

(No. 33.)



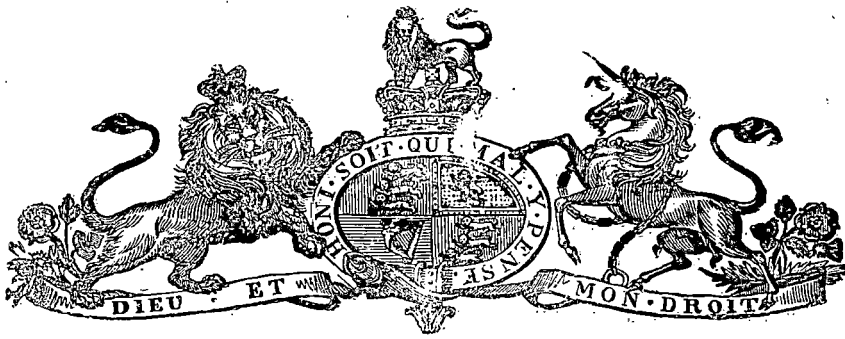
1885.

PARLIAMENT OF TASMANIA.

SALMON COMMISSIONERS:

REPORT FOR 1884.

Presented to both Houses of Parliament by His Excellency's Command.



To His Excellency SIR GEORGE CUMINE STRAHAN, Knight Commander of the Most Distinguished Order of Saint Michael and Saint George, Governor and Commander-in-Chief in and over the Colony of Tasmania and its Dependencies.

MAY IT PLEASE YOUR EXCELLENCY :

THE Salmon Commissioners have the honor to present to Your Excellency their Annual Report.

The principal work accomplished by them since their last Report, dated 14th July, 1884, has been the importation of a further and very large supply of Salmon Ova from Ireland. Those gentlemen who had assisted in last year's experiment again gave their services, and Mr. Brady so arranged his professional engagements that he was enabled to superintend the all important process of fertilising the Ova from carefully selected fish. These Ova, numbering about 160,000, collected from the 8th January to 14th February last, were conveyed by Mr. Brady himself in four separate journeys to London. About 10,000 were packed by Mr. Youl (as an experiment) in a case designed by Mr. Johnston, of Stainsby Road, Poplar, E. London. This case was shipped on board the s.s. *Tainui* on 28th January, 1885, arriving in Hobart on 14th March. When unpacked at the Ponds about two-thirds of the Ova were found to be living. This case was in reality a portable ice-house, of the following dimensions:—4 ft. 4 in. high, 2 ft. 11 in. wide, and 2 ft. 8 in. long, insulated with several inches of charcoal, and felt-lined. It had a series of six trays, in which were the Ova packed in moss, the bottoms being perforated. Under each Ova tray was a shallow zinc tray with a small pipe at front and back. Above each Ova tray was an ice tray, and at the bottom of all a small water-tank and tap connected with the outside. The ice trays were kept supplied from the refrigerator of the steamer during the voyage, the melted ice water passed through the moss and into the shallow zinc tray and thence through the small pipes into the tank at bottom, where it was drawn off through the outer tap as occasion required. The Ova trays were not intended to be moved or in any way interfered with during the voyage.

The only position in the *Tainui* available for the case was adjoining the refrigerating machinery, where the temperature is usually about 80°, and it was therefore necessary to construct a small room lined with felt for its reception. The care of the room and contents was entrusted to a passenger—a friend of Mr. Brady's—who was *en route* to Tasmania; and, in order to preserve as equal a temperature as possible, instructions were given that the door of the ova room should be closed whenever entered, and a lamp used for light. The Commissioners have every reason for believing that these instructions were faithfully carried out.

