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PARLIAMENT OF TASMANIA.

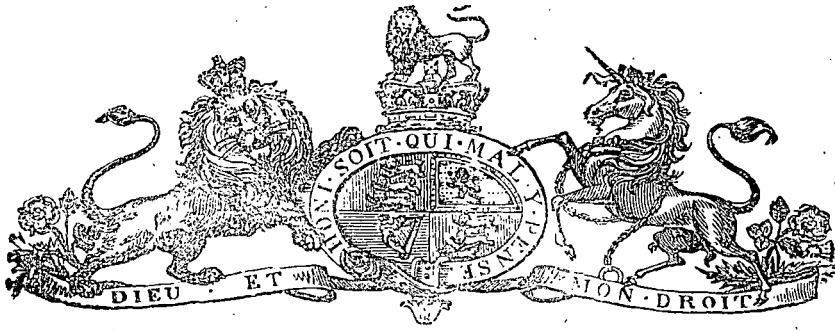
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**SALMON COMMISSIONERS:**

REPORT TO 30<sup>TH</sup> JUNE, 1884.

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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.

WE, the Commissioners appointed to assist Your Excellency in the management and general superintendence of the Salmon Fisheries throughout the Island, have the honor to report that since our last Report, dated 20th July, 1883, our principal efforts have been directed to the procuring a further supply of Salmon Ova from the United Kingdom.

Salmon Ova.

The Hon. J. W. Agnew, who had represented the Commission in England for about two years, requested, on the eve of his return to Tasmania in 1883, that some one should be appointed to succeed him as Financial Agent in London. Messrs. J. A. Youl, C.M.G., of Waratah House, Clapham Park, London, and Mr. T. F. Brady, Chief Inspector of Irish Fisheries, who had been assisting Dr. Agnew, were, with Mr. Richard Philpott, merchant, of 3, Abchurch Lane, London, accordingly appointed by the Government as a Committee of Management, and authority was at the same time forwarded to the Crown Agents in London to honor Mr. Philpott's drafts for the unexpended balance of the vote for Salmon Ova in their hands.

Appointment of Committee in England.

The Committee at once entered heartily into the work entrusted to their care. Unfortunately, they were at an early period deprived of much valuable assistance from Mr. Brady, owing to the circumstance that heavy and unexpected official work in connection with his being a Member of a Royal Commission on Trawling in England and Scotland, and another on Piers and Harbours in Ireland, fully occupied such time as could be spared from his usual duties. Happily, however, at this juncture Mr. Herbert Brady arrived at home from China, and volunteered with such kindness and zeal for the work which his father had always so much at heart, that Mr. Philpott, writing on the 18th January, was enabled to say, "I had prepared copies of a great deal of correspondence to send you, as I was really apprehensive of failure to obtain ova; however, there is no necessity for that now, as Mr. Brady's son appeared yesterday with between 50 and 60,000 ova."

Difficulties met by the Committee.

The greatest difficulty hitherto experienced had been to procure a vessel sailing at a suitable time, and as it was known that several steamers would leave London with emigrants for Hobart, the co-operation of the Immigration Commissioners was sought and was cheerfully given, instructions being sent to their Agents in London to afford every facility to the Commissioners.

Co-operation of the Tasmanian Immigration Commissioners.

The s.s. *Gulf of Carpentaria* was appointed to sail with emigrants for Tasmania early in December last, and steps were at once taken to forward the Salmon Ova by that vessel. Messrs. Youl, Philpott, and the Immigration Commissioners' Agent, Mr. Buckler, visited the vessel to fix the position of the ice-house and arrange for its construction; but as the ova could not be obtained at that early date, this scheme had to be abandoned.

Engagement of a vessel for conveyance of ova.

The next steamer for Tasmania, the *Abington*, was advertised to leave London early in February, and the necessary preliminary measures were taken to send the ova by that vessel.

As it was known that the ova would be ready for shipment some time prior to the date named for the *Abington's* departure, Mr. Youl made application to the proprietors of the Wenham Lake Ice Co. (who, in 1863, had shown their interest in our Salmon acclimatisation by placing their ice vaults at Mr. Youl's disposal) for permission to pack the ova in their ice-vaults, and store them there till the vessel was ready for their reception. This permission was promptly given, and everything was thus ready for the arrival of the ova.

Assistance afforded by the Wenham Lake Ice Company, London.

