

you take in such matters, and looking myself upon this stone fish-way as a marked illustration how economically such work may be constructed, even in the wilderness, and also how many such falls obstruct the passage of fish to extensive spawning-grounds, which could easily and cheaply be removed or remedied by even unskilled labor, I am sure that you will pardon, if not justify, my desire to place in the possession of the chief of our guild all the facts and circumstances of what I am fain to consider as an important and in many respects a remarkable work of the kind. For the purpose of preserving to you the work for reference I will merely recapitulate: Height of falls, 41 feet; length of fish-way, 192 feet; incline, 1 foot in 6 feet; width of rock cut, 10 feet; angle of fish-way, 10° ; bulkheads, 4 to 8 feet; space between bulkheads, $5\frac{1}{2}$ feet; openings in bays, 2 feet; depth of same, 4 feet; depth of fish-way, 4 feet.

I will merely add that the rock excavations involved but little blasting, but are mostly the work of the drill, gad, and pick, as their size and form plainly indicate.

Hoping that the matter contained in this may, in part, repay you the reading, I remain,

Yours, most truly,

S. R. THROCKMORTON,
Of California Fish Commission.

Hon. SPENCER F. BAIRD,
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NOTES ON A SHIPMENT, BY THE UNITED STATES FISH COMMISSION, OF CALIFORNIA SALMON (*ONCORHYNCHUS CHOUICHA*) TO TANNER'S CREEK, INDIANA, IN 1876.

By TARLETON H. BEAN.

On the 29th of December, 1876, the writer was sent from Mr. Clark's hatchery at Northville, Mich., to Guilford, Ind., with 15,000 salmon-fry. The fish were distributed in 8 milk cans, and I had one reserve can for water. The day was cold and windy; snow was drifting freely. The temperature of the water in the hatchery was 38° Fahr.

I left Northville at 2.45 p. m. On the way to Toledo, at 4.30 p. m., the temperature of the car above the fish cans was 73° Fahr., while the water in the cans was 37° to 38° . A drifting snow-storm delayed the Flint and Pere Marquette trains; but there was ample time in Toledo, with a margin to spare, for mending a leaky water-pail.

I took a train on the Indianapolis, Cincinnati and Lafayette road at 7.45 a. m., December 30, for Guilford. There was no loss of fish on the way. The highest temperature observed in the cans during the trip was 41° Fahr., the lowest 33° .

Dr. H. C. Vincent entertained me at his home and assisted in the plant-

ing. The salmon were put in at four points on Tanner's Creek, two where the water was shallow, and two with considerable depth of water. We opened holes in the ice for the deep planting. The ice was at least a foot thick; the water temperature was 33°. When the fry were liberated by us they immediately begun to stem the current.

Fine black bass are caught in Tanner's Creek. Numerous springs feed this stream near Guilford.

Dr. Vincent reports the capture of two fish of the 1874 shipment; he will correspond with regard to the progress of the present introduction of salmon.

ACCOUNT OF A SHIPMENT, BY THE UNITED STATES FISH COMMISSION, OF CALIFORNIA SALMON-FRY (*ONCORHYNCHUS CHOUICHIA*) TO SOUTHERN LOUISIANA, WITH A NOTE ON SOME COLLECTIONS MADE AT TICKFAW.

By TARLETON H. BEAN.

The young salmon which were destined for the Louisiana streams were reared from the egg in Mr. F. N. Clark's hatchery at Northville, Mich. On the 19th of December, 1876, Mr. Orrin P. Maxson and the writer were instructed to carry 30,000 of these fry to the Tangipahoa and Notalbany rivers. We took them in fifteen milk cans, and had two reserve cans for water. Fifteen thousand of the salmon were consigned to the Tangipahoa River, at Amite, in Mr. Maxson's care, and the rest to the Notalbany River, near Tickfaw, 10 miles south of Amite and about 50 miles north of New Orleans, on the Saint Louis, New Orleans and Chicago Railroad.

We left Northville at 2.45 p. m. on Tuesday. While in Toledo one of the water cans sprung a leak. We were compelled to draw off the water in pails and distribute some to the fish. We then took the can to a hardware store and had it soldered. As the fish cans had too much water in them, we drew off some and returned it to the water cans.

Our route was by Cincinnati, Hamilton and Dayton Railroad to Cincinnati, thence by Louisville, Cincinnati and Lexington road and Louisville Short Line to Milan, Tenn., and from there by Saint Louis, New Orleans and Chicago road to our objective points.

The only great delay occurred at Milan, where we waited from 4 a. m. Thursday to 1.30 p. m., and here was experienced the only difficulty we had with the fry. The high temperature of the air, as compared with that of Northville, and the standing still, which seems to be particularly injurious to salmon, combined to make them troublesome. Frequent changes of water and aerating by pouring with dippers, however, brought them under control. We found a supply of excellent ice, also, which we used freely in the well water taken here.

After leaving Milan there was no further trouble with the fry beyond the usual care accorded to them. Our stay in the baggage car was attended, however, with some personal discomfort, owing to the pres-