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REPORT OF THE COMMISSIONERS.

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*REPORT of the SALMON COMMISSIONERS. 18th September, 1867.*

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

MAY IT PLEASE YOUR EXCELLENCY.

IN their last Report the Commissioners had the satisfaction of informing Your Excellency that from the last importation of Salmon and Trout Ova which arrived at Melbourne from England on board the *Lincolnshire* on the 1st May, 1866, reached Hobart Town by the *Victoria* steamship on the 5th, and on the 6th of the same month were safely deposited in the Ponds at the Plenty, they had succeeded in hatching 6000 of the former and 1000 of the latter fish.

They have now the further pleasure of reporting that, during the year that has since elapsed, these young fish have continued to thrive and grow in a most satisfactory manner, with a very small amount of observed mortality.

The season is now close at hand when many of these parr will begin to assume the garb of smolts, preparatory to their first visit to the salt water, when they will be set at large to join their elder relatives now in the Derwent, and left to their own resources.

These older fish set out on their journey seaward in the month of October, 1865; and, doubtless, the younger brood will take their departure about the same period of the present year.

Of the Salmon Trout it is proposed to detain a portion in the Ponds, in the hope that their numbers may be increased by propagation, as the Commissioners have been assured on high authority they may be, without visiting the salt water.

But the object which has for some time past engaged the chief attention and occupied the anxious thoughts of the Commissioners has been the return of some of the brood of 1864 from the sea to the Derwent.

The first detachment of these, as has just been mentioned, left the Ponds in the form of smolts in October, 1865; and, according to the opinion of many eminent Pisciculturists, a portion of them ought to have returned from the sea about the end of the same or the beginning of the following year, after an absence of from two to four months.

Not one, however, as far as the Commissioners are aware, was seen, or even reported to have been seen, in the Derwent about that period. Upon this merely negative and superficial evidence, however, the Commissioners cannot take upon themselves to say that none returned.

It is quite possible that considerable numbers of them may have been present in the River without having been observed by any one; for a thousand fish in such a stream as the Derwent might pass and repass without attracting notice.

Of this fact the Commissioners were strongly warned by the late lamented Mr. Ffennel, Chief Inspector of English Salmon Fisheries, who admonished them not to be disappointed or discouraged if no Salmon should be seen in the first year of their migration and return.

And, undoubtedly, the return of the Salmon was far more confidently and generally looked for in the beginning of the present than of the previous year, so that the eyes of many deeply interested in the undertaking, including Mr. Ramsbottom, the indefatigable Superintendent of the Salmon Breeding Establishment, were directed to the waters of the Derwent with more constant and more earnest attention during the latter than the former season.

In the month of January of the present year some large and strange fish, never before observed by them, were seen to leap in the Derwent, opposite the Town of New Norfolk, by several residents of the highest respectability; but as various kinds of salt water fish occasionally visit this part of the River, although far inferior in size to a Salmon or a Grilse, and of which none have ever been known to rise above the surface of the water, the Commissioners refrained from drawing any positive conclusion from these observations, although the parties by whom they were made and reported were worthy of every trust.\*

But on the 14th February unquestionable evidence of the presence of the returned Salmon in the River was afforded by a party of gentlemen † of the first standing in the community, by whom, whilst riding close along the bank of the Derwent, near a place called the "Dry Creek," several miles beyond the reach of the tide, and above several rapids, a large fish was twice seen to leap from the water, which was afterwards observed gliding under the surface for some distance, and was at once recognized as a Salmon by one of the party familiarly acquainted in Ireland with the appearance and motions of that fish.

On the 21st February, two miles above the spot last mentioned, a large fish was seen leaping by a respectable tradesman, while driving along the road which runs close to the bank of the River.

On the 28th, at a spot a mile still further up the stream, a gentleman passing along on horseback, and one of the Water Bailiffs attached to the Establishment, simultaneously, and from opposite banks of the River, saw a large fish leaping, which the latter, an old Salmon fisher from Scotland, at once identified as a Salmon or Grilse.