Through the co-operation (procured by Mr. Brady) of several proprietors of Salmon Fisheries in Ireland, a large supply of ova (60,000) was in the meantime collected, and Mr. Herbert Brady, with Mr. Nevin, Head Keeper to R. L. Moore, Esq., County Donegal, accordingly arrived with them in London, as already stated in Mr. Philpott's letter, on

Salmon ova obtained from Ireland.

the 17th January. (For particulars as to donors of ova, and of localities whence taken, see Appendix A.) The greater number of these ova were at once packed in the Wenham ice vaults in his usual manner, in moss and charcoal, by Mr. Youl, who then telegraphed for a fresh supply, with the result that Mr. Herbert Brady arrived on the 30th January with an additional 20,000. Of the total number, about 9000 were packed in a somewhat novel manner, viz., between sheets of muslin laid on perforated zinc trays.

Shipment of  
the ova.

On 31st January, 32 of the boxes of ova were removed from the Wenham ice vaults and carefully laid on board the *Abington*, at the bottom of the ice-house which had been specially built for their reception, and two tons of ice were placed over all. On 1st February, five tons of ice were added, and on the following day the house was so far filled with ice as to leave space only for the eleven remaining boxes, which were placed at the top, and the house finally closed.

Departure of  
the *Abington*  
and arrival at  
Hobart.

The *Abington* sailed for Hobart on the 19th February. On 1st May she arrived, after the rather protracted voyage of 71 days.

Removal of  
the ova to the  
Salmon Ponds.

Shortly after her arrival the ice-house was opened and a box of ova examined. Live ova being visible the box was returned to the house, which was at once closed again. On 2nd May, the necessary arrangements having previously been made, the ice-house was finally thrown open at 7 A.M.—the morning being cold and frosty—and the ova boxes, with the exception of one which was sent to Launceston, were transhipped to a boat, which at 8 A.M. was towed to New Norfolk (distant 23 miles) by a steam launch, on board of which was placed about a ton of the ice which still remained undissolved. On arrival at New Norfolk, 12.30 P.M., the ova boxes were placed in a spring-van,—kindly provided by the Chairman, R. C. Read, Esq.,—on bags of straw to prevent concussion, ice being freely distributed throughout, and the whole covered with blankets saturated with water. The remaining ice was placed in another vehicle. A start was at once made for the Ponds on the Plenty, distant 7 miles, which were reached at 2.30 P.M. The task of unpacking the ova boxes was undertaken by the Assistant at the Ponds, and by Commissioners Seal, Johnston, Beddome, and the Secretary, who had accompanied them from Hobart. The ova were carefully placed in the hatching-boxes. The temperature of the water was 45° F., but by the use of ice was quickly reduced to 42° F. When all was done it was very disappointing to find that out of the 77,000 ova in the boxes only about 6000 were living. The condition of the boxes varied very much; there was no time to count all, but in one marked “Limavady,” which was carefully counted, the number of living ova was found to be 230. The box of “eyed ova” (Appendix A.) contained 25 alive, all of which hatched out before 7th May.

Of the three boxes marked by Mr. Youl “Erne Top” (Appendix A.), it was found that only two were at the ponds, the third having been sent to Launceston. The state of things in these two boxes was very bad; the ova, as already stated, had been placed between layers of muslin, and these were laid upon trays of perforated zinc. Great numbers of ova were found pressed into the perforations, many others were matted to the muslin and dead. The exact number of living ova in the two boxes was 160 out of about 6000. Referring generally to the condition of the boxes, they appeared not to have been sufficiently supplied with moss, as upon removal of the lids a large amount of vacant space was visible. Owing to the defective drainage of the ice-house, due apparently to a blunder on the part of a workman, referred to hereafter, the accumulated ice-water had formed in many instances a sort of pulp with the saturated moss and charcoal, in which large numbers of putrid ova were embedded; whilst the reduction of the general contents of the boxes into this condensed pulp had evidently allowed of an excessive amount of motion to and fro to the great damage of the ova, which were found in large numbers matted together and putrid.

In order that the result of each lot of ova might be ascertained, they were carefully placed in separate hatching-boxes.

On the 5th May the living ova in the hatching-boxes were counted, and the result appears in the following Return, which also gives other particulars which may prove instructive and interesting :—

Markings on boxes.	Number of ova shipped.	Living on 5th May.	Percentage to Total shipped.	Date of taking ova from parent.	Date of hatching of first ovum.	Period from taking of ova to hatching.
Kerry .....	20,000	1095	5.47	17 & 22 Dec., 1883	6 May	143 days
Erne and Erne Top .....	30,000	{ 518 165*	{ 2.27	15 Jan., 1884	5 May	112 days
Limavady .....	10,000	1274	12.74	15 Jan., 1884	5 May	112 days
X .....	20,000	1331	6.65	23 Jan., 1884	29 May	123 days
Eyed ova .....	Unknown	25	..	1 Dec., 1883	3 May	155 days

\* At Launceston.

