Early Hydraulic Mining,

The First Introduction of Black Iron Pipe, San Diego, April 9, 1892.

To the Editor;—Having read with great interest the article in the Mining and Scientific Press of Jan. 30, written by J. F. Talbott, on the early introduction of hydraulic mining in California, I thought my own experience in that line might be of some interest to your readers. I think Mr. Talbott is correct about the date of its introduction, 1853-4; and as soon as it became generally known that dirt could be rapidly moved by the force of water under pressure, everybody that could get water on their claims for that purpose did so. They used common duck hose, made of No. 1 or No. 2 duck, the canvas being 22 inches wide, made after taking out the lap for sewing, a hose about seven inches in diameter, which was used, as near as my memory serves, for nearly two years. For discharge pipes, various kinds and sizes were used, principally made of Russia iron, usually two thicknesses, some long and slim, some short according to the fancy of the person using them. And by the way, this reminds me of a man calling at my shop, in the town of Red Dog in Nevada county, and having in his hand a pipe, about three or four feet long, made of Russia iron; one end, one and a half or two inches in diameter, and four or five inches at the other, which he said he got made at Mr. McLauchlins shop in Grass Valley. He was on his way to Indiana Hill where he was engaged in mining. I don't know who it was unless it was Mr. Talbott, as I have no recollection of ever seeing the man, before or since.

THE CANVAS AND IRON.

About the year 1855 or '56 I was running a tin-shop in the town of Red Dog, and also engaged in hill mining. There came to me at that time two men from Wanloupa, by the names of A. Curry and Thomas McAulifif, the same A. Curry of the famous Gould and Curry mine in Virginia City. They wanted to ascertain the cost of making about one hundred feet of seven-inch iron pipe, of common black iron, and told me what they wanted it for. They had been talking the evening before, in the McAuliff residence, as to what plan they could adopt to prevent their hose bursting so often, when Miss Margaret McAuliff, a sister of Thomas, spoke up and said, " why would not such a thing as that do," at the same time pointing at the stovepipe. The idea struck them at once that that was just the thing they wanted. I went to work and made them their pipe of No. 22 iron, riveting it instead of grooving as is common in making stovepipes. They laid their pipe down the slope of the hill, and drove stakes over it to keep it in place, and then drew their hose inside of it. The object was, to have the iron receive the strain of the pressure of water, and the hose would made it tight, so as not to leak. They found it worked to their entire satisfaction, but after using it a month or two. the iron began to rust, and destroyed the fiber of the cotton hose, and it began to come out in pieces and finally all came out.

I then made them a tapering joint of pipe to put on the lower end to attach the hose to, as they had found that the sediment in the water had filled the joints of the iron pipe so it was perfectly tight, and it was used some time after.

INCREASING SIZE OF PIPE.

When I saw the iron worked so well, I went to work to fit up my own mine with iron pipe, but enlarged upon it by making it 11 inches in diameter and of No. 20 and 22 iron. The heavy iron I put below and the lighter above, then riveted the joints together in sections about 16 feet long, putting them together with slip joints and riveted hooks on each end of the sections, so as to wire them together to keep them from slipping apart.

In order to make it water-tight, I took old hose, cut it in strips two inches wide, and riveted it in all the joints. I also divided the pipe at the lower end, so as to run two hose from the one pipe; and, having

about 90 feet fall, it worked with good results, and people used to come from different sections to see it working.

This, I believe, was the first introduction of black iron pipe for hydraulic mining in California. I had heard that some one had made a seven-inch pipe of galvanized iron and soldered it to make it tight, but it was very expensive in those days for most miners to use. After putting up my pipe, I had all the work I could do making that kind of pipe, but it was soon found out that it was not necessary to put the canvas in the joint, as the sediment in the water soon stopped all leaks that happened to be in the seams.

THE IMPROVEMENTS.

From then on to the time hydraulic mining was stopped by the courts, the miners went on improving with larger pipes, higher fall, thicker iron, with cast iron distributers to run three and four hose from, until they finally seemed to have settled on what is called the Little Giant, which has a universal or knuckle joint to it and a lever attachment to move it about in any direction without the use of any hose whatever, and having a nozzle from four to six inches in diameter, or large enough to run all the water for the sluices through one discharge pipe.

Thus hydraulic mining has advanced step by step from its first inception by Mr. Talbolt's simple way of working off loose dirt to its final perfection, when hydraulic mining was stopped by the courts.

THE FIRST DITCH.

There is one thing in Mr. Talbott's communication wherein I think he is a little behind the limes, and that is in regard to the first ditch that was constructed for the purpose of hill mining. He speaks in a former communication to this paper of the first discovery of gold in the ancient river channel, or what is termed the blue lead, as having occurred at Yankee Jim's, in Placer county, in the summer of 1851. That statement is entirely correct. When I went to Yankee Jim's in October, 1851, in going from Owl creek to Yankee Jim's, the trail led directly over the claims located by a party of Georgians, who first made the discovery, and they called it Georgia Hill. The discovery was made in this manner: They had been working in Devil's canyon, which was a deep and narrow ravine, and it paid very rich up to a certain point, when it ceased to pay. One of their number discovered on a bench about 50 feet above the bed of the creek, where a sugar pine tree had blown over by the roots, a bed of washed quartz gravel. He took a pan of it down to the creek and washed it out, and, if my recollection serves me, he told me he got 50 cents out of it.