On the 15th March, Mr. Ramsbottom, the experienced Superintendent of the Ponds, and a Salmon fisher from his earliest years, having been informed by the Water Bailiff that at a place a short way below the mouth of the Plenty he had seen a great commotion in the Derwent apparently caused by great numbers of small native fry pursued by some large fish, stationed himself on the bank of the stream at the spot indicated, and soon after distinctly saw a Salmon or Grilse rise from the water.

On the 18th March the same gentleman, his assistant, and a friend ‡ from New Norfolk visited the same part of the river, and in the course of a few hours in the afternoon were rewarded by witnessing seven distinct rises.

On the 1st April, one of the Commissioners, § accompanied by two friends, || took his station an hour before sunset, near the same spot, but on the bank of the stream opposite to that from which Mr. Ramsbottom and others had made their observations. Scarcely had he and his companions directed their eyes to the surface of the stream when they perceived that it was in a state of unusual agitation, which they quickly discovered was caused by shoals of small fry skimming along the surface in their endeavour to escape from some large fish by which they were closely pursued, and whose track close behind them was plainly seen. The character of the pursuers was soon revealed to the beholders by two great fish which in rapid succession rose from the water, fully exposing their glittering bodies to view, and proclaiming themselves to be real Salmon. This scene of flight and pursuit continued to be enacted for upwards of an hour, not in one spot only, but in several places simultaneously over a considerable extent of the river, and terminated only with the setting of the sun. During these observations the large dorsal fin of one of the pursuing fish was distinctly seen rapidly cleaving the water, while another was observed for a few moments reposing close under the surface.

Again on the 3rd and on the 5th April Salmon were distinctly seen in the same part of the river by Mr. Ramsbottom and one of the Commissioners, ¶ and another gentleman. \* \*

This portion of the Derwent in which the Salmon have been thus observed to such advantage, and where they had evidently congregated in considerable numbers, consists of a reach of deep still water four or five hundred yards in length, bounded at each extremity by a rapid which at the lower end passes over a fine bed of gravel, likely, in Mr. Ramsbottom's opinion, to be selected by the Salmon as a suitable place for forming their nests and depositing their ova, and is in close proximity to the mouth of the Plenty (their parent home), into which there was every reason to expect that some of them would enter for the purpose of shedding their spawn.

\* Mrs. Sharland, Miss Kirkpatrick, and Mr. Oakley.

† Right Rev. Dr. Murphy, Rev. Mr. Dunne, Rev. Dr. Hayes of Melbourne, Rev. Mr. Honnebrey.

‡ Dr. Moore.

§ Dr. Officer.

|| Mr. and Mrs. Myles Patterson.

¶ R. C. Read, Esq., J.P.

\* \* Dr. Moore.

The progress of the Salmon has thus been clearly traced from New Norfolk to the mouth of the Plenty,—a space following the course of the Derwent of upwards of eight miles in length.

But the instances above related by no means embrace all the occasions on which the Salmon have been seen in the river. The fish do not appear to have passed up the stream in one body; for, after their appearance in the Derwent at the various points above indicated, they have been subsequently seen at several places between the Plenty and New Norfolk, showing that they did not travel in one body, but by detachments, or in a continuous stream.

Near a place called "Bell's Terrace," close to New Norfolk, where a fine gravel bed exists, the fish were seen on various occasions by more than one observer\* long after their appearance near the Plenty. The last known occasion on which the Salmon have been observed occurred on Sunday, the 21st April, when two were seen to leap from the water in a very distinct and striking manner by the same Commissioner to whom they had before exhibited themselves in so satisfactory a manner, near the mouth of the Plenty, and by another gentleman† at precisely the same spot where they had first been noticed on their return from the salt water.

Soon after the date last mentioned the winter season set in, and the Derwent became considerably flooded, in which condition it has since more or less continued, thus precluding all hope of any of the fish being seen in its waters without capture.

The Salmon have shown no disposition to enter the Plenty for the purpose of finding a spawning ground, but have preferred to remain in the larger stream of the Derwent, towards the sources of which, as in European rivers, they have probably proceeded in search of a suitable locality as the birthplace of their young.

