

witnesses. In that awful moment they all arose and stretched their arms toward Heaven in a fruitless appeal, and in an instant were hurled by the relentless waters into the abyss below. Several weeks afterward the bodies of the heathens were recovered by their countrymen, but there were no vigilant tearful eyes to seek the remains, no saddened hearts, no mournful sighs over the tragic fate of poor Thomas Bell.

Passing on from Bell's cabin we soon reached the bluff overhanging the south side of the falls. From this point all of the rapids and cascades above, as well as the entire falls, are embraced in one view, which is indescribably grand and infinitely finer than that from the north side. The river bank is a precipice worked out into turrets and alcoves. Cedars cling here and there in apparent desperation and doubtful tenure, and add to the picturesque quality of the scene. The bottom of the falls cannot be seen for the spray that drifts out like snow before a blinding storm, and rising upward produces in the morning sun from every standpoint the most perfect rainbows, while to the westward the river, deep and green as emerald, flows peacefully away between the basaltic walls. Looking downward from this spot, upon the narrow beach, a quarter of a mile distant, a thousand or more railroad ties that had escaped a boom on the upper river, and were washed ashore here, appeared like so many pieces of stove wood, and upon examination afterward we found them rounded like polished stones by the friction encountered by buffeting with the rocks in their wayward journey.

The river's edge below the falls on the south side is accessible only at one point, and the descent through a defile formed by the course of a springlet is very difficult, but once down, the visitor may easily approach very close to the falls. The noise is deafening, and the excessive moisture has caused a luxuriant growth of grass and ferns, and the air is fragrant with mint.

Near the middle of the cataract the volume of water is very great, and it comes tumbling over in great white masses, resembling, more than anything else I can imagine, huge bunches of cotton incessantly falling over a precipice. A large abutment near the south side tapers and narrows toward the top, as though placed there to support the mighty precipice, and down its face the water trickles with apparent leisure, in contrast with the tumultuous volumes on either side, in a thousand silver threads.

In this vicinity there is a cavern where the reverberating noise of the falling water resembles the puffing of a locomotive at high speed. A little farther below, and in the face of the cliff, is situated Diana's Bathroom, which is an ear-shaped grotto, 200 feet high, and surmounted by a dome—an isolated, needle-shaped rock, almost as high, standing sentinel at the entrance. From the very dome falls a little thread-like streamlet, which is broken into minute drops ere it reaches a square cut basin at the bottom. The tiny, ice-cold drops descend with dewy softness and impart a refreshing coolness all around. We turned reluctantly from this charming spot.

The day following we set out in the early morning to visit the Twin Falls, three miles above. The first half of the journey we made on the water, and the river, being quiet, is well adapted to boat riding. Our attention was called to a most remarkable echo on the right wall, and farther on we passed the Devil's Corral, a deep gorge that makes back from the river. Above this we reached the rapids, and were obliged to tie up our little boat and complete our journey on a very irregular and rocky trail. There was among the party a gentleman from Iowa, the father of our hostess, seventy-five years of age, and when we remarked the facility with which he clambered over the rocks, he replied that the invigorating air of the country had rejuvenated him and made him feel like riding a stick. Now and then we discovered a group of Chinamen crevicing in the rocks on the shore for the precious gold, and passed their dug-out habitations near by.

The Twin Falls, ninety feet in height, are wonderfully grand, but have less variety of form and feature than the lower ones. The river is divided by a large island, and that section on the north side (the Bridal Train) approaches the brink in a series of cascades, and the perpendicular descent is less than that of the south section (the Bridal Veil), where the channel is very narrow and deep and the current breaks over with awful force. The surrounding features are similar in general appearance to those below—the very picture of desolation. Look where you will, the vision is confronted with perpendicular basaltic walls, laid up apparently with architectural design, as though Nature would jealously guard with impregnable barriers of massive rock this majestic exhibition of her handiwork.

FIRING OF BLASTS IN MINES.

THE blasting arrangements adopted recently in the long stone drift or gallery at a mine in St. Etienne, France, appear to be peculiarly ingenious and effective. The length of this gallery, when completed, will be nearly 800 yards, and as it is desired to drive with all possible speed, light machine drills are employed for the boring and electric ignition of the shots for the blasting. The cables are carried up to within about six yards of the face of the work, and are protected by gas pipes throughout a length of six yards; from the ends of these cables bare iron wire carries the electric current to the fuses, from ten to twelve in number. The firing machine is of the Siemens class, and is very compact and powerful, and is contained in a box of about one cubic foot capacity. Instead of the usual winch handle, a draw-bar is used to give a rotary motion to the armature; this bar is provided with teeth, like a rack, and with a cross-head, which the operator seizes with both hands, while holding the machine down with his feet—an arrangement which enables a great power to be exerted upon the armature. The machine is capable of firing a dozen shots with certainty, and failures are of very rare occurrence. Fully twenty per cent. of the labor of boring is said to be saved by the adoption of this method.