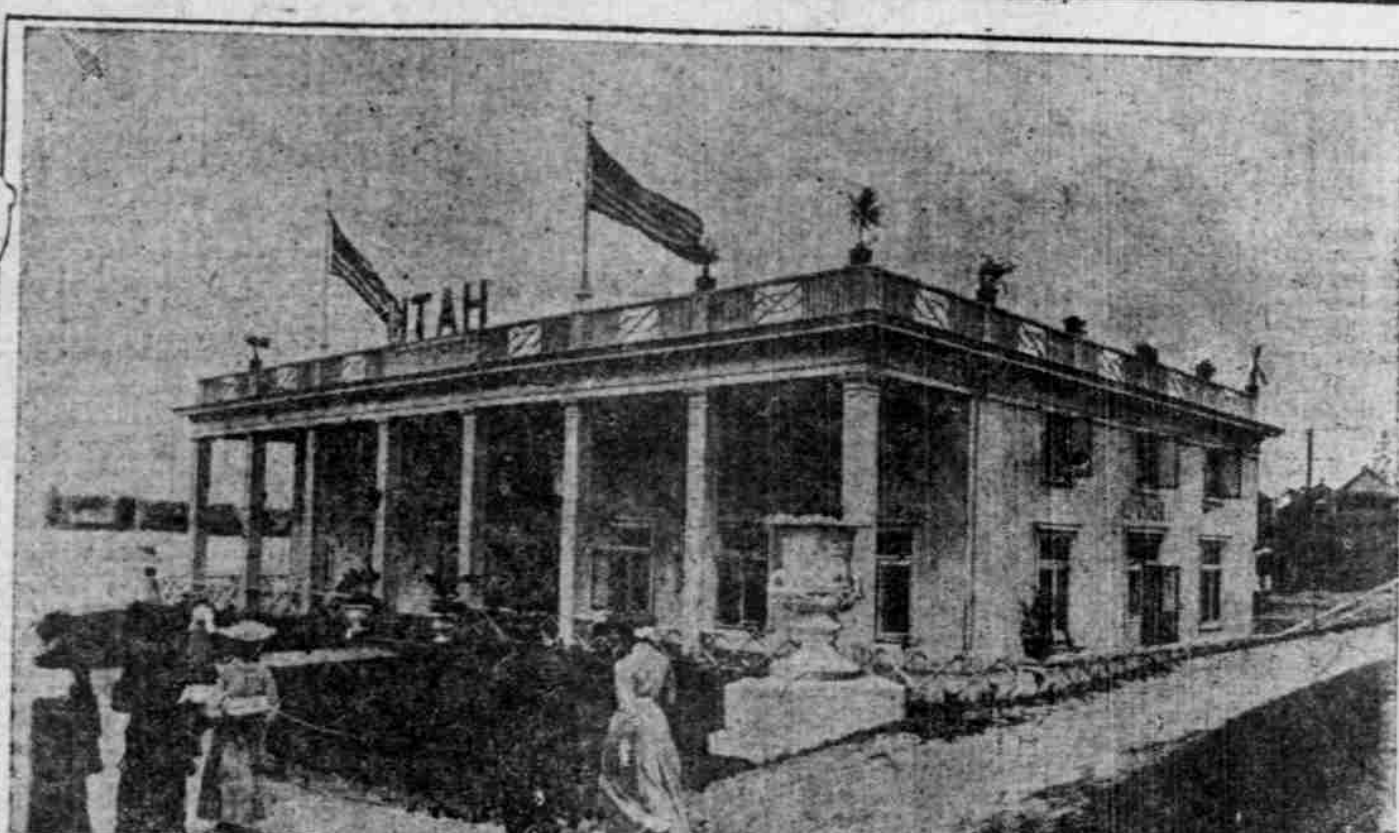


# UTAH MAKES DISPLAY OF MINERAL WEALTH

Young State Shows Ores and Variety of Rich Products in Attractive Building.



