

Miles and Mr. Henry E. Wells have told me, that the same kind of fish have made their appearance in Long Island Sound, making 18 gallons of oil to the thousand fish. This is much fatter than any that I ever knew in Maine.

PORTSMOUTH, R. I., *January 24, 1880.*

FISH CULTURE IN NEW ZEALAND.

By R. J. CREIGHTON.

SAN FRANCISCO, CAL., *May 13, 1881.*

HON. PROFESSOR BAIRD, *Washington, D. C.:*

DEAR SIR: I have to apologize for not returning your circular inquiries relative to fish-culture sooner; but, as I was only personally interested in the colonial work of fish-culture, I was unable to do so satisfactorily.

I have, however, received some information from New Zealand by the last mail which may prove interesting to you.

Mr. J. C. Firth, of Auckland, president of the Acclimatization Society there, writes to me to state that "Salmon have been caught in Wairoa River, about ten miles south of Auckland City. They have also appeared in other rivers, notably the Thames, in isolated cases. [The Thames is a large navigable river about fifty miles south of Auckland.] I must confess to some disappointment," he adds, "in not seeing more salmon, and I can only account for the circumstance by supposing that one of our native fish, a most voracious fellow, the 'kawai,' has devoured the young fish on the banks. I am glad to be able to report that the 'whitefish' from Lake Michigan have been seen in considerable numbers in Rotorua, Tarawera, and Taupo Lakes."

In explanation I may say that the first salmon ova (about 30,000) reached Auckland in 1874 or 1875, I am not sure which. Of these a few were hatched out and placed in the Wairoa. At the close of 1876, I had the honor to open a correspondence with you on the subject of a further shipment of salmon ova through Cross & Co., San Francisco, and this and a third shipment were made, the ova being pretty widely distributed north and south. I have had a note from Mr. Farr, secretary of the Acclimatization Society, Christ Church, New Zealand, in which he states that a salmon had been caught in one of the Canterbury rivers, and similar reports have come from more southerly districts. Mr. Farr also reports that 30,000 young whitefish had been hatched out in the society's hatching-house, and placed in a mountain lake, and were doing well.

The whitefish deposited in the large lakes of Otago, in the south of New Zealand, have not showed themselves, but, as the conditions are favorable, I have no doubt they are doing well.

A small shipment of salmon ova was made to Sir S. Wilson, of Victoria, I think, and they appear to have succeeded, as I noticed, some months ago, that a 7-pound fish was caught and had been served at a banquet to the Marquis of Normanby, the governor, and other guests.

From this you will gather that the acclimatization of United States fish in New Zealand and Australia had been successful. English brook trout, Eastern and California trout, have likewise been introduced with great success in New Zealand; also English carp.

Cat-fish were landed alive in Auckland from San Francisco, but what became of them I cannot say. I fancy that from an ignorant prejudice they were permitted to perish. These were forwarded by Dr. Hugh Craig, agent New Zealand Insurance Company for the Pacific coast. Mr. Craig has also made two attempts to send down edible crabs from this State by mail steamer. The first attempt failed; I have not heard the result of the second.

There are several private fish hatcheries in New Zealand; one owned by Mr. W. Johnson, of Opawa, in Canterbury, being the best known. He has introduced Eastern brook trout, and he wrote to me, that he had been successful in crossing the English and American trout, and that the young cross-breed grew faster and larger than either variety. Whether he has established a new variety of fish I cannot, of course, say.

In California, Mr. Redding, and the other gentlemen of the Fish Commission, will be able to inform you fully of what is being done by private enterprise. My own idea, however, is that far too little attention is paid to this matter by the State legislature, the appropriation for the fish commission being wholly inadequate, and I don't think very much is done by private individuals. They want to be educated up to the point of appreciating the industrial and economic value of the patriotic work in which you and the subordinate fish commissioners are engaged.

I inclose a newspaper clipping bearing upon this subject, which probably you have already seen.

I regret very much that I am not able to give you more explicit information on this subject, but these general statements will serve to show the importance of the United States Fish Commission to foreign countries.

I should add here that, whereas California salmon have succeeded in New Zealand and Australia, the English salmon, introduced much earlier, were a failure.

I am, very respectfully,

R. J. CREIGHTON.