

(No. 68)



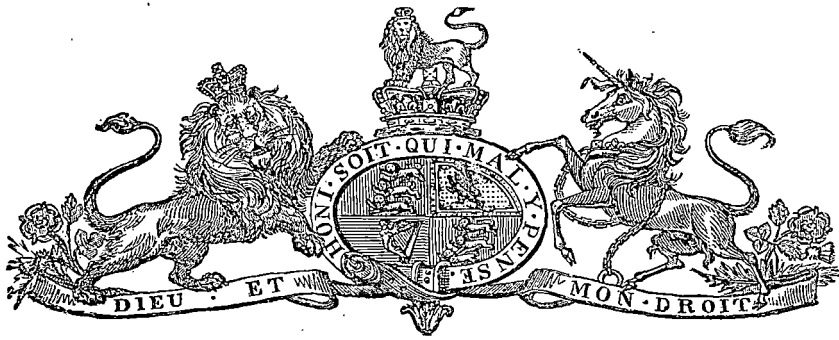
1862.

TASMANIA.

SALMON.

RETURN TO AN ORDER OF THE HOUSE. (*Mr. Sharland, 20 August.*)

Presented by the Premier, and ordered by the House to be printed,
20 August, 1862.



R E P O R T.

To His Excellency Colonel GORE BROWNE, C.B., Captain-General and Governor-in-Chief of the Island of Tasmania.

MAY IT PLEASE YOUR EXCELLENCY.

THE Commissioners appointed by Your Excellency to direct the measures to be adopted for the introduction of Salmon into the Rivers of this Colony have already reported to the Government the arrival of the *Beautiful Star*, and the disastrous result of their first experiment.

They have now the honor to lay before Your Excellency a Report of their proceedings, in their efforts to fulfil the important duty confided to them, from the date of their appointments to the present time.

During the Parliamentary Session of 1860, the question of the introduction of Salmon was referred to a Joint Committee of both Houses. In their Report, presented to both Houses, the Committee recommended that all the arrangements necessary to be made in England in furtherance of this highly important undertaking should be entrusted to the Committee of the Australian Association in London; and, before the appointment of the Commission had been issued by Your Excellency, that body, acting under the authority and instructions received from the Executive Government of the Colony, had already made progress in the task they had undertaken, and had completed all their arrangements before any communication reached, or could have reached, them from the Commissioners.

Aware that among the Members of the Australian Association there were many gentlemen of great intelligence, intimately connected with this and the neighboring Colonies, to all of which the enterprise was of deep interest, who would willingly give their best services to promote its success, the Commissioners cannot but regard as judicious this recommendation of the Committee.

Among others to whom the Committee had looked for valuable assistance was Mr. Edward Wilson, of Melbourne, who had already distinguished himself so greatly by his zeal in the work of acclimatization. The services of this gentleman were, however, lost to the enterprise, by his early return to Victoria, and its chief direction fell into the hands of our fellow-colonist, James A. Youl, Esq.

The zeal and energy displayed by Mr. Youl in the performance of this voluntary and patriotic duty deserve the highest commendation. No personal labor was spared by him to ensure the successful result of the experiment. Mr. Youl was, from the first, fully impressed with the importance of embarking the Ova in a vessel at once swift and roomy, and sailing direct to the Port of Hobart Town. He appears, however, to have encountered much difficulty in his efforts to secure these three conditions,—essential, in the opinion of the Commissioners, to the success of the undertaking.

This difficulty arose chiefly from the fact that, at the season during which the Ova could be obtained, none of the regular first-class ships sailed for this Colony, and that none of the clipper vessels trading to Melbourne could be induced to incur the delay and risk involved in calling at this Port.

After the failure of other negotiations however, the owners of a large and fast ship, the *Zealander*, fulfilling all the necessary conditions, offered to convey the Ova to Hobart Town for a

sum of £750. At the same time an offer to perform this service was made by the owners of a small iron steamer, of only 120 tons, for a charge of £500, but which was to make the voyage jury rigged, and with sails only.