Had some of the fish, as expected, entered the Plenty, their capture would have been easy, and the Commissioners would thus have been enabled, in accordance with their anxious desire, to have added the proof of handling to that of seeing.

They believe, however, that the evidence of the return of the Salmon as above recorded is complete and irrefragable, and must soon be confirmed by their actual capture, for which the Commissioners have been furnished with all necessary appliances.

If the opinion that a portion of the first body of Smolts that proceed to the sea return as Grilse within a period of from two to four months from the date of their departure be correct, it follows that some of the fish now in the Derwent have already twice visited the sea; and that those seen in the river during the past seven months comprised both Grilse and Salmon.

And if a part of the young smolts that set out on their second journey in October, 1865, thus returned during the summer and autumn of 1866, they must also have spawned during the winter of that year, and their young must now be in the Derwent in the shape of Parr, ready in a month hence to assume the character of Smolts, and in their turn to seek a temporary sojourn in the salt water.

But, even if this view should be incorrect, and all the young fish should have remained in the salt water for sixteen months, instead of from two to four months, there can be no doubt that a large number of Ova have been deposited in the present season soon to become living fish, and add many thousands to the family now occupying the river.

When the Commissioners shall have been enabled to introduce the Salmon into some of the smaller rivers of the Colony, such as the South Esk, the Mersey, and many others, they will have no difficulty in ascertaining with accuracy the exact period of the stay of these fish in the salt water, thus solving a question which has long been, and still is, a subject of contention among Pisciculturists.

The Commissioners believe that there are few rivers approaching the size of the Derwent where so small a number of enemies dangerous to the life of the young Salmon are to be found. Eels, and the small fish locally called mullet, which seldom attain a weight of more than half a pound, with some predaceous birds, are the only foes against which they will have to contend in the fresh waters of that stream.

With respect to the mullet, it is a singular and perhaps fortunate fact that, although they had previously been abundant in all parts of the Derwent above the influence of the tide, in the year 1865 they almost totally disappeared from the river and its tributaries.

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\* Mr. and Mrs. Shoobridge and others.

† Major Lloyd.

In that year the Commissioners reported that a disease of an epidemic character had appeared in the Ponds, by which from 50 to 60 young Salmon and a few of the Trout were carried off, and that a great number of the native Mullet had at the same time perished apparently from the same cause. It was afterwards discovered that this malady had operated so severely on the native fish that the Mullet had almost entirely disappeared from the river, and a few stragglers of small size could alone be seen. More lately they have shown some signs of recovery and increase, but they are still comparatively few in number and of small size, and cannot be dangerous to the young Salmon, of which they are more likely to be the prey.

The Derwent from New Norfolk, a short way below which the water begins to be brackish to Hobart Town, where it is quite salt, including the numerous intervening bays, so teems with the fry of various kinds of fish, greatly increased since the passing of the Salmon Act, that a vast number of Salmon would find abundance of suitable food without proceeding further to sea. Below Hobart Town to the mouth of the river in Storm Bay, such is the expanse of water abounding with the young of an infinite variety of fish, that it seems improbable that the Salmon will ever have occasion to pass into and incur the dangers of the open Ocean, unless prompted by some other motive than mere hunger.

During the past year an incident occurred in the history of our young Salmon which excited considerable interest both here and in England.

A fine smolt was captured by a young gentleman\* while fishing for the small native fish in the New Town Creek near the Orphan School, and was with much judgment transmitted to one of the Commissioners† with a statement of the facts attending its capture. This fish must have very recently descended the Derwent from the vicinity of its birth-place on the banks of the Plenty, and having reached New Town Bay after a journey of upwards of 30 miles, a considerable portion of the way through salt water, had again sought fresh water, and entered the little stream above mentioned, up which it had passed nearly two miles. The chief point of interest in the history of this little fish consists in the fact that, having entered the salt water, it had again sought the fresh water while still in the condition of a smolt.

This occurrence having been reported to Mr. Youl, was by him communicated to the eminent Pisciculturist, Mr. Frank Buckland, who has assigned a conjectural reason for the apparent eccentricity in the behaviour of this young traveller.

Nor has the progress of the Trout under the charge of the Commissioners been less gratifying than that of the Salmon.

