

His Honor the Superintendent has supplied the Commissioners with a Report from Mr. Dawbin as to the salmon experiment, which is herewith annexed.

The Commissioners annex some evidence as to oyster fisheries, which seems worthy of notice, and desire to call your attention more particularly to the term of lease allowed under "The Oyster Fisheries Act, 1866," to lessees of, namely, a term not exceeding fourteen years. This the Commissioners are informed is far too short a tenure to induce parties to form artificial oyster-beds, and it is in their opinion a matter worthy the consideration of the Government.

The Commissioners also annex a Report from the Manager of the Otago Acclimatization Society, concerning the introduction of trout from Tasmania by the Society.

The Chairman of the Fisheries Commission, Wellington.

A. J. BURNS.
A. CARRICK.

Enclosure 1 in No. 2.

Mr. G. P. CLIFFORD to Mr. A. CARRICK.

SIR,—

Dunedin, 8th June, 1869.

In accordance with your request to be furnished with the mode adopted by the Otago Acclimatization Society in conveying and hatching out trout ova, together with any remarks relative to the subject, for the purpose of forwarding the same to the Fishery Commission, I herewith give the result of our labours.

According to instructions I left Dunedin, July 18th, for Tasmania, for the purpose of obtaining trout ova. I reached Hobart Town August 13th, by which time most of the trout at the Plenty Ponds had spawned. I was detained in Tasmania till the beginning of September, being unable to obtain a passage to Otago before.

The ova that I obtained was not artificially impregnated, but was taken from the rids made by the fish in the race at the Plenty Ponds. The quantity of ova I obtained was 800, the most of which fortunately was well developed, the eyes being in nearly all visible.

I packed them thinly in well-washed fresh moss in four boxes, about a foot square, with small holes in the tops and bottoms; these boxes were again packed two deep in a box three feet by two and two deep, and surrounded by moss. The lid of this box was sunk a few inches, and perforated with holes. On this was kept a quantity of frozen snow, which served the double purpose of retarding the hatching of the ova, and also as it melted keeping the ova damp. The last-mentioned box was suspended by strong elastic springs to the inside of a much larger box, and also held from the sides by elastic springs which acted as guys. The outside box was made fast to the deck of the ship, and covered with blankets, which were kept wet. By this means the box containing the four small boxes swung with the motion of the ship free from any chance of concussion.

I left Tasmania September 5th, and reached Dunedin on the 14th. On opening the box I found only forty-nine dead ova; these showed no signs of development. The ova were then placed in covered boxes, on a bed of small gravel which had been well boiled and washed, over which ran a small stream of filtered water about an inch and a half deep. During the time the fish were hatching the temperature varied from 40° to 55° Fahr., the greater portion of the time never exceeding 46°. The first fish hatched out September 28th, the last October 29th. The total number hatched were 729, two only being deformed. It will be seen that the hatching, after placing the ova in water, occupied from one to two months, but as the ova was spawned naturally it was impossible to tell its age. The few ova which did not hatch were I believe unimpregnated. The fish, as near as I could calculate, exhausted the umbilical vesicle in about six weeks; directly this took place I gave them unfiltered water, and fed them with grated liver. As the fish grew older I gave them flyblows and maggots, which they evidently preferred to the liver.

I have only very limited pond accommodation, namely, an oval pond twelve feet by eight at the widest part, and varying from a few inches to about two feet deep; a good supply of water passes through the pond, and there is plenty of artificial shelter in the shape of stones and slates. Before any were removed I observed the fish always appeared restless, so much so that I have had them throw themselves out of the water, and a few died on the banks. This was obviated by placing boards so that the fish fell again into the water. After a number were removed this never again took place, and as every batch of fish were taken away, the remainder showed a marked improvement in a short time. I am perfectly convinced they were overcrowded, and am also of opinion that the more room fish have the better they will thrive.

With reference to transporting young trout, the mode I have adopted has been as follows. The can—an ordinary fish kettle, fifteen inches by nine inches, and nine inches deep—is well filled with watercress, which acts as packing, preventing the fish from being so much knocked about as they otherwise would be. In the transport of our fish we have been obliged to use a wheeled conveyance. The can is then suspended by elastic springs from a beam, and steadied by hand. The water changed at intervals of from a quarter to half an hour, and poured into the can from a height of about two feet, so as to aerate it. The number of fish carried in a can has not been more than from twenty-five to thirty, overcrowding being most injurious. We have thus been able to carry six batches of fish distances of from twelve to eighty miles with the loss of only one fish, the batches varying in number from fifty to sixty each, and two cans being employed. When practicable, carrying by hand is preferable to any other method. Our last attempt to take trout from Dunedin to Queenstown—a distance of 208 miles, over rough bush roads, with at times a bad supply of water—proved a failure. The time occupied was four days, and I cannot better express myself than by saying the fish were being churned best part of the time. Out of fifty-five, the number that left Dunedin, twenty-five were successfully carried a distance of 170 miles. From the result of the journey, I am convinced that by taking time to allow the fish to recover, they can be carried from one end of New Zealand to the other.

I am, &c.,

G. P. CLIFFORD,
Manager, Otago Acclimatization Society.

A. Carrick, Esq.