Although upon arrival at the Ponds so large a percentage of living ova was placed in the hatching-boxes, the Commissioners regret to have to report that a heavy mortality at once commenced, and continued to such an extent that, out of the estimated number of 10,000 ova shipped, there are now at the Ponds only about 50 living fry. The cause of this mortality is somewhat obscure. It may have been due to changes of temperature to which the ova were necessarily subjected on the voyage during the replenishing of the ice-trays, or to the ova themselves not being properly fertilized. It is singular that a further portion of the same lot of ova sent later on in the *Yeoman* proved to be the most unfruitful of that shipment, many of the boxes containing only three or four living. This fact would lead to the suggestion that the fertilization was imperfect. Mr. Johnston's invention can therefore be scarcely said to have had a fair test on this occasion. It has, the Commissioners are informed, been tested upon a larger scale by a shipment of several such cases to New Zealand, under the care of Mr. Farr, Secretary to the Canterbury Acclimatisation Society. The ova have arrived in New Zealand with a very large percentage alive; but until the hatching out is complete it would be premature to express any opinion as to the amount of success obtained.

The system has certain drawbacks, the more prominent of which appear to be the changes of temperature which may take place from opening the boxes for the daily supply of ice, and the risk

resulting from any negligence of the caretaker during the voyage. There is also the further risk of accident to the refrigerator, which would be absolutely fatal by destroying the means of the ice supply.

The old and well-tried system of the ice-house has much to recommend it in the steady temperature which it secures, and has not yet failed where the drainage has been good.

The remainder of the ova, about 150,000, were packed in 101 boxes, in moss, and shipped in the *Yeoman*, which left London on 27th February last, arriving in Hobart on 4th May. On arrival the ice-house was opened and the ova removed to the Ponds in a similar manner to that adopted last year and described in the Report.

On this occasion the construction and arrangement of the ice-house was found to be perfect, the drainage especially being so good that no water had lodged. Much of the success of the shipment may undoubtedly be attributed to this fact, and it is highly creditable to Mr. Youl, who superintended its construction in England, and to whom the defects of the *Abington's* ice-house last year had been pointed out and improvements suggested by the Commissioners. The house was built in the usual form, but at the bottom a batten grating was placed, through which the melted ice water passed into a well connected with the bilge of the vessel. On this grating a layer of ova boxes was tightly wedged and covered with several tons of ice. On the top of this ice another layer of ova boxes was similarly fixed and securely fastened by deal battens screwed to each case, the ends resting on a fillet round the side of the house, provided to prevent the possibility of a subsidence of the boxes had the ice all melted away. Very little of the lower supply of ice had melted, and these boxes had therefore a solid bed during the voyage.

An Appendix to this Report supplies details relating to the shipment. The hatching is now (25 June) almost complete, there being only about 50 ova remaining. The living fry exceed 36,000.

The Commissioners think that this result is one upon which the Colony can be congratulated, such a success never before having been attained.

The following Return will illustrate more forcibly the success of this shipment as compared with former shipments:—

