wedges and hammers of the quarrymen, to complete the magnificent structure from foundation to capstone.

TRANSPORTATION PROBLEMS.

After the decision had been made to build the temple of this granite, the all important question was how to transport the material from the quarry to the temple grounds, a distance of 20 miles. As may well be imagined, the facilities for moving the heavy materials such a distance were not very plentiful in those days. The settlement was only six years old; horses and even oxen were very few, and what numbers there were had to be employed most of the time in the preparation and harvesting of crops necessary to the sustenance of the struggling people. The population of the city had reached perhaps 5,000 souls, and the portion of the community physically able to cope with the hardships of quarrying stone under the difficulties of the time, and who could be spared from the compelling avocations of earning a living for themselves and their destitute families, formed not so large a proportion as might have been desired. But the call made by Brigham Young for men to take the initiative in securing the material for the sacred building did not go unheeded, and hundreds of willing laborers responded, with such implements for the quarrying of rock as might be had, and with such teams—mostly of oxen—as could be spared for the work at the time.

The almost insuperable obstacles which had to be overcome in getting this granite from the mountains to the city began to accumulate. The roads were at times absolutely impassable, and had to be built and rebuilt in order to stand the weight of the wagons bearing the heavy material day after day. In wet weather the road section became paramount, and on account of mudholes and sinkholes progress in hauling rock was very much delayed. The 20 miles to be traversed embraced all sorts of topography from the level plain to the high hill and deep ravine; growths of thick underbrush were encountered and boulders were dug out of the way and mountain points encircled and streams bridged and forded in spanning the distance between quarry and town. The oxen were often old and decrepit; the horses, what few there were, in the same condition; the loads were invariably heavy, and many of the blocks of granite were so large that four yoke of oxen were required to haul each one to town, the time in transit on such occasions often being not less than four days!

CONSTRUCTION OF CANAL.

For a number of years the work went on in this manner. But the process of hauling the rock from the mountain to the city was so slow and withal so expensive, that other means were sought as a solution of the problem, and it was then that President Young began the construction of a canal, through which it was planned to float boats bearing the stone blocks from the canyon to the temple site in the city. This canal was patterned after the celebrated Erie canal, which traverses the state of New York and connects the city of Albany on the Hudson, with Buffalo and the lake on the west. And there is no doubt but for the intervention of several untoward

conditions which at the time were not to be avoided, and the eventual building of a railroad to the mouth of Little Cottonwood canyon, the canal scheme would have materialized for the purpose for which it was intended, bringing to Salt Lake City many other benefits in the way of water rights, other than the immediate benefit of quicker and cheaper transportation for the stone blocks for the temple.

About two years of labor and many thousand dollars' worth of toll were expended in building this canal. It was actually constructed from beyond the mouth of Big Cottonwood on the south, to a point on the flat east of the old tower in the northeastern part of the city; and water was turned into its length two or three times but as far as the best recollection of those who took part in the building of that remarkable waterway extends no boat was ever laden with stone for transportation from mountain to city.

ELEMENTARY TOOLS USED.

The canal was of ample size and capacity for the purpose for which it was designed. On the level its depth was an average of four feet. It was 20 feet wide at the bottom, and grew gradually wider as it sloped to the top, according to the nature of the soil through which it passed. The greatest difficulties encountered in building the canal were those of the cuts and fills necessary to be made owing to the rolling nature of the country through which it passed and the crude implements with which the men were compelled to do the excavating. There were no scrapers to be had, and very few shovels, and the team work being mostly done by oxen, the progress made was very slow. The plowing was done by teams, and the excavating was done by men with spades. But finally, about the year 1857, the canal was completed to a point some distance beyond the mouth of Big Cottonwood canyon, past Parley's canyon to Canyon creek, and from Emigration to the flat near the present city cemetery, and as stated, water was turned in once or twice. No stone was ever carried through it, however, for various reasons, some of which may be enumerated.

When the water was turned into the canal it was noticed that when it reached the point on the side of the mountain round which it passed at Parley's canyon, the soil was of such a nature that the fluid sank nearly as rapidly as it entered. The bed of the ditch was of loam, and the water percolated through it as if it had been a sieve. Either the builders of the canal did not have the time, or did not think of the plan of fluming the ditch over this stretch of porous soil. At any rate it was not done, and the water seeping down as it did in quantity from the hillside, threatened with destruction the newly established woollen mill a short distance below. The mill had been built and a considerable amount of machinery installed at a great expense, and the young industry of making woollen cloth was just budding in its infancy. And the prospect of the annihilation of this promising plant was one not to be considered by the leaders or by the people, and this had its effect in the final abandonment of the canal.