They prospected farther, and found it very rich. They then went to work and split up the old pine tree into slabs and made a chute of it and run the dirt down to the bed of the creek and washed it in a long Tom. That they were doing when I arrived there. They were also working on a ditch to bring the water of Devil canyon down on the hill. I immediately hired out to them to work on the ditch at $6 a day, and worked until the ditch was completed. This, I think, was the first ditch completed, as the Bear River ditch was not completed until the following summer of 1852. There was another ditch dug that same season from Devil's canyon, on the opposite side, to work the Strong diggings above the town of Yankee Jim's, and other claims. In the; summer of 1852 two other ditches were brought into Yankee Jim's from Brushy canyon.

TRACING THE CHANNEL.

From the first discovery under the roots of the old pine tree on Georgia Hill, the lead or channel was traced north across Devil's canyon to Strong's Hill, thence through the hills to Shirt-Tail canyon, which cut it away entirely; but on the opposite side, at King's Hill, it was taken up again and traced to Elizabethtown, Wisconsin Hill, Iowa Hill. There it was cut off again by the North Fork of the American

river, a much larger stream than the others, and cut down to a depth of about 2000 feet below the ancient channel.

It was again found on the north side of that stream, at Indiana Hill, where our friend Mr. Talbott says he worked. From there it was traced to Gold Run, Dutch Flat, Eastman Hill, across Bear river to Little York, across Steep Hollow to Brown's Hill, thence to Red Dog, Independence Hill, across Greenhorn creek to Hunt's Hill Quaker Hill, and through the divide to Deer creek, but that stream was too shallow to cut the channel away, and it was never worked much there for want of drainage; but it continues on through the divide between Deer creek and the South Yuba, where it was discovered at Relief Hill. It then crops the South, Middle and North Yubas to Galena Hill and Camptonville. Beyond that, I am not familiar enough with the country to name the places, but have no doubt that it crosses all three of the branches of Feather river, and perhaps still farther north. In going south from Georgia Hill, it runs through the Divide, cropping out again at Todd's Valley, crossing the Middle Fork of the American river and making its appearance again at Bottle Hill, in El Dorado county. Beyond that, I shall have to leave for others to trace, as I am not familiar enough with the country to determine; but in all that distance from Bottle Hill to Camptonville it has every appearance of being one continuous channel or ancient river bed, running a little diagonal across the present rivers nearly north and south, being higher in the mountains to the north and trending toward the valley at the south.

CHRACTER OF THE GOLD.

The gold in that distance is almost all of the same character and quality, being mostly scale gold, with the exception of some coarse pieces found on the bedrock, and it nearly all goes from 930 to 945 in fineness. Then the bowlders, sand and gravel are nearly all of the same nature and differ entirely from the hill deposits farther up in the mountains toward the summit, or lower down toward the foothills; and as evidence of this channel having had a current running from north to south, every hydraulic miner who has worked on this channel knows, if he observed it, that in piping to the north the bank will always hang over at the top before caving, whereas in piping to the south, the caves will slide off from the top first, showing the shingle to be down stream to the south, the same as it does in all running streams.

Along this whole line of channel, mining has mostly been done by hydraulic process, and millions of dollars have been extracted, and I venture to say that not one-third of it has been taken out.

THE BLUE LEAD.

Many of your readers might be interested to know why this ancient river channel is called the "blue lead." It comes about in this way: In the divides or ridges between the present rivers, the deposit of the ancient river crops out on the bedrock, below which the present streams have worn it away; then rises back to the top of the divide, making the deposit from nothing to four or five hundred feet in depth. Now, as the present streams go on wearing down the bedrock, as it has for ages and ages, it becomes exposed to the action of the atmosphere; the minerals in the rocks become oxidized and cause the rock to expand, like putting lime into a barrel—as soon as the atmosphere begins to work upon it, it swells and bursts the barrel. So with this bedrock; it swells up, and there being little or no weight of the divide upon it to hold it down, it forms a rimrock in front of all these deposits; or, in other words, a basin is formed in under the mountain, so that in many places the miners have to run long tunnels through this rimrock to drain this basin and work the rich deposits under the divide, which is invariably found to be of a skyblue color. This blue gravel never is known to extend higher up from the bed rock than the height of the rimrock, or to where the water has no chance to drain out, and all sand and gravel above this basin of water is invariably of a reddish-yellow color. showing conclusively that the iron in the gravel deposits above the water line has been oxidized by the atmosphere, which has given it its red color.

I have seen places where this line of distinction is so marked that a bowlder the size of a man's head would be one-half blue and the other half red. And I have seen pot holes in the bedrock, not over a foot deep, filled with blue gravel and all above it red. This occurred where there was but very little rimrock. The ravines were shallow and the gravel deposit not very deep. I have also noticed where water from the blue gravel, in running out through sluice boxes or tunnels, on coming in contact with the atmosphere, soon a coating of red iron rust will be formed on the bottom of the sluices and tunnels. Wm. A. Begole.

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