

receptacle, the process would appear to be one of transformation only, the lateral and dorsal spines being slowly unfolded from their earlier position alongside the carapace. Numbers of larvæ were seen with these spines in the intermediate stages, some having the dorsal spine lying close to the carapace, some semi and others wholly erect. Thousands of larvæ continued to hatch out daily, and were liberated on the first of the ebb tide between the station and Quarantine Island. The two adults were replaced in the No. 1 pond on the 10th December, 1908, the remaining eggs being allowed to hatch and the larvæ to escape through the valves in the same manner as the lobsters. None of these have since moulted, and I am unable to say if any have yet spawned again. The hatching of the eggs was proceeding in such a satisfactory manner when the adults were replaced in the pond that the slightest doubt of the vast majority of them hatching out need not be entertained. Unlike the lobsters, very few eggs were shed during confinement. The period of fosterage is about two months shorter, and the results of the first year's experiment may safely be estimated at from six to seven million larvæ being liberated. A number of these larvæ may easily fail to escape through the valve (this has frequently been the case with the larvæ of flounders), and a close watch is being kept on the bottom of the pond for the young crabs. Although more of the adults have died from various causes, the final results of the season's operations have proved much more satisfactory with the crabs than the lobsters, and, in fact, leave little to be desired; and I think we may safely look forward to the time when their successful acclimatisation will be an established fact. The rapid spread along the coasts of Victoria of the accidentally introduced English shore-crab (*Carcinus mænas*) tends to lead one to conclude that the edible crab, once established, will spread with equal rapidity along our coasts.

This report has drawn out to far greater length than I anticipated, but I trust that I have been able to place the facts clearly before you. The results of the experiments have been very encouraging so far, and justify their continuance and enlargement. With one important exception it is a record of complete success, and we are now in a position to place a finger on the one serious obstacle to be overcome, and that is the failure of the egg-bearing lobster to carry a full batch of eggs until all are hatched. I have before referred to the method adopted by the U.S.A. Fish Commissioners, and I think that method suggests the best lines on which future operations should be conducted by us. Our experience has gone to prove that the lobsters, if kept in suitable ponds (not unless), will carry their eggs in a perfectly clean and healthy condition for at least six months. With the provision of an efficient filter, the substitution of hard-rubber piping instead of the iron at present in use, and several other alterations to the existing plant, there is no reason why the eggs should not be at this stage combed off the swimmerets, and the hatching completed by means of Macdonald jars with no greater loss than is experienced elsewhere—namely, 5 to 10 per cent.—instead of the enormous loss of something like 75 per cent. as at present. Two of the present ponds were not constructed for the accommodation of egg-bearing crustacea, and, although they are altogether unsuitable for this purpose, they are all that is required for the male lobsters and male crabs after being removed from the spawning-ponds, and they could be utilised for this purpose until specially constructed ponds were provided.

In conclusion I would beg to point out to you the fact that, under existing conditions, the good results from last season's labours are not likely to be repeated. Already the nine berried lobsters in No. 2 pond are losing a great many eggs. The pond is unsuitable. Not only is this so at present, but with the arrival of another shipment the confusion would be greatly increased, and no good results may be expected until such time as specially constructed ponds are provided for the isolation of the egg-bearing female lobsters and crabs.

I have, &c.,

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The following literature has been consulted almost daily, and I beg to acknowledge my indebtedness to the various authors; also to Dr. C. H. Williamson, M.A., B.Sc., and Mr. H. C. Chadwick, A.L.S., for so kindly supplying other information and reports:—

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