The Commissioners think Mr. Youl committed a fatal error of judgment in preferring this vessel to the *Zealander*; and since they heard that the Ova had been placed on board the *Beautiful Star*, they have regarded the success of the enterprise as all but desperate.

The charge of the experiment on board of the *Beautiful Star* was entrusted to Mr. W. Ramsbottom, a son of Mr. R. Ramsbottom, long distinguished for his skill in the artificial propagation of Salmon.

Mr. W. Ramsbottom has placed in the hands of the Commissioners the Journal kept by him during the voyage of the *Beautiful Star*, and has also furnished them with a Report on the whole experiment. From these sources, from personal communication with Mr. Ramsbottom, and an inspection of the vessel and the apparatus in which the Ova were placed, the Commissioners have obtained a clear perception of all the causes which have led to the failure of this undertaking, and of the conditions that are necessary to a successful result on a future occasion.

The character of the vessel in which the experiment was made must, without other defects, have rendered success all but impossible.

Under no conditions could it be supposed that the Ova or Fry would survive 160 days at sea, nor could it be expected that a vessel of the dimensions of the *Beautiful Star*, and rigged as she was, could perform the voyage much under that period.

The suspended apparatus appears to have been skilfully contrived, and in a suitable vessel; and, under other proper conditions, would in all probability have brought their charge in safety to their destination.

But the small dimensions of the vessel did not afford space to permit it to swing freely, and the constant and excessive rolling kept the gravel in which the Ova were deposited continually shifting, causing their death by mere attrition; and, from the same cause, the apparatus could not safely be approached for many days in succession.

Mr. Ramsbottom has, however, pointed out some changes in the construction of the suspensory apparatus which would, in the opinion of the Commissioners, considerably improve it, and render it as near as possible perfect for a future experiment.

The second apparatus, constructed on the Gimbal principle, was a failure from the first; and, by its excessive motion, soon caused the death of all the Ova which had been placed in it.

But if the Ova had not nearly all perished from the cause referred to, the failure of the ice, 74 days after the sailing of the vessel, must necessarily have led to the same disastrous result; although on board a fast vessel its duration for that period might have been sufficient.

Mr. Ramsbottom calculates that at least two-thirds of the ice embarked, amounting to 25 tons, were lost by melting.

The Commissioners are, however, of opinion that a great part of this excessive waste was due to the faulty construction of the Ice-house, and the mode in which the stream of water was made to pass through it from the tanks to the trays. They believe that such improvements could be made as would certainly guard against this source of failure, and secure the preservation of the ice for a period much beyond that occupied in an ordinary voyage from England to this Colony.

At an early period of the voyage, Mr. Ramsbottom discovered another source of disaster, which, if he had not been able to remove it, by the detention of the vessel at Scilly, would alone have caused the destruction of the Ova.

It was found that the water contained in the iron tanks brought with it to the trays, and deposited on the Ova, so considerable a quantity of that metal, in the form of a fine powder, as to cause the death of great numbers of them before a remedy could be supplied. The remedy consisted in causing the water to pass through a filter before it reached the trays.

The use of wooden tanks, lined with block tin or slate, would effectually prevent future disaster from a similar cause.

The Commissioners have learned that some of the Ova were several weeks old when first placed on the trays. They notice this fact more with reference to any future experiment that may be undertaken than to that which has just terminated. They are of opinion that every precaution

ought to be taken to retard the hatching of the Fry during the voyage, and that, as one important means of obtaining this end, the Ova when embarked should not be more than a few days old.

Mr. Ramsbottom appears to the Commissioners to be thoroughly acquainted with the duty he undertook to perform, and to have discharged it with much diligence and zeal.

They believe that if another effort of the same nature should be made, it could not be confided to a more efficient agent, or one more likely to ensure a successful result.

The chief practical work that the Commissioners have had to perform has consisted in the necessary preparations for the reception of the Salmon Ova, if they should happily reach the Colony in safety, and the construction of a breeding pond.

At their first Meeting, the Commissioners unanimously decided that their attention should at first be confined to the stocking of the Derwent; and that the breeding ponds should be constructed on the bank of one of its tributaries.