Another, and perhaps the greatest reason for its abandonment was the approach of the Johnston army. It was in the year 1857, and it was known

that the army was en route to Utah, with the object of suppressing a supposed rebellion, and on the advice of President Young the people were preparing to abandon their homes and make their way southward. Work on all improvement projects was suspended, and when after returning to the city and taking up their usual avocations once more, the old project was not again taken up.

SECOND CANAL DUG.

It seems, however, that the canal idea for transporting the rock was not entirely abandoned when it was found impracticable to utilize the first channel dug. One authority gives it that a second canal was started, and was finally put in use for conveying the waters of the Jordan river to the city, for irrigation and other purposes, and that this canal is still in use for this purpose. The second water channel was some distance below the location of the first one, and included in the plans for its construction the building of locks at Mill Creek for raising and lowering the boats containing the stone from the level of one side of the creek to the other.

The second ditch was commenced, it would seem, about seven years after the first canal was abandoned, or about 1864. It was planned to construct tow paths along the banks of this canal, so that horses could pull the heavily laden boats from the quarry to the city. It was this second water enterprise, it would seem, that was interrupted and abandoned by the arrival of the railroad at Little Cottonwood canyon.

The work of taking the stone from the Little Cottonwood quarry, as well as all other public work, was done under the direction of a superintendent of public works, who was appointed and sustained by the people in their general conferences. At the time of the beginning of the work on the temple, Gen. Daniel H. Wells was superintendent of public works, and John Sharp was his assistant. It was under the superintendency of John Sharp that the work of quarrying the granite was done.

THOSE IDENTIFIED WITH WORK.

Under Mr. Sharp at the quarry, James C. Livingston was the foreman, in immediate charge of the splitting, loading and hauling of the stone. Mr. Livingston began when the work at the quarry began, and he was still its superintendent or foreman when the last granite blocks were taken from the mountain for the completion of the temple. Mr. Livingston died late in October of the present year, 1909, at his home in Fountain Green, Sanpete county, where he removed with his family after the great temple had been completed. He was loved and respected by his workmen, by his family, and by all who knew him, and the monument to his memory as the superintendent of the quarry from whence came the stone for the building of that noble pile, the Salt Lake temple, will endure as long as the ages last.

Acting as clerk for the quarry, and as assistant to Foreman Livingston, Robert Morris, now bishop of the Eleventh ward in this city and a member of the firm of Rowe, Morris, Summerhays company, was for a number of years engaged. Bishop Morris recalls vividly the scenes of those notable days, when the motley group, at

times, assembled at the quarries for the work of loading stone. It was rough work, requiring the physical strength of a giant, because of the absence of lifting facilities so common in rock quarries at the present day.

BISHOP MORRIS REMINISCENT.

"It seems as if it were yesterday," said Bishop Morris, when asked for some of his reminiscences of the days of the quarry. "Though the years have swiftly sped, the memory of those stirring days is strong upon me, and I live over again the trying days when men, teams, implements, food—everything was scarce, and the accomplishment of any object required determined and strong effort."

"The work of getting out the rock for the temple was no exception to this general rule. It was rough, hard work, and only men of the most hardy constitution and make-up could stand it. We had no derricks in those days, and all lifting was performed done by hand, with the assistance of levers made from maple sticks and other stout wood picked up in the canyon."

"There was no blasting of rock. We had no powder, in the first place, and it was not necessary in the second. There were boulders lying at the foot of the mountain sufficient, it seemed to me, to build any structure needed. The rock was split with slips and wedges. First holes were drilled in a line across the face or side of a boulder, according as it was desired to split it, and then the slips were entered and then the wedges, and by tapping the wedges one after another sufficient pressure was soon gained to split the biggest rock. The holes were drilled about seven inches apart in a line and six inches deep clear up over the boulder, and it would not be long before the rock would fall apart in response to the pressure of the wedges. Some of these boulders were as large as a two-story house, and they were split and split again, until the chunks were as near the size required as could be."

EVERY STONE MARKED.

"We had a diagram, drawn by the architect, Truman O. Angell, for every stone and every course of stone to be placed in the temple, and we worked according to this plan. Every block as it was located was marked and numbered, so that when it arrived on the temple ground it could be put in place without difficulty. All the stone for the temple was secured within a distance of three miles from the mouth of Little Cottonwood canyon; there were unlimited quantities of it. The quarry was never discovered, it was there, and anyone could see it as he passed. The people knew it was there, the leaders knew it, all they had to do was to go and get it, and that it was done."

"The process of loading the wagons was an interesting one. As we had no mechanical lifting apparatus, the large blocks had to be got on to the vehicles as best they could, and it became a serious question. Finally, however, the plan was adopted of digging out a trench large enough for a wagon to pass through, so that the bed of the wagon would come even with the ground where the rock was lying, and then with a lot of men with lever stakes and skids and rollers the stone

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