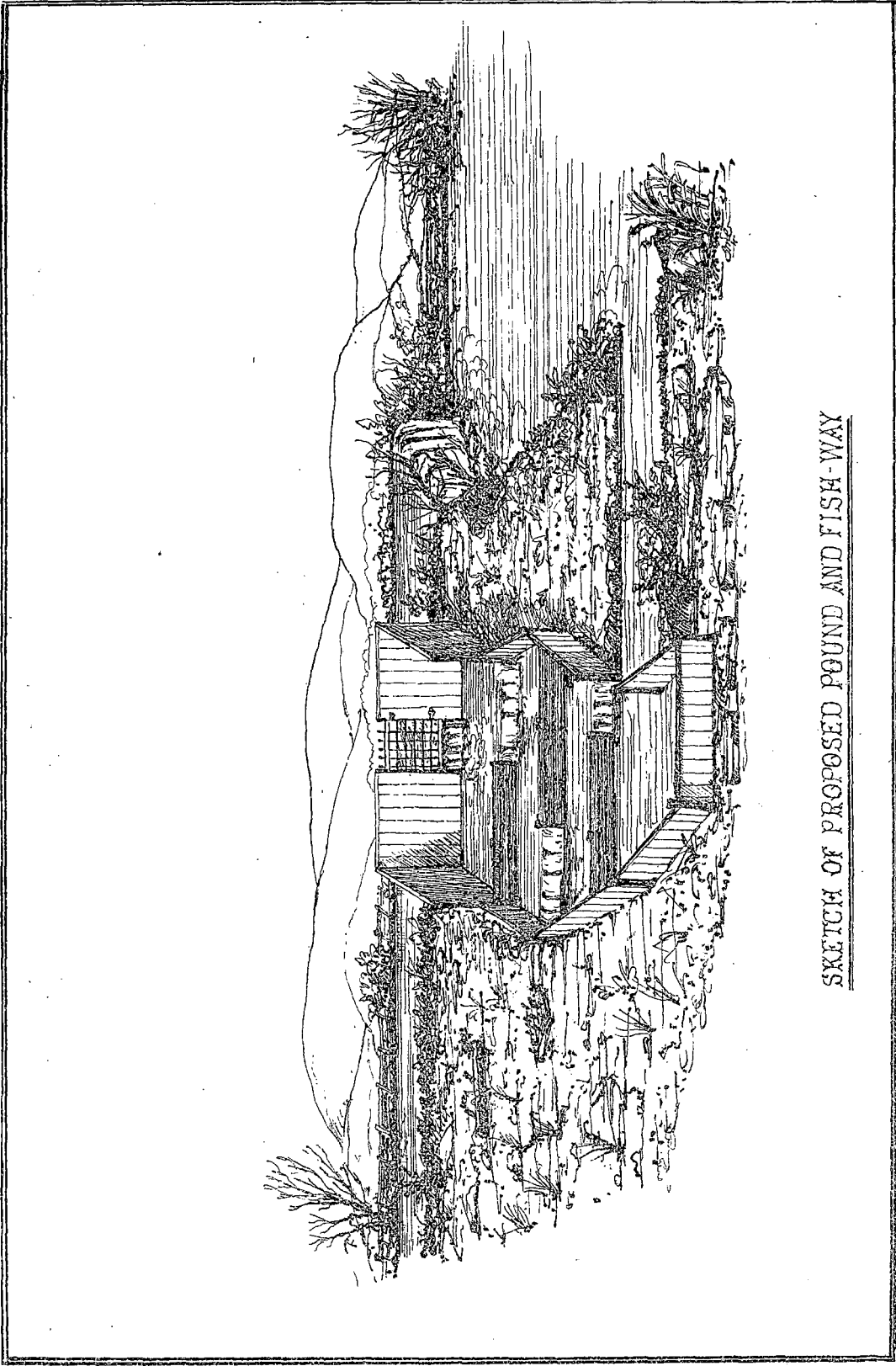
Year.	Name of Vessel by which Ova sent.	No. of Ova shipped.	Arrived healthy.	Result in Fry.
1864....	<i>Norfolk</i>	about 102,000	34,700	3000
1866....	<i>Lincolnshire</i>	102,000	30,000	6000
1884....	<i>Abington</i>	80,000	4400	1250
1885....	<i>Tainui</i>	10,000	6500	50
1885....	<i>Yeoman</i>	150,000	50,000	36,000

A striking feature in this year's importation has been the success attending that portion of it in which, prior to packing, the ova had arrived at that stage when they are known as "eyed." In this lot scarcely a dead one was to be found. This circumstance would seem to indicate that in future experiments ova alone which have arrived at the "eyed" stage should be packed. It may, however, be observed that hitherto in our hatchery at the Plenty the practice of keeping ova until the development of the eyes before transmitting them to other colonies has always been observed, and the Commissioners believe that this is now becoming the practice of experienced pisciculturists elsewhere.