In the month of June, 1866, these fish, being then about two years old, began to shed their first spawn, and during the course of the season several thousands of their ova were secured, which after being duly fecundated were placed in the hatching-boxes attached to the Ponds.

One portion of these ova was subsequently despatched to Melbourne for the use of the Acclimatisation Society of Victoria; another was forwarded to Launceston to the care of an Association of gentlemen which had been formed with the object of promoting the early stocking of the rivers of the Northern Division of the Colony with Salmon and Trout; and the remainder were retained in the Ponds for hatching under Mr. Ramsbottom's observation.

The result of this first attempt to propagate fish from ova produced in the Colony was unfortunate.

The hatching-boxes prepared for the reception of the ova forwarded to Victoria, having been erected on a spot which proved to be subject to inundation, were shortly afterwards with their contents swept away by a flood.

Of those despatched to Launceston, although conveyed by Mr. Ramsbottom in person, a large number perished on the way. From the remainder only a few living Trout were produced, and these after attaining a considerable size were, as in Victoria, carried away by an overflow of the stream near which hatching-boxes had been constructed: from those retained under Mr. Ramsbottom's immediate charge about 40 young Trout only have been obtained, which will to that extent add to the number of breeding fish for the season of 1868.

A large share in this unproductiveness is attributable to causes which are now understood, and will not be allowed to influence future attempts to increase the number of this fish.

During the past year many of the parent Trout detained in the Ponds, and still more those at large in the Plenty, have increased in size and weight at a surprising, and the Commissioners believe unprecedented, rate.

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\* Master H. V. Bayley.

† Mr. M. Allport.

In June last a male Trout was found dead in the Plenty, evidently killed in an encounter with some of its associates during the exciting season of spawning, which measured  $19\frac{1}{2}$  inches in length, and weighed  $3\frac{1}{2}$  pounds.

On the 29th July last another was captured alive by Mr. Ramsbottom, of which the length was  $22\frac{1}{4}$  inches, and the weight fully 4 pounds, although the fish was then in a spent and consequently lean condition, having but recently shed its milt. If in full condition Mr. Ramsbottom estimates that the weight of this fish would have been between 5 and 6 pounds.

Many others have been seen in the Plenty of similar dimensions, and some of those confined in the Ponds are little inferior to them; although the Trout set at liberty in the river and left to provide for themselves have always been somewhat in advance of their brethren imprisoned in the Ponds, where they have been carefully and diligently fed.

The Trout thus greatly increased in size began to spawn for the second time in the Rivulet attached to the Pond on the 23rd June; and, at the same time, some of those at large in the adjoining river were observed busily engaged in forming their nests and depositing their ova.

The season of spawning extended over a period of about six weeks,—terminating on the 6th August.

On this occasion the fish were permitted to deposit a large portion of their spawn in the natural way, the remainder only being taken for artificial propagation.

While the spawning was going on the parent fish readily passed from the pond into the rill; and, when the operation was completed, a considerable extent of the little stream was to be seen thickly studded with their nests. Before the spawning began, Mr. Ramsbottom had erected a temporary wooden screen close to the bank of the rivulet, from behind which the whole interesting process was watched by him, and clearly seen by some of the Commissioners and many other visitors, without disturbing the fish during their operations.

Although a large portion of the Ova were left undisturbed in the gravel in which they were deposited by the parent fish, the number of Ova obtained for artificial hatching exceeds the total produce of the preceding season.

From the store thus obtained about 1300 have been despatched to the care of the Victorian Acclimatisation Society in Melbourne, which, with a loss of about 25 per cent., are now in a thriving and promising condition in the pond prepared for their reception.

A supply of about 800 have also been placed in the hands of Mr. Johnson, Secretary to the Acclimatisation Society of Christchurch in New Zealand, whom the Council of the Society had judiciously despatched to this Colony for the purpose of receiving in person the contribution promised to them. Mr. Johnson at the same time took charge of a smaller supply, 400 in number, for the use of the kindred Society in the neighbouring Province of Otago.

From both of these Provinces liberal contributions in aid of the enterprise in which this Colony is engaged had been received.