The hatching continued up to the 1st July, and on that date there were in the boxes 1825 fry.

The following Return shows the mortality of ova and fry from the date of the first count, 5th May, to the end of the hatching, 1st July :—

Markings on boxes.	Ova died.			Fry died.			Total deaths ova and fry, to 1st July.	Total ova alive on 5th May.	Living fry at Ponds on 1st July.	Total ova shipped.	Percentage of fry to ova shipped.
	May.	June.	Total.	May.	June.	Total.					
Kerry .....	321	48	369	64	49	113	482	1095	613	20,000	3.06
Erne and Erne Top .....	267	83	350	9	51	60	410	518	108	27,000*	.4
Limavady .....	854	284	1138	21	17	38	1176	1274	98	10,000	.98
X .....	205	108	313	1	25	26	339	1331	992	20,000	4.96
Eyed ova .....	..	..	..	7	4	11	11	25	14	Unknown	

\* Not including 3000 sent to Launceston.

It may be mentioned that a large number of the living ova proved unfertile, more particularly those in the boxes marked "Limavady."

A number of fry on hatching out were found to be deformed.

The number of young fish healthy and well formed at the present date in the boxes is about 1700.

Mr. Youl's observations as to the difficulty of spreading some of the ova suggest to us the possibility of many of them not being ripe on removal from the mother; and the result of the hatching showing the greater success with the 20,000 (X) certainly seems to bear out Mr. Youl's observations in a letter, in which he writes—

"I could not spread the ova to my satisfaction over the moss in many of the boxes first packed, notwithstanding all the pains I took to do so. They would adhere together as if glued; several persons say it is owing to the eggs being pressed out of the female fish before they are ripe, but they allege that it is these eggs that are called blind eggs, and keep bright and look alive long after they should have hatched. I drew Mr. Herbert Brady's attention to this, and the 20,000 last brought by him I was able to spread them evenly and to my satisfaction."

Prior to the transshipment of the ova to the Plenty Ponds it had been arranged, at the instance of some gentlemen in Launceston, that a proportion should be sent there to be hatched in a small establishment which had been prepared for the purpose, in the vicinity of the town.

Ova sent to Launceston.

Those who were interested in the Launceston experiment, however, began, as time went on, to fear that the temperature of their northern waters—62 F. on 4th March—would be too high, and they therefore suggested that only a small number of ova should be apportioned to them, in order that a greater degree of success might be secured for the Plenty establishment. Accordingly, a box containing about 3000 ova, and enveloped in ice and straw, was forwarded by rail to Launceston simultaneously with the others to the Plenty. The box, though taken at random, proved to be one of the three already alluded to having zinc trays; the markings had become obliterated. On arrival it was found to contain 165 living ova, whereas its two companion boxes at the Plenty produced together but 160. The result, however, is very bad, as only 6 fish were hatched out.

Doubts having so often been expressed as to the character of the acclimatised salmonoids in our water, we requested Mr. Brady to send us some type fish, and he forwarded 2 females and 1 male from the River Roe, Co. Londonderry, the ova of which formed part of the *Abington's* cargo. These type fish have been carefully stuffed, and are now exhibited in the Hobart Museum.

Type fish.

The condition of the ice-house of the *Abington* was, without doubt, the chief cause of the heavy mortality in this shipment. One of our number who was present when the ova boxes were removed, thus reports of its condition :—

Condition of the *Abington's* ice-house on arrival.

"On arrival of the *Abington* I caused the ice-house to be opened for the purpose of examining a box of ova. The contents of the house presented a confused appearance; some of the boxes were afloat in various positions, the greater number being submerged. After examination, and finding living ova in one of the boxes, it was at once returned and the house closed.

"On the following morning the house was again opened, and upon a closer examination it was found that the greater portion of the ice had melted and a large quantity of the water had been unable to find exit. The boxes were at once removed, and as each one was handed up a stream of water poured from it. One box was found with a broken lid. The blocks of ice remaining were removed. Owing to the short stay of the vessel, and the position of the cargo for Launceston, a further critical examination of the house could not be made. The Commissioner resident at Launceston was asked to examine the drainage after removal of the cargo at Launceston. He did so, and reported that there were at the date of his examination 20 inches of water still in the house, and that the outlet of the drainage pipe was choked with moss, charcoal, and splintered wood, which no doubt came from the box with broken lid. The rose at the end of the drainage pipe was partly covered with the lead lining of the house, or choked with solder, &c., leaving only 7 of the 13 holes free, and these were also choked with the moss, &c. as above stated.

