

NOTES ON NEW ENGLAND FOOD-FISHES.**By S. J. MARTIN.**GLOUCESTER, MASS., *October 26, 1881.*

DEAR PROFESSOR: I thought I would write a few lines in regard to the herring fishery,

The herring fishery is over. I find there is some time between schools of spawning herrings. The first gravid herring were caught at Pemaquid, Maine, September 3. The next were taken at Wood Island, September 25. The next, at Rockport, October 3. The next, at Norman's Woe, October 5. The herring were all done four days. When a school struck at Jane's Cove, the herring were full of spawn from the first to the last. The last school caught at Jane's Cove was October 18. They were not so large as the first. They were full of ripe spawn. One thousand barrels have been caught around the cape. Three-fourths went to Portland. The mackerel fishing is fast drawing to a close. The most of the mackerel caught the last week were caught in the night. They are easier to catch in the night than in the daytime. Some vessels got a school last night. I think the sperling (young sea herring) will be scarce this fall. There were plenty of them in September. They all left the river. The fishermen are getting their nets ready; they will set them the last of the month. Hake are plenty on the shore-grounds. The fall school of pollock appeared last week. Some of the Gloucester vessels have made larger stocks this season; I will tell you the largest when fishing is ended.

I remain, your obedient servant,

S. J. MARTIN.

Prof. SPENCER F. BAIRD,

Smithsonian Institution, Washington, D. C.

DESCRIPTION OF THE FISH-WAY IN PITT RIVER, CALIFORNIA.**By S. R. THROCKMORTON.**SAN FRANCISCO, *October 22, 1881.*

DEAR SIR: Your esteemed favor of the 24th ultimo reached me by due course of mail; but confinement to my room by sickness preventing my adding to my information some matters pertaining to the construction of the stone fish-way on Pitt River, I have not been able to reply at an earlier date.

The contract price of the work was \$2,400, and it was completed and turned over to the State for that sum, the work having been well done, and complying with all the requirements of the contract.

Outside of the contract we incurred the additional expenditure of

some \$300 for engineer's charges, printing, advertising, &c., making in all the sum of, say, \$2,700 the entire cost. The rock is of slate, the strata leaning with the current. The conditions were all favorable. The fish-way is made on the southerly side of the stream. The principal weight of the water flowing along the northerly side, the southerly side was easily laid bare by a wing-dam, projected from the southerly bank at a sufficient distance above the fall and at such an angle as to deflect the current to the northerly shore. This mode of exposing the beds of rivers, as practiced by the California gold miners and prospectors, is quite inexpensive, and, at the same time, answers its purpose most thoroughly.

The wing-dam is usually made of long logs secured together so as to form a narrow crib or frame, one end of which having been secured to the bank, the other is swung out into the stream and anchored at the proper angle, when it is filled with sand-bags, brush, sods, and other material, and is very easily made perfectly water-tight. This is continued and extended in the same manner until the part of the river bed to be laid bare is entirely brought within the angle.

If there remain within the angle any pools of water they are baled out, and if any leakage, etc., makes it necessary, the small streams are very easily stopped out, and the part required made literally dry.

These dams are easily removed after they have served their purpose, or in cases where the fish-way is near the bank a portion may be strengthened and allowed to remain so as to make an eddy, if desirable, at the head of the fish-way. In the construction of the fish-way at Pitt River considerable preparatory labor was necessary. The falls are in a cañon, some eight hundred feet in depth, and it was necessary to cut a trail down to the foot of them on the northerly side, down which all the material, such as lumber for the workmen's shanty, provisions, material for a boat, &c. (for the foot of the falls could be reached only by the side of the river opposite to site of the fish-way), had to be carried on the backs of men, and then it also became necessary to improvise a rope ferry across the river below the falls to get at the work. All of this preparation and the entire completion of the job was done within the sum named in the contract, and, in fact, yielded the contractors a liberal profit; but, you will observe, this was done after the manner of California gold mining. The first contract was made in the summer of 1880, but as the season for work was nearly expended it was not commenced, and the contract was thrown up. We again let it to new parties, residents of the neighborhood, and this last spring and summer it was commenced and completed in about four months. I have never seen the falls of the Potomac, but from what I am informed that river carries, at its falls, a much less body of water than Pitt River, which last, although but a little over 100 feet in width at its falls, is a deep and rapid cañon stream. I fear that I have extended this letter beyond your reasonable patience, but as I consider the great interest

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,
*U. S. Commissioner of Fisheries,
Smithsonian Institution, Washington, D. C.*

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-