

# XXXV.—REPORT OF SALMON-HATCHING OPERATIONS ON ROGUE RIVER, OREGON, 1877-'78.

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BY K. B. PRATT.

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Mr. LIVINGSTON STONE:

DEAR SIR: In accordance with your request, I will endeavor to give you a report of the proceedings at the salmon hatchery at Ellensburgh, Oregon, mouth of Rogue River.

During the summer of 1877, Mr. R. D. Hume, who had just completed a salmon cannery at Ellensburgh, visited the United States fishery on the McCloud River, California, and examined the hatching-house and the work being done there, and decided he would have a hatchery of his own upon Rogue River, in order to keep up the supply of salmon in that stream.

For nearly twenty years salmon had been taken in large numbers and salted, and there was a visible decrease in the number of fish returning to the river each year.

On returning to Ellensburgh, in September, Mr. Hume set about putting up a hatching-house, building it only a short distance from the mouth of the river. About 250 salmon were placed in a fresh-water pond, which had been dug close by the hatching-house, there to be kept until they were ready to spawn, but as there was an insufficient supply of water in the pond, many of the fish died, so that by the time they commenced spawning there were only about 100 left. Of these, 57 were females, from which about 215,000 eggs were taken. Just before spawning time a large cage, with three compartments, was built and sunk in the pond; then the pond was dragged with a net, and the fish placed in the largest compartment of the cage. From there the fish were caught in dip-nets and examined each day, the ripe females put in one division of the cage, and the ripe males in another. Mr. Hume's idea was to handle the fish as carefully as possible when spawning them, and to at once return them to the river, so that they could return to salt water as soon as they chose. With this idea in view, a contrivance for holding the fish while spawning was made, consisting of two pieces of light board fastened together on one side with hinges, and straps extending around the other side at the ends. In this the females were placed on their backs, the straps extending around the shoulders and tail, and with a little care they could not escape. The males were held by one of the men in his arms; so the necessity for taking the fish by

the gills was avoided. As soon as the fish were spawned they were marked by cutting a piece from the dorsal fin, and immediately returned to the river, most of them swimming off quite vigorously. The first eggs were taken on November 23, and the last on December 12. The hatching-house was supplied with water from a small stream that was constantly roiled up by the cattle and horses running loose over the country, and then the heavy rains swelled the stream to an unnatural size, and leaves, twigs, and mud would be swept down into the tank and choke up the flannel screens, so that it was necessary to clean them every few minutes, and a watchman was kept on duty all night to see that there was a good supply of water running through the trough all the time. The temperature of the water was sometimes as low as 38°, ranging from that up to 54°, averaging about 47°. The eggs were from 23 to 27 days in showing the eye spots, and from 56 to 60 days in hatching, a few not hatching till 64 days old. After keeping the young fry from three to four weeks they were taken up the river and placed in some small creeks 1½, 6, and 12 miles from the mouth of the river. Owing to the difficulty in keeping a pure supply of water running through the trough, and many other adverse conditions, there was a large loss in hatching the eggs, probably 30 per cent.

Again, in transporting the young fry up the river to the small creeks where they were planted there was a considerable loss, owing to the overcrowding in the tubs and pails in which they were carried. However, at least 100,000 healthy young fry were planted in the streams, and probably many of those that were thought to be suffocated revived after being turned into the stream, for some were seen to swim off after a few minutes.