After a careful personal inspection of the locality, a spot on the east bank of the River Plenty, about two miles from its junction with the Derwent, was selected as the site of the Pond.

The Commissioners were led to this selection by the generally ample volume, low temperature, and gravelly bed of this stream; while its proximity to the head of the navigable portion of the Derwent, above New Norfolk, affords facilities for the safe transport of the Ova from the vessel importing them to the ponds.

Several other important advantages were secured by this selection; among which were the much smaller cost at which the pond could be constructed on the bank of the Plenty than on the main stream, the more complete security from the danger of floods, and the easier capture of the fish on their return from the sea, for the purpose of further propagation.

The land on the east bank of the Plenty is the property of Robert Read, Esq., of Redlands, and the thanks of the Commissioners are due to that gentleman for the liberal spirit displayed by him in offering, without restriction, the use of any portion of his ground that the Commissioners might deem most suitable for the object they had in view.

After due exploration, a piece of ground, about three acres in extent, half a mile above Mr. Read's residence, was chosen as the site of the ponds. The ground thus selected offered every necessary facility for the cheap and expeditious accomplishment of the undertaking, and was at the same time sufficiently elevated to protect it from the reach of the highest known floods. By Mr. Read's further liberality, permission was obtained to procure the necessary supply of water from his main irrigation channel, by which the labor and heavy expense of a long cutting to the river itself was saved to the public. It was Mr. Read's desire that the use of his land should be gratuitous; but the Commissioners deemed it desirable that a small rent should be paid under a regular and formal lease.

A lease for fourteen years, at a yearly rental of £15, was accordingly prepared, and, on its due execution, the Commissioners lost no time in commencing the necessary operations.

The pond has long since been completed; and the Commissioners believe that in no part of the world has a more perfect work of this character ever been constructed.

Although deeply disappointed by the failure of the late attempt to introduce the Salmon into the Colony, the Commissioners entertain a confident hope that, at no distant period, the work thus constructed under their direction will be put to the test of actual experiment; and they desire to express their earnest trust that the Government and Legislature will not abandon an enterprise, which is calculated to confer on this Colony a material benefit at once so extensive and so enduring, until success has crowned their efforts.

They believe that the stocking of our rivers with Salmon would confer a prominence and distinction on Tasmania which cannot be anticipated from almost any other source.

Until the subject has been further brought under the consideration of the Government and the Parliament, the Commissioners refrain from offering any specific proposal for the further prosecution of the undertaking.

They may, however, with propriety now observe that two other places for the introduction of Salmon have often been proposed as a substitute for the direct action of the Government.

It has been suggested that this important object might be attained by the offer of an adequate reward, or by calling for Tenders.

Both of these plans possess the advantage of securing the Colony against pecuniary loss in the event of the failure of the attempt; and they might both, with propriety, be had recourse to, at least without risk.

But the Commissioners greatly doubt whether an enterprise, which must be new to whatever parties might undertake it, and which would involve in it the embarkation of so considerable a capital, is likely to be soon accomplished in that manner. On the other hand, the Commissioners are of opinion that the causes of probable failure in a future undertaking have been so well ascertained from the late experiment, and could be so certainly obviated and guarded against, that success could hardly fail to crown another effort, except in the case of actual shipwreck, or some similar disaster.

As the Colonies of New South Wales, Victoria, South Australia, and New Zealand are all more or less interested in this question, they may all be expected to bear a share in the expense of future undertakings.

Victoria has already liberally assisted us, and a contribution of £200 has been received from New Zealand. The cost of another, and of each succeeding experiment, if more than one should be found necessary, would certainly not exceed £1,000, which, divided among the five Colonies, would only require from each a contribution of £200: a sum quite insignificant when compared with the importance of the enterprise, and the benefits that must flow from its successful accomplishment.

But, whatever future measures may be adopted for the further prosecution of this great undertaking, the Commissioners trust that the unalterable motto of this Colony, at least, will be "Try again," until all difficulties have been overcome, and complete success achieved.

