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Hauser Dam

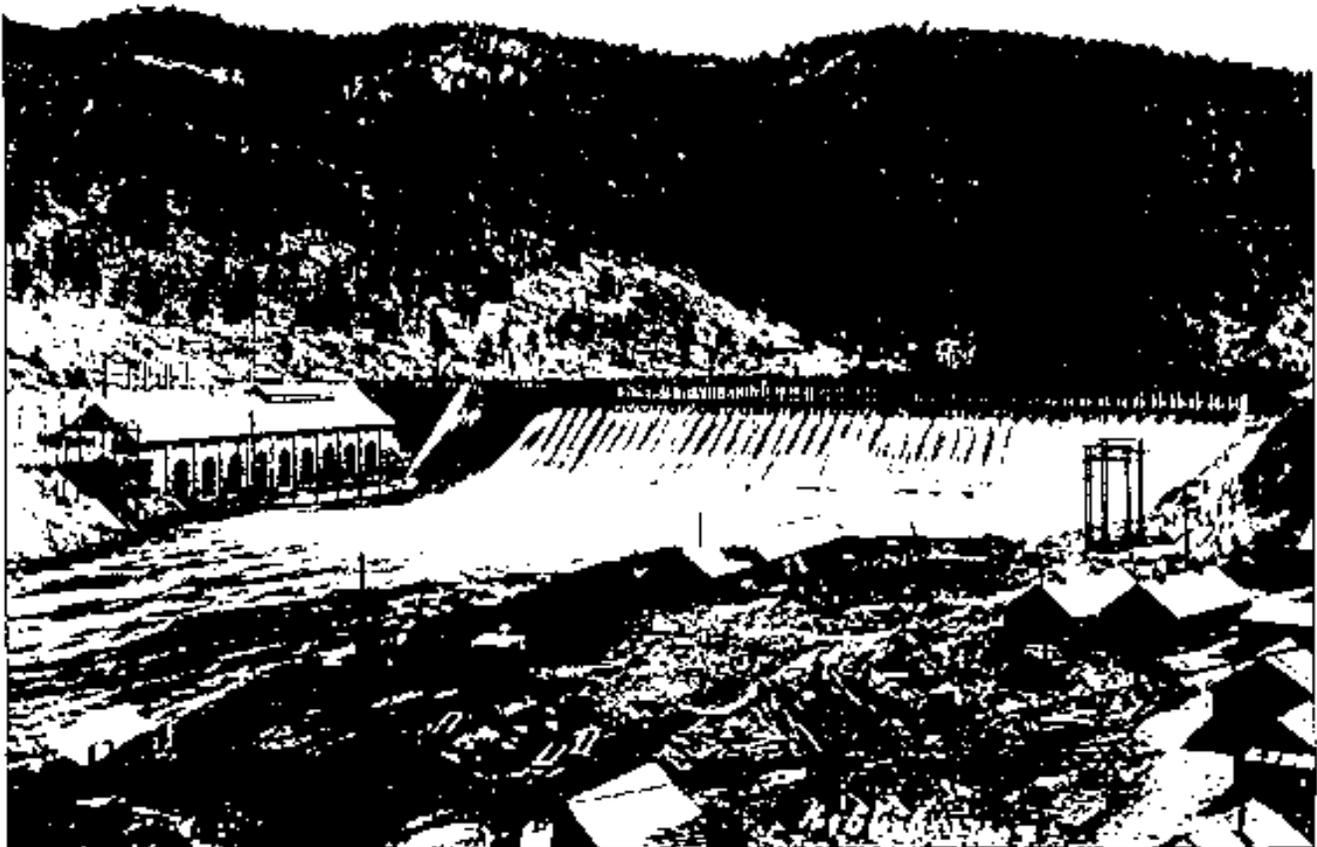
One man's failure to harness the Missouri

“Hauser Dam was considered by engineers throughout the entire country as one of the greatest projects of the age.” —Helena Independent, April, 1908

Ironically, “one of the greatest projects of the age” caused one of the greatest man-made disasters in Montana’s brief history. The failure of Hauser Dam in August, 1908, had a profound impact on the development of the fledgling Missouri River hydroelectric industry and nearly caused the financial ruin of one of Montana’s most prominent pioneer businessmen, Samuel T. Hauser. The di-

saster also hastened the creation of the Montana Power Company, the owner of the dam since 1912.