A fish pond, with hatching-boxes attached, has been formed during the present year on the estate of Strathmore, on the South Esk, under the direction of Mr. Charles M'Arthur, who has long taken a warm interest in the establishment of Salmon and Trout in Tasmania, and took a leading part in the attempt of last year, unfortunately unsuccessful, and of Mr. Cox, of Clarendon.

This spot was last year inspected by Mr. Ramsbottom, who pronounced it admirably adapted to the purposes of fish culture, and a convenient centre from which the means of stocking the other rivers in the North might be supplied.

Concurring with Mr. Ramsbottom's views on this subject, and having received an assurance and guarantee that they would be tended with all necessary care and attention, 1200 Ova were lately handed over to Mr. M'Arthur, who had come in person to receive them, and have been by that gentleman safely conveyed to their destination, and placed in the hatching boxes at Strathmore with the most trifling loss.

The Ova thus supplied have been received by Mr. M'Arthur and Mr. Cox on the distinct understanding that they were a public and not a private charge, and that the future disposition of their produce should be under the control of the Commissioners.

The Commissioners conceive that from a centre such as that now established at Strathmore, when fully stocked, the other Rivers of the North may be stocked much more conveniently and inexpensively, and with less waste of Ova, than from the Ponds at the Plenty.

In the meantime, and until this source becomes productive, the Commissioners will be prepared, to the utmost of their ability, to furnish the supplies for other approved localities, as well in the North as in the South, where they are assured that adequate means for the due hatching of the Ova and the preservation of their produce have been provided.

During the ensuing summer the Commissioners propose to place a small body of young Trout in the North West Bay River, which has all the attributes of a fine trout stream, and to which they can be conveyed by water with facility and safety.

Since the date of their last Report the Commissioners have made several inexpensive improvements in the establishment at the Plenty, of which the most important have been the completion of the small Pond therein referred to, and the formation of a new Rill, rendered necessary by the addition of the Salmon Trout to their charge.

During the ensuing summer some further extensions of the same kind will be required.

Although the Water Bailiff stationed at Prince of Wales Bay has been indefatigable in his endeavours to prevent poaching, there is reason to believe that during the past year the law has in some instances been violated; and the Commissioners are of opinion that it will be necessary for the due protection of the Salmon, at no distant date to appoint an additional bailiff.

The temptation to poaching has become greatly augmented by the vast increase that has taken place in the number of small fish that now swarm in the Derwent between New Norfolk and Hobart Town, due to the protection afforded to them by the operation of "The Salmon Act." And the prohibition of all fishing in this part of the river is not more necessary for the safety of the Salmon than it is conducive to the real interests of the fishermen of the Derwent.

That portion of the river which lies between Bridgewater and Hobart Town is the natural nursery in which various kinds of fish, usually inhabiting the deeper water below, deposit their spawn, and from which their numbers are recruited from year to year.

The meshes of the nets used by the fishermen are so minute that the fish of the very smallest size are captured and destroyed, and are thus effectually prevented from descending into the deeper water below the City, where they would speedily attain a far greater size and value.

The Breeding Establishment at the Plenty has from its first erection been an object of great interest and attraction, yearly increasing, not only to the public of Tasmania, but to visitors from all the adjoining Colonies. The Commissioners trust that, at no distant period, they will be able to calculate the time when the existing attractions may be increased by granting permission to use the rod and line.

At the request of the Commissioners the Government instructed the Surveyor-General to cause a Drawing and Plan of the Salmon Ponds to be prepared; and this work has been admirably performed by some of the officers of the Department, the survey having been executed by Mr. Morrison, and the Drawing by Mr. Piquenet.

The former it is proposed to hang in some public place for general inspection. Of the latter a considerable number of excellent lithographs have been executed under the direction of the Surveyor-General, which will be generally circulated, and will afford information respecting the plan and construction of the whole Breeding Establishment, which have long been sought for, not only by the people of this and the adjoining Colonies, but by many eminent pisciculturists in England, who have been watching with much interest the progress of our enterprise.

ROBERT OFFICER, *Chairman.*