"The rose was forwarded to Hobart, and fully bears out the description given by the Launceston Commissioner.

"It cannot be doubted that the failure of the drainage is the cause of the great mortality of the ova in this shipment. The boxes must have washed about with every motion of the vessel. The moss was quite dead in the boxes, and the ova was indiscriminately mixed up with it and the charcoal drainage."

Gentlemen  
who have  
rendered ser-  
vices on this  
occasion.

The services rendered by Mr. Youl on this occasion cannot be too highly estimated. he has, as heretofore, proved himself to be a warm and zealous friend in the cause of our salmon acclimatisation. It is not by any means a light task to undertake the part which Mr. Youl did in packing the thousands of ova in moss and ice in the Wenham ice vaults in the middle of an English winter, and no thanks can be too cordial or too emphatic for all he has so willingly done on this and on many former occasions on our behalf.

Mr. T. F. Brady's successful efforts to procure ova so late in the season, and at a time when, as we are informed by Dr. Agnew, he was overwhelmed by official work in Dublin, London, and elsewhere, demand our very warmest acknowledgments, and this the more especially as it is not the first occasion on which we have been indebted to his kindly zeal. That Mr. Brady should have promised his invaluable aid for another shipment only serves to increase, if possible, our sense of indebtedness.

It is difficult to see how, after all previous efforts, any measure of success could have been secured had it not been for the very special and timely service rendered us by Mr. Brady's son, Mr. Herbert Brady, of the Consular Service in China. Though on leave of absence for delicate health, Mr. Herbert Brady interested himself in the most zealous manner in procuring ova, and in undertaking two journeys with them to London, in winter. We thoroughly appreciate the kindness and energy so freely displayed on our behalf, and although we give Mr. Herbert Brady our most cordial thanks, we feel we must be content still to remain his debtor.

Mr. Philpott's experience in shipping affairs has proved of the greatest service, and we are much indebted to him for the conduct of the correspondence and the management of the financial branch of the experiment.

Special thanks are due to Messrs. Mahoney, Moore, and Alexander for their kind co-operation in supplying Mr. Brady with Ova, and to Mr. Nevin for his journey to London in charge of some of them.

Cost of the ex-  
periment.

The expenditure on account of this shipment is as follows:—

	£	s.	d.
Expenses in England .....	321	19	4
In Tasmania .....	28	19	3
Total .....	350	18	7

Compared with former shipments this is most satisfactory. The prior shipments per *Norfolk* in 1864 costing upwards of £900, and per *Lincolnshire* in 1866 exceeding £800.

Further ship-  
ments.

As Parliament have liberally provided funds for another shipment of ova, it is hoped to renew the experiment on a much larger scale at the end of this year.

Mr. Brady has, as already stated, again offered his services, and is prepared to so arrange his engagements that nothing will intervene to prevent his personal attention to the matter, and he writes that if a vessel can be obtained at the proper time, instead of sending 80,000, he might send 2 or 300,000.

The experience of the world proves that artificial propagation is essential to the proper stocking of rivers with fish. Dr. Francis Day, F.L.S., Commissioner for India to the recent International Fisheries Exhibition, in a Paper read at that Exhibition on "Fish Culture," thus quotes Professor Spencer Baird when reviewing the impoverished condition of American fisheries, and the measures which he deemed advisable:—

"What are now the remedies to be applied to recover from this lamentable condition of the American fisheries? These are two-fold: one consists in the enactment and enforcement of legislation protecting what we have, and allowing natural agencies to play their part in the recovery; the other consists in the application of the art of the artificial propagation of the fish. Either alone, in some circumstances, will answer a very good purpose; the two combined constitute an alliance which places at our command the means of recovering our lost ground to a degree which, but for the experiences of the last ten years, would hardly be credible."

He also points out that in the far-famed Columbia River, where the abundance of salmon was a theme for astonishment amongst those who witnessed it, began to show such signs of decreased supply that the canners took alarm and petitioned for legislation and artificial propagation, and in 1876 a permanent breeding station for the purpose was opened on the M'Cloud River.