In 1889, a consortium of Helena businessmen, including T.C. Power, Henry Parchen and Anton Holter, purchased land along the Missouri River in anticipation of someday constructing a dam. By mid-1905, the Helena Power Transmission Company, a subsidiary of Sam Hauser’s Missouri River Power Company, had acquired the property to build the facility. The construction of the dam proved fortuitous for Hauser’s finances, which had been depleted by the previous decade’s economic depression. At the time he was making his plans, Amalgamated Copper Company (later Anaconda Company) leaders Henry Rogers and J.D. Ryan planned to modernize the corporation’s operations in Butte and Anaconda. The electrification of the mines and smelter would require a tremendous amount of inexpensive power - more than what the coal-driven steam plant in Butte could economically provide. Amalgamated funded nearly three-quarters of Hauser’s Missouri River enterprise through the Helena-based Capitol City Development Company.



Picture taken in 1909 shows the power plant and steel-dam design; the dam produced electricity for just over a year. Photos courtesy Montana Historical Society.

Hauser hired Martin Gerry, a civil and electrical engineer from Minnesota, to supervise the construction of the project. Against Gerry's better judgement, Hauser selected a steel dam design developed by J.H. Jackson of the Wisconsin Bridge & Iron Company of Milwaukee. Hauser Dam was the third steel dam designed and built by the company (the others were located in Arizona and Michigan). Construction of Hauser Dam began in late 1905, when Helena Power Transmission Company crews built the structure's foundation. The Wisconsin Bridge company began construction on the superstructure in November, 1905. The dam consisted of "steel bents supporting (flat and concave) steel plates...Both ends of the dam were founded in solid bedrock, but about 400 feet in the center (rested on a water-bearing gravel) foundation...There was also rubble masonry fill at the upstream toe located under the plates and downstream from the pilings." For the most part, the weight of the water stabilized the \$1.2 million dam, which was 630 feet long seventy feet high and contained 17,000 tons of steel.

The novelty of the dam's design, however, led to frequent arguments between Gerry and the Wisconsin Bridge company's engineer, James McKittrick. Although McKittrick claimed that the dam "would be sufficient for the purposes indicated...," Gerry was not confident of its ability to check the flow of the river. Gerry and McKittrick frequently clashed about modifications to the structure, which Gerry believed were necessary.

In addition to the dam, the complex included a masonry and steel powerhouse built by Austrian masons. The building contained five turbines designed to generate around 25,000 kilowatts of electricity for the Amalgamated's properties in Butte and Anaconda and Helena's trolley and lighting systems. The dam's thirty employees and their families lived in small cottages at the base of the structure on the south bank of the river; their children crossed the dam to attend school on the north side of the river. The Wisconsin Bridge & Iron Company completed construction of the dam in January, 1907 and the turbines were activated three months later. Hauser Dam produced electricity for just over a year, when disaster struck the operation.

Shortly after 2:30 p.m. on August 14, 1908, an employee observed silt-laden water gushing out beneath the dam. Fearing imminent failure, he ran into the powerhouse, shouting "Flee for your lives; the dam is breaking!" He then walked back over the dam to rescue his wife and children just minutes before it collapsed. The dam's anchorage soon gave way, cutting away the underlying gravel and causing the upstream foundation to settle. The increased water flow further undercut the dam's center girders, causing the unsupported bents and steel plates to give way. The resulting 30-foot breach in the structure's wall soon increased tenfold to 300-feet, releasing a deluge into the canyon below the dam. Although fifteen minutes elapsed between Currie's warning to the powerhouse crew and the appearance of the first gap, it took only another six minutes for the dam to completely fail.

The deluge swept five company houses, several outhouses and a stable containing two horses downstream. Fragments of the dam remained strewn along the river in the wake of the flood.

Craig received nearly four hours warning before the flood waters reached the community. The residents quickly evacuated the town and camped in the surrounding hills. Only a Western Union telegraph operator remained behind to report on the on-rushing deluge, then rumored to be 25-feet high. Fortunately, much of the power of the flood was dissipated during its career through the canyon below the dam. By the time it reached Craig around 7 p.m., "only about one-half dozen buildings, for the most part cheap shacks, were carried off by the flood waters." The Great Northern Railway depot was hardest hit when it was swept off its foundation and deposited on the middle of the tracks (it was later replaced on its foundation). The railroad tracks and telegraph lines were inundated, severing communications with the outside world. The Craig Bridge withstood the flood with fourteen inches of water flowing over its deck. Two passenger trains between Great Falls, and Helena safely returned to Cascade after messengers from Wolf Creek alerted them to the danger upriver.