The Commissioners respectfully refer Your Excellency to the Report of Mr. Ramsbottom, transmitted herewith, for details connected with the experiment on board the *Beautiful Star*, which it is not deemed necessary to embody in their Report.

A statement of the whole expenditure incurred in this experiment is hereto appended. The expenditure under the direction of the Committee in London has considerably exceeded the estimate; but that result need not excite surprise, when the novelty of the undertaking is considered.

Mr. Youl is of opinion that the cost of a future experiment would not exceed £1,000, while Mr. Ramsbottom estimates it at a still less amount.

R. OFFICER, *Chairman.*

APPENDIX No. 1.

REPORT by Mr. WILLIAM RAMSBOTTOM on the late Experiment on the Introduction of SALMON OVA into TASMANIA, in his charge, by the ship "*Beautiful Star*."

THE *Beautiful Star* sailed from London March 4th, with about 50,000 Salmon Ova. J. A. Youl, Esq., and Mr. Robert Ramsbottom, of Clitheroe, accompanied us to Gravesend, where we anchored for the night. The Ova and one young Fry looking well.

March 5th, 1862. Steamed to Margate Roads, lay at anchor for 3 days through stress of weather. The Ova on the glass trays in the Gimbal apparatus are dying in great numbers, caused by the violent rolling of the apparatus keeping them continually in motion.

8th. Weighed anchor; nearly reached the Isle of Wight when a strong head wind compels us to put back to the Downs. Remain at anchor until the 12th instant; during which time the Ova suffer greatly, both from the heavy laboring of the ship, and also from the varnish upon the Gimbal apparatus.

Up to this time the loss of Ova cannot be less than from 4000 to 5000.

Since we put back, wrote to Mr. Youl giving him all particulars respecting the serious loss of Ova and the working of the apparatus. Mr. Youl, on the receipt of my letter, came down at once to see if anything could be done for the preservation of the Ova; but I am sorry to say nothing at this time could be altered.

Mr. Youl could only recommend a strict attention to the suspended apparatus, which hitherto had worked tolerably well.

13th. Weighed anchor 9:30 P.M.; wind south east, very strong.

15th. Busy all day taking out dead Ova and removing from the glass trays those Ova which yet look moderately healthy. Wind east, strong.

16th. Putting back to the Scilly Islands for repairs to the ship, having in the night lost the plug of the propeller space. I find that the rust from the iron tanks is settling very thickly upon the Ova and gravel. Should this rust be allowed to continue, I am persuaded that the whole would be entirely buried within a month.

17th. Reach Scilly this morning. Remain until the 24th instant.

24th. Weighed anchor 12 A.M. Wind W.S.W. The loss of Ova from the 12th to this date is about 2500.

26th. During the night of the 25th, and early this morning, a strong gale from the west. The ship labored extremely, causing the apparatus to swing to and fro with such violence as to render it dangerous to approach it,—the bilge-water also washing up the sides of the ship (even to the deck), some of which fell in amongst the Ova; but the Assistant, seeing it, threw a covering of blankets over the whole of the apparatus, which prevented further injury; and I have good reason to believe that little damage was done by the bilge-water, as but a very little got into the apparatus; but, with the violent tossing and rolling of the ship, and swinging of the apparatus, it is impossible to state the precise loss of Ova caused by this one gale, as I, with the Assistant, were continually picking out dead Ova for the four following days; but it could not have been less than 7000.

The one little Fry, which up to this time had been so lively, died, being 23 days old.

April 5. The weather for the last few days has been much finer. 11 P.M.—Three Fry newly hatched, and looking well. Deaths of Ova for the last 5 days, about 2500.

12th. From the 5th to the 12th instant, 3 to 6 Fry have been hatched per day. At the same time, numbers died whilst hatching. Have been obliged to make use of ice, the temperature having risen 4 degrees in 5 days. It is now 54° in the apparatus.

Should have commenced using ice 5 or 6 days earlier; but, seeing the sailing qualities of the ship, feared to begin with it before it was absolutely necessary. Could calculate, at this time, on a very long passage.