In the Sacramento River, Professor Baird observes that, owing to the planting of about two millions of young fish each year, the catch has increased from five millions to fifteen millions of pounds, and has brought up the supply to more than its pristine condition of abundance.

We trust, therefore, that the liberality of Parliament will enable us to continue stocking the rivers of this Colony until the *Salmo salar* becomes one of the regular fishes of the market.

We are happy to be enabled to report that of this species upwards of 100 healthy fish are in a special pond at the Plenty. They are most active fish, rise eagerly to the fly, and promise splendid sport to fly fishermen at no distant date. *Salmo fontinalis.*

At the request of the Government we sought the assistance of Mr. Brady to procure for the Colony a gentleman competent to undertake the duties of Superintendent of the Salmon Ponds, and also to act as Inspector of Fisheries. We pointed out to Mr. Brady that the gentleman to be appointed must possess a knowledge of Ostreiculture. He selected Mr. W. Saville Kent, F.L.S., F.Z.S., and that gentleman has accepted the appointment under a three years' engagement, and is shortly expected in Hobart. He comes with the highest testimonials as to his qualifications; and we can only express our hope that his arrival will mark a new era in the fisheries of the Colony, and that his skill and knowledge may prove such that the fishing industry will enlarge, and be the source of employment and profit to a very much larger number of individuals than at present. That there is room for development of the industry cannot be questioned. *Appointment of an Inspector of Fisheries.*

The appointment of Mr. Kent will necessitate the reconstruction of this Commission, or the appointment of another body to take its place. This has been represented to the Government, and we believe the matter is now under consideration. *Re-construction of Commission.*

Mr. Alexander Riddoch, who has been a member of this Commission for some years, having resigned his seat, the vacancy has been filled by the appointment of Lieut. C. E. Beddome, whose scientific skill will, we are sure, be of much assistance.

The cost of the establishment in 1883 was £319 19s. 2d., the revenue being £266.

ROB. CAR READ, *Chairman.*  
HENRY BUTLER.  
W. A. B. GELLIBRAND.  
MATTHEW SEAL.  
ROBT. M. JOHNSTON.  
A. G. WEBSTER.  
W. TARLETON.  
JOHN SWAN.  
H. WEEDON.  
C. E. BEDDOME.

14th July, 1884.

APPENDIX A.

*SHOWING the Number of Salmon Ova brought to London from Ireland, by Messrs. HERBERT BRADY and NEVIN, with particulars as to localities where obtained, &c.*

20,000  
"Kerry." Mr. Herbert Brady on his first trip brought 20,000, presented by R. J. Mahoney, Esq. Dromore Castle, County Kerry, owner of the Blackwater Fishery, Kenmore. These were taken from fish on 17th and 22nd December, 1883. They were packed in boxes marked "Limavady." There was also a box of "eyed ova," spawned on 1st December, 1883, sent at Mr. Mahoney's request by way of experiment.

Mr. Nevin, Head Keeper to Mr. Moore, brought 40,000.

30,000,  
"Erne" and  
"Erne Top." 30,000 were presented by Robert L. Moore, Esq., Molennan, Londonderry, and were taken from fish in his fishery on the River Erne, on 15th January, 1884. These ova were packed in 15 boxes, 12 of which were marked "Erne," and 3 others marked "Erne Top," contained each two compartments of ova packed between muslin and laid upon perforated zinc trays, of which Mr. Youl wrote, "brought to London in trays packed and placed by me undisturbed in 3 of my boxes."

10,000  
"Limavady." The remaining 10,000 were presented by Samuel L. Alexander, Esq., Roe Park, Limavady, County Londonderry, and were taken from fish from the River Roe, on 15th January, 1884. They were packed in 6 boxes marked "Limavady."

20,000,  
"X." Mr. Herbert Brady, on his second trip to London, on 30th January, 1884, brought 20,000 ova which were packed in 13 boxes marked X. These ova were taken from fish on 28th January, 1884, from the River Erne.

APPENDIX B.

*RETURN showing the distribution of Ova and Fry from the Salmon and Trout Breeding Establishment, River Plenty, during the year 1883.*

OVA.		FRY.	
Victoria .....	12,000	North Esk .....	1000
New South Wales.....	5000	South Esk .....	1000
	17,000	Lake River .....	750
		Northern Rivers .....	250
		Lobster Rivulet.....	500
		River Derwent .....	1000
		River Plenty.....	400
		E. Shoobridge, Esq., M.H.A.....	1300
		Garden Island Creek (died in transit)	400
			6600

PHILIP S. SEAGER, *Secretary Salmon Commissioners.*