

2. I think the ova might be taken safely if kept at a low temperature—nearly freezing-point; but it would be very desirable to make some experiments here on the vitality of the ova under such conditions before actually trying them. I think the herring might be better for this purpose than the others.

3. The incubation-period of most of these ova is fourteen to seventeen days, but I think it might be delayed sufficiently by keeping at a low temperature.

4. These fish usually live at a temperature higher than you state (32° Fahr.); but the cod at least goes north into colder water, and I do not think that a fall to 32° Fahr. would necessarily be fatal.

The sending of plaice to Australia (New South Wales, I think), has, I believe, been quite successful, and I think the experiments the High Commissioner thinks of trying have a fair chance of success, and are well worth attempting.

Yours, &c.,

The High Commissioner for New Zealand.

W. A. HERDMAN.

SIR,—

Gatty Marine Laboratory, St. Andrew's, 2nd March, 1906.

I have to acknowledge your letter of the 27th ultimo, concerning the practicability of introducing into New Zealand consignments of turbot, herring, cod, or haddock.

Before replying to the foregoing, I hope a careful survey of the local fishes has been made, and by various methods of fishing, so that the resources of the colony are fully understood and critically tested. A knowledge of the nature of the bottom (*e.g.*, rocky or sandy) in the localities where the experiments will be carried out, the nature of the pelagic (floating) animals, as well as those on the bottom, should also be carefully obtained. The average temperatures of the sea-water at various seasons should also be known, as well as the trend of the chief currents.

1. There should be no insuperable difficulty in transporting the fishes from Britain round the Cape to New Zealand, especially if "welled" vessels are employed. Herrings would require to be acclimatised to their altered circumstances, just as those from the Baltic to St. Andrew's, the fishes in the latter case having been conveyed in fresh water. In a "welled" vessel, however, salt water would be better. Turbot are very hardy.

If the engineers were duly instructed in regard to their duties to the fishes, the kind of food to be used, and the strict attention to hygiene, they might do. It is certainly an expensive method to send out a trained scientist, or a practical assistant trained in a "marine laboratory."

2. The ova of the herring offer the most likely field for the experiment in transportation; but I could not promise success. It would be a great strain on an attendant, and, after all, the risks of the young on arrival would further complicate the experiment. It was formerly tried, if I remember rightly, in the case of Australia. It might again be exhaustively experimented with if there is a strong feeling in regard to it.

I do not think that the question of attempting to transport the ova of turbot, cod, or haddock need at present be considered. The pelagic eggs of these do not readily lend themselves to such experiments.

3. The eggs of the herring are exceedingly hardy (having been hatched here more than once after sixteen hours' exposure to the air in a boat), but whether they can be retarded for more than two months is doubtful.

The question in regard to the other fishes has been answered.

4. In our experience most fishes in tanks and vessels die when such are frozen.

I should not suppose, however, that a "welled" vessel need experience this condition in its passage round the Cape to New Zealand: so long as the "well" is not frozen, the fishes should survive.

I am, &c.,

Walter Kennaway, Esq., 13 Victoria Street, S.W.

W. LE M. JURTSK.

SIR,—

The Laboratory, Citadel Hill, Plymouth, 2nd March, 1906.

I beg to acknowledge the receipt of your letter of the 27th February with reference to the shipment of live lobsters to New Zealand. I have been in communication with the Shaw, Saville, and Albion Company on the subject, and they now inform me that they will not be able to take the lobsters to Otago before May, as their steamer leaving this month is taking out trout-ova to the Otago Acclimatisation Society. When the lobsters have been shipped, I will send you, as requested, an account of any expenses that may have been incurred.

With regard to the second part of your letter, I think that consignments of turbot would in all probability be successful; but there would be little chance of success with the herring, cod, or haddock. Perhaps some small codling might be managed, but I am practically sure that it would be useless to try herring, as we have never been able, even in the large tanks in our aquarium, to keep them for any length of time.

I do not think that any attempt to deal with the ova at the present time would be practicable, as all attempts to rear the larvæ of these fishes to the adult form under artificial conditions have failed.

With regard to your fourth question, from my experience in our aquarium, I am inclined to think that a fall of temperature to 30° Fahr. would be fatal to all the species named, though I have no direct observations to go upon. We have noticed that in the coldest winter weather the death-rate in the tanks is increased.

I am, &c.,

The High Commissioner for New Zealand.

E. J. ALLEN.

SIR,—

417 Great Western Road, Aberdeen, 14th March, 1906.

On returning from the Continent I find your letter of the 27th ultimo, regarding the introduction of European fishes into New Zealand. In reply to the queries you put, it has to be pointed out that the fish mentioned differ very much as to their power to withstand altered conditions: it ought not to be difficult to transport turbot, if small; cod also, or codling, would also be capable of being taken,