17th. Loss of Ova for the past week, about 3000. Since the 12th instant, the young Fry have all died. The last of them lived 10 days.

During the last two days have been engaged in cleaning out the whole of the Ova beds,—a work which ought never to be done if it could possibly be avoided; but, from the number of decayed Ova that were under the gravel, it was necessary, as wherever any dead Ova were allowed to remain in the gravel, those immediately above them were sure to perish.

May 7th. From the 17th April to this day, nothing of importance has occurred. Weather fine, but hot, causing much trouble to keep down the temperature of the water.

The ice cannot last much longer, at the rate necessary to use it.

The average loss of Ova from the date of cleansing the trays does not exceed 20 per day.

8th. 9 P.M.—To night, as usual, went into the ice chamber. The ice having got very low, discovered a little box of Ova which had been bedded in it by order of J. A. Youl, Esq., before leaving London. On taking up the box, found that the lid was broken off, but that the Ova were well covered with moss.

8th. Had no expectation of finding living Ova (even had the box been perfect); but, on lifting up a portion of the moss in which the Ova were bedded, had the satisfaction to perceive that, amongst the many dead, there were still some living.

Having procured a large vessel and submerged therein the whole (moss, dead and living Ova), carefully took out the moss, and poured off the greater portion of the water. Having done this, emptied the contents of the vessel into one of the trays with all the care and speed possible, keeping it apart from the other Ova; then picked out the dead Ova, about 250 in number, and had 19 living, to all appearance in good health.

This little experiment will no doubt prove of much future value, as indicating a new and successful method of transporting Salmon Ova to distant countries.

9th. During last night and to-day have lost 5 of the Ova taken from the box; but no doubt the cause is from injuries received when cleaning away the moss and placing them in the tray.

11th. The ship pitching and rolling, causing the apparatus to swing so violently as to strike the beam to which it is suspended.

15th. In Latitude 20° 36' S., Longitude 25° 8' W.; wind East, calm. Ice nearly finished. With no better breeze than at present, the Ova must of necessity die.

16th. No change in weather. Have taken from the chamber the last three blocks of ice, which cannot last many hours,—10 P.M.

17th. Latitude 22° 19' S., Longitude 25° 55' W. Have been allowing the temperature of the water to rise a little by degrees; but all to no purpose. Ice all melted about 12.30 A.M., and the whole of the Ova died at 1 A.M., at a temperature of 59°, with the exception of those that had been taken from the moss, which lived eight hours longer, at a temperature of 65° (9 A.M.); being 74 days from London, and 88 days from the time of their being taken from the parent fish.

I can only add, on looking over the Journal, my extreme astonishment at the Ova surviving so long under such tremendous disadvantages.

It is useless to mention the Gimbal apparatus, which was a failure from the beginning.

On the other hand, the value of the suspended apparatus, in which my only hope was placed, was rendered nugatory by the utterly unsuitable character of the ship.

The gale that prevailed on the 26th March (when the bilge-water washed up to the deck) caused the death of 7000 Ova placed on the surface of the gravel, as also of a great number of those deposited under it which could not then be removed, and which, by their subsequent decomposition, proved the destruction of many others.

Under all these disadvantages, it is only surprising that any of the Ova survived for so long a period as 74 days from the date of their embarkation, and 88 days from the time of their being taken from the parent fish.

The above facts show conclusively, in my opinion, that if the late experiment had been made in a roomy and fast ship, with properly constructed tanks, many thousands of the Ova would have reached their destination in safety.

WM. RAMSBOTTOM.

A P P E N D I X No. 2.

STATEMENT of Expenditure.

	£	s.	d.	£	s.	d.
To constructing Salmon Ponds at River Plenty	727	4	11			
Fencing ground round Ponds.....	60	13	0			
Salary to Mr. Ramsbottom, and Accounts paid in Hobart Town	111	6	6			
				899	4	5
Amount reported by Mr. Youl to have been paid by him in England ..	—			1420	0	0
				£2319	4	5