During the year the hatching-house at the Plenty has been doubled in size, and a series of hatching-troughs has been constructed according to designs prepared by Mr. Saville-Kent, the Superintendent and Inspector of Fisheries; the plan adopted being a simplified modification of that used extensively in California and other parts of the United States, and there known as "Williamson's "Double Riffle" system. The troughs were used for the reception of the *Yeoman* ova, and have proved highly satisfactory. The troughing conveying the water supply from the Plenty to the Ponds has also been entirely renewed, and the establishment is now in thorough working order.

From last year's shipment of ova per *Abington* 1250 fish survive. On 24th March 150 of these were placed in the Styx and Falls Rivers, and 1100 remain in the Ponds to be liberated as soon as they have assumed the smolt dress.

The future home of these, and also of the fry from the *Yeoman* shipment, will shortly occupy the earnest attention of the Commissioners. The proper stage at which Salmon should be liberated is a matter upon which experts are not yet agreed.



SKETCH OF PROPOSED POUND AND FISH-WAY

The Californian, or American Brook Trout (*S. fontinalis*), introduced by the Commissioners from New Zealand in May, 1883, are now spawning. 24 of these fish have been artificially fecundated at the Ponds, the greater number by the resident assistant, and several natural redds are now formed in the rills attached to their pond. The value of this species for sport, &c. has been noticed in former Reports, and the Commissioners hope shortly to be in a position to introduce this handsome and attractive fish into several of the streams of the Colony.

In order to promote the more rapid acclimatisation of the *S. Trutta* in various rivers of the Colony, the Commissioners have made special arrangements by which they hope to secure by artificial means a large supply of fry for distribution. The greatest care will be taken to procure the true type of fish, and those from which ova are taken will be specially selected by the Inspector of Fisheries.

Mr. Saville-Kent has proposed the construction of a combined fish-pound and fish-way on the Plenty on one side of an existing dam close to Redlands, which would afford the fish an easy access to their spawning grounds, and, at the same time, be a useful trap in which to procure migratory forms of Salmon for the artificial impregnation of their ova. The Commissioners cordially concur with Mr. Kent in this recommendation. A diagrammatic sketch of the proposed pound and fish-way is attached to this Report.

The revenue from sale of ova for the year shows a considerable diminution. This was due to the absence of the usual annual order for 10,000 from the Geelong Fish Acclimatising Society, owing to the local scarcity of water from an exceptionally dry season.

The revenue from fishing licences has, however, increased most satisfactorily, and if some special means could be adopted to prevent the poaching now known to exist, this revenue would be very materially increased.

The Commissioners are of opinion that if effect were given to their proposal made to the Government in September last—"that the existing law fixing the fishing and close seasons for Salmon and Trout be repealed, and that statutory power be given to the Governor in Council to define the fishing and close season for all or any of the rivers and streams containing Salmon or Trout at such dates as may be suitable to the particular rivers or streams,"—a large increase in the sale of fishing licences would be the result:

From their recent experiences the Commissioners feel now very confident that their efforts for stocking our rivers with the finer Salmonidæ will be crowned by success, and that the acclimatisation of these noble fish will prove to be a most valuable and reproductive work.

In the Report of last year the best thanks of the Commissioners were given to those gentlemen for whose zealous and invaluable assistance they felt so deeply indebted. On the present occasion, however, after the most successful shipment to Tasmania ever made, a mere repetition of thanks to Mr. Youl and Mr. Brady seems so inadequate that the Government have been requested to mark in some more permanent manner their appreciation of valuable services repeatedly rendered to the Colony by these gentlemen, frequently under circumstances involving fatigue, exposure, and discomfort.

The Commissioners have also to thank the Shaw, Savill, and Albion Company, Leadenhall-street, London, for their kindness in conveying the *Tainui* case to Hobart free of charge; and they have again to thank Messrs. Mahony, Moore, Alexander, and Nevin for their assistance rendered to Mr. Brady during the last two years.