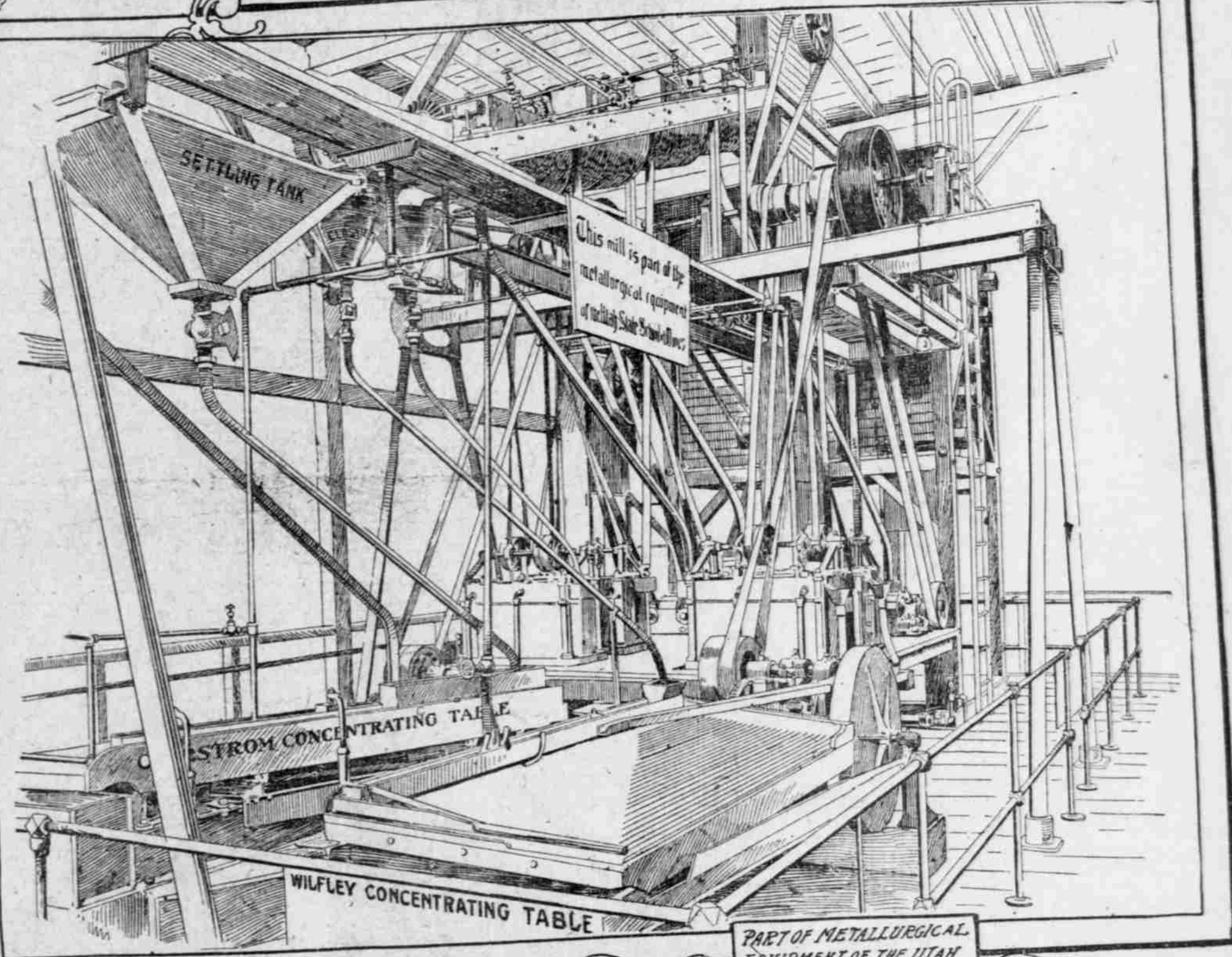
VIEW OF  
UTAH BUILDING

water nearly 200,000 acres of desert land. This reproduction is exact in every detail and was installed at considerable cost. It shows how the canyon of the river will look after the dam has been constructed and the huge lake formed. From the body of water, formed by the obstruction across the canyon, the water is raised until it is high enough to be directed by canals and ditches. Water runs down the river and through the ditches and laterals, and by the means of head-gates, orchards and fields are flooded, showing all the different phases of irrigation.

## BEES AS MESSENGERS.

Experiment Showing How Sense of Duty May Be Utilized.

St. Nicholas.  
A very curious and interesting investigation has been going on for some time past among naturalists with regard to the sense of the lower animals. It has been found that in most cases these are very different from ours, and it cannot any longer be denied that instances occur in which special senses that are not possessed by human beings are developed in animals. One of these, called "the sense of direction," enables bees to return from



PART OF METALLURGICAL  
EQUIPMENT OF THE UTAH  
STATE SCHOOL OF MINES.

UTAH is not behind her sister states represented at the Lewis and Clark Exposition, and has a building and an exhibit that merit the distinction that has been accorded since the building was opened to the public. The Utah structure stands out prominently in the group of state buildings. It is situated on the east end of the Lake-view Terrace.

It is a big two-story structure, colonial in style, with large and airy rooms. The main hall of the building, in which are shown the exhibits, runs the entire length of the structure. On the sides are partitioned off smaller rooms and apartments. The second floor consists of a balcony, which extends along the sides of the wall of the main hall. It is also partitioned off into exhibit and living-rooms. The Utah State building greatly resembles the colonial home in which Brigham Young resided in Salt Lake City.

The feature of the Utah representation at the Exposition is the mining exhibit, which is one of the finest displays of its kind ever gathered together in the United States. Part of it composed the Utah mining exhibit at the St. Louis Fair. Nearly the entire exhibit was brought to Portland and many additional features added to it. The exhibit is displayed in the north wing of the building.