Craig sustained about \$40,000 in damages, which occurred mostly to the railroad tracks and bridge, whose approaches were washed away. For a few months, railroad passengers between Great

Falls, Helena and Butte had to disembark from the train at Cascade; from there they were conveyed by carriage to Wolf Creek, where they reboarded the train and continued on to Helena.

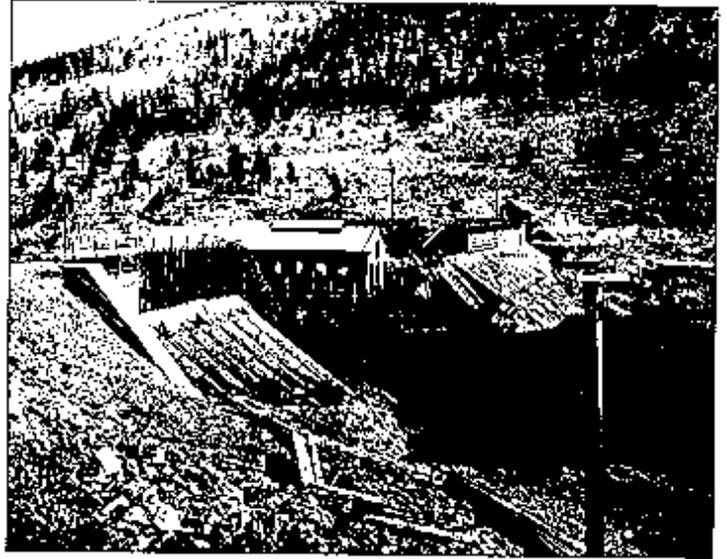
Because the dam employees were able to warn those living downriver, farmers and ranchers in the low-lying areas anxiously awaited the flood. The flood proved a boon to farmers along the river as their fields adjacent to the river received sufficient water to produce above-average crop yields the following summer. Although Great Falls residents prepared for the worst, the water level rose only seven feet above normal when the flood waters reached the city the following morning. Fortunately, nobody was killed when the dam collapsed or drowned in the flood.

After the danger had passed and flood waters subsided, investigators found a 300-foot breach in the dam - nearly half the length of the structure. Martin Gerry and Helena engineer Frank Sizer estimated it would cost Hauser and the Missouri River Power Company between \$200,000 and \$300,000 to repair the dam. The force of the flood went over the powerhouse, submerging it for a time; it sustained only minor damage. Gerry Sizer later determined that the dam's superstructure failed when the river current undermined its foundation where it rested on the water impregnate gravel.

In New York at the time of the disaster, Hauser received a telegram of support from the Helena Commercial Club, an organization consisting of the city's businessmen and social elite. He later assured the public through the *Helena Independent* that the dam would be rebuilt and work on Holter Dam continued. By April 18th, power company employees were busy cleaning up the debris immediately below the dam; the turbines could not be reactivated until the dam was rebuilt. In the meantime, however, the steam plant in Butte supplied power to both the mines and the Anaconda smelter. No major claims for reparations were made against Hauser for damage incurred by the failure of the dam.

The destruction of the dam nearly bankrupted Hauser. Because he could not supply power to Amalgamated's operations, the mining conglomerate withdrew their financial support for Hauser's hydroelectric plants and stepped up its efforts to

Center section of Hauser after the dam burst; the people in Craig had four hours to prepare for the wall of water.



acquire the Great Falls Winter Power and Townsite Company. Hauser's friends, including copper king William Clark, warned him of impending ruin without the backing of the Amalgamated. Within two years of the failure, creditors took control of Hauser's Missouri River properties. By 1912 (a year after Hauser Dam was rebuilt), the Butte Electric later merged with the Great Falls company to form the Montana Power Company, which still operates the facility.

Today, little remains to mark the disaster. Although enlarged in 1914, the powerhouse is still in operation at the dam site. The cottages were replaced with newer dwellings and the school reopened. The existing approach spans of the Craig Bridge replaced those washed out by the flood. In some places, the banks of the river still bear the marks of the 1908 flood. Of the original steel dam, pieces of it still litter the bank below the dam, testimony to one man's failure to harness the Missouri River's primeval power.

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