For the Commissioners,

J. W. AGNEW, *Chairman.*

Hobart, 25th June, 1885.

APPENDIX.

Showing the number of Salmon Ova taken to London from Ireland by Mr. T. F. Brady, Chief Inspector of Irish Fisheries, for shipment to Tasmania per s.s. *Tainui* and *Yeoman*, with particulars as to localities where obtained, &c. Packed in 49 boxes numbered 1-13. These Ova were taken on 12th January, 1885, from 14 female fish, weighing respectively,—1 of 23 lbs., 2 of 16 lbs., 4 of 12 lbs., 2 of 8 lbs., 4 of 7 lbs., and 1 of 6 lbs., fertilised by the milt of 17 male fish of various weights from 25 lbs. to 9 lbs. The male fish of 25 lbs. and the female of 23 lbs. were sent to Hobart as type fish, and are now to be seen in the Royal Society's Museum, Hobart. The Ova were taken to London by Mr. Brady, arriving there on 14th January, 1885. 70,000 from River Erne; taken 12th January, 1885.

On unpacking this lot they proved to be a good average one, many boxes containing a splendid lot of Ova; others an indifferent lot. It is estimated that 20,000 survived.

36,000 from River Erne; taken 24th January, 1885. Packed in 21 boxes, numbered 14–19, being the greater portion of Ova taken on 24th January, 1885, from 6 female fish weighing 2 of 12 lbs., 2 of 10 lbs., 1 of 9 lbs., and 1 of 8 lbs., fertilised by the milt of 9 male fish, weighing from 20 lbs. to 12 lbs. The Ova arrived in London on 27th January. This lot turned out the worst of the shipment; many of the boxes contained only 3 or 4 living eggs.

NOTE.—The remainder of the Ova taken from this lot of fish were shipped in the *Tainui*.

10,000 eyed Ova from River Blackwater. Packed in 15 boxes, marked "Eyed B," impregnated on 14th, 15th, 17th, and 22nd December, 1884, from fish taken out of the River Blackwater, County Kerry. These Ova had been in the hatchery of Mr. Mahony, and were taken from there by Mr. Brady on 8th February, arriving in London on 10th February, 1885.

This was the most successful lot of the shipment, scarcely a dead ovum being found; a few were hatching when unpacked.

30,000 taken from River Erne. Packed in 13 boxes marked 20—20P. Some of this lot were taken from fish of 6 and 8 lbs., the remainder coming from the hatchery of Messrs. Moore and Alexander, under the management of Mr. David Nevin. They reached London 17th February, 1885. This lot proved to be an indifferent one, only about 5000 living.

10,000. Packed in metal trays and moss in 3 boxes; 1 box very good, the other 2 producing fair results.

10,000, *Tainui*. Estimated that one-third survived the voyage.

SALMON AND TROUT BREEDING ESTABLISHMENT.

RETURN of the Expenses of the Salmon and Trout Breeding Establishment for the Year 1884.

	Salaries.	Other Expenses.*	TOTAL.
Secretary, Superintendent's Assistant, and Water Bailiff, including Conservancy of the River Derwent	£ s. d. 238 1 3	£ s. d. 577 1 7	£ s. d. 815 2 10

* Includes £459 18s. 5d. expended on importation of Ova.

RETURN of the Distribution of Ova and Fry from the Breeding Ponds, River Plenty, during 1884.

OVA.	
Victoria	2000
FRY.	
River Plenty	4150
Rivers Falls and Styx	2300
Garden Island Creek	400
Lake Rivulet	500
Mr. Cahill, New Norfolk	800*
North Esk	500
	8650

* 50 placed in the Jordan, the remainder dying *en route* to East Coast.

RECEIPTS.

Sale of Ova	£ s. d. 10 0 0
Fishing Season, 1884–85	205 10 0
	£215 10 0

PHILIP S. SEAGER, *Secretary Salmon Commissioners.*