As the valuable minerals of Utah are nearly always taken from low-grade ore, which abounds in great quantities, very little pure gold is exhibited. On large tables and stands are heaped large masses of ore of all descriptions. All of the dividend-paying mines of Utah have contributed to this display, and as a result it is one of the most comprehensive mining exhibits of the Exposition.

The exhibit is intended to impress upon the visitors to the building that Utah is not a state of shallow strikes which play out after having been worked for a few months, but that it abounds with ledges and veins containing vast quantities of ore, which though not of a high-grade, return large dividends to the company that mines them. There is very little placer mining done in Utah; most of the valuable minerals being obtained from quartz. Some of these quartz ledges are of such vast proportions and extend so deep that they can be worked to profit for years, whereas placer mines play out in a short time. On the other hand it requires considerable capital to mine quartz, which is exactly the reverse with placer mining. Capitalists favor quartz mines, and it is largely due to this fact that the mining industries of Utah have experienced such remarkable development.

There is said to be more radium, the most valuable mineral that has ever been discovered, in Utah than any other country or mining district in the world. The ore, from which it is extracted, is to be had in enormous quantities, but it is needless to state that the percentage of radium is infinitely small. It would take thousands of tons of ore to produce even one ounce of radium. The mining exhibit would not be complete without this valuable mineral, so the ore from which the radium is obtained is exhibited. It cannot be seen with the naked eye, but when it is crushed and photographed it can be distinguished in the negative. There are also very fine exhibits of gilsonite, which is used for roofing and paving, kaolin, or fine pottery clay, and onyx, all of which are common to Utah.

The concentrating plant displayed at the Utah building was installed at an expense of \$7500. It is complete in every detail and illustrates every step in this important mining operation. The mill is in operation daily, at 3 and 5 o'clock in the afternoon. Utah produces large quantities of low-grade ore of lead, copper, silver and gold, which do not contain values sufficient to warrant their being shipped long distances to the smelters. The concentrating mill gives commercial value to these ores.

By passing the low-grade ore through a concentrating mill, the bulk

of the worthless materials is separated from the metal-bearing parts and may be left at the mine, while only the valuable portion has to be freighted to the reduction works. This not only saves enormously in carrying charges, but also secures for the miner a much lower rate for smelting, owing to the quantities of silica removed. Utah concentrating mills have a daily capacity of 5000 tons. Upon the completion of the mills now under construction, the capacity will be increased to 10,000 tons of ore a day. The mill at the Exposition will be at the Utah State School of Mines after the Fair.

The concentrating mill is visited by hundreds, among whom are many mining men who are greatly interested in it. While it operates regularly in the afternoon only, upon request it will be shown at any time. Professor R. H. Bradford, superintendent of the mining exhibit, takes an active interest in showing the visitors to the building the mining displays.

On the right of the building, as you enter the main entrance, are to be found the agricultural and educational exhibits. The agricultural display is rather small and not representative of this particular resource of the state. Especial care has been taken with the educational exhibit. Nearly all of the public, private, church and state schools have contributed to this exhibit. It occupies fully one-half of the building, and it is one of the most extensive and excellent educational exhibits at the Exposition.

Those who are interested in irrigation feel ably repaid upon visiting the Utah building, as there they have an opportunity of seeing a miniature reproduction of the great Bear River project, which will



GENERAL VIEW OF  
UTAH EXHIBIT.

long distances to their hives, unaided by any of the five different ways we have of resigning our surroundings. To test this matter thoroughly, the twelve hony-makers have been taken considerable distances from their hives, to localities which it was certain that they had never before visited; yet when set free they flew as unhesitatingly, as directly and as unerringly home as from places perfectly known to them.

A few years ago it occurred to a well-known bee-keeper that this remarkable ability on the part of bees might be made useful. Convinced himself that he could rely upon their speedy return from anywhere within the range of three or four miles from their hives, whether they had ever been at the place from which they started homeward, or not, he set to work to test their ability to carry messages, as do homing pigeons. He accordingly procured a few bees from a friend who lived on the further side of a barren, sandy tract of land, which, offering no inducements in the way of possible food supplies, was never visited by the insects, and crossed over to his own home.

Going to his garden with his children he touched certain tiny packages, prepared for the occasion, with birdlime. Upon these were written, in minute handwriting, certain messages from his two little girls. The packages consisted of the thinnest paper, fastened with the thinnest of thread and done up in the smallest parcels possible.

Releasing the bees, one by one, from the pasteboard box in which they had been imprisoned, he fastened with a trained hand each of the little packets to the back of a bee, which he then allowed to fly away.

Like homing pigeons, they started off at once across the unfamiliar desert for their home, arriving there in an incredibly short space of time with their packages secure upon their backs.

At the old Roman cardyke, near Bourne, England, a "nest" of turtle has been turned up, completely fossilized. One is in a splendid state of preservation. It is two feet long, one foot and a quarter wide and one foot high, and weighs 75 pounds.

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