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Madras Fisheries Department

Administration Report

1925 - 26

by

Sundar Raj



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MADRAS FISHERIES DEPARTMENT

ADMINISTRATION REPORT

FOR THE YEAR

1925-26

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BY

B. SUNDARA RAJ, M.A., Ph.D.
Director of Fisheries, Madras

Report No. 1 of 1927

Madras Fisheries Bulletin, Vol. XXI, pages 1 to 94

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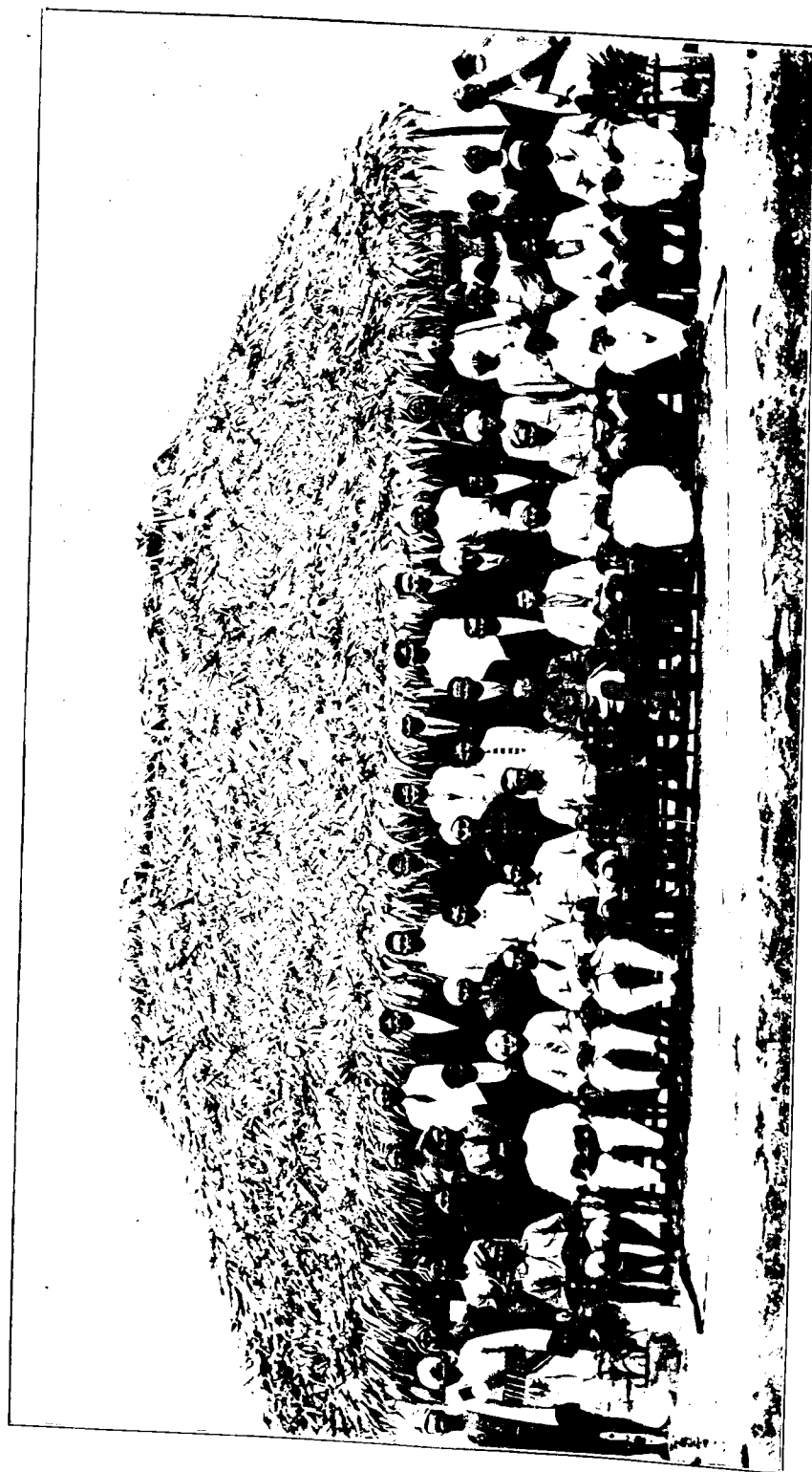
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any bookseller.*



Frontispiece

PEARL FISHERY STAFF.

Among those seated, in the middle is the Collector of Tinnevely A. G. Tampoe, Esq., I.C.S., and to his right is the Director of Fisheries Dr. B. Sundara Raj.

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ERRATA.

Frontispiece.—In the legend, for “A. G. Tampœ, Esq., I.C.S.” read
“A. McG. C. Tampoe, Esq., I.C.S.”

Page 40.—In the legend, for the word “Handling” read
“Hauling.”

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Report No. 1 of 1927.

ADMINISTRATION REPORT OF THE DEPARTMENT OF
FISHERIES FOR THE YEAR ENDING 30TH JUNE 1926

BY

Dr. B. SUNDARA RAJ,

Director of Fisheries.

I have the honour to submit the annual report of the Fisheries Department for the year ending 30th June 1926.

In several respects the year under review has proved a record and the report that follows chronicles vast developments in new directions and increased revenues and profits. The pearl fishery of 1926, the purchase of a well-found fishery research vessel, the resuscitation of the post of the Assistant Director of Fisheries (Marine) are the unparalleled developments of the year, while financially the year's record has been the most prosperous in the history of the Department.

2. *Personnel.*—Statement No. 1, appended to this report, gives particulars of the gazetted staff of the Department. After the close of the pearl fisheries I was obliged to take leave for two months from 16th May on considerations of health, and Sir T. Vijayaraghava Achariyar, K.B.E., Director of Industries, officiated for me in addition to his own duties. Capt. T. G. Cribb, re-entered in England, was appointed Assistant Director of Fisheries (Marine) for three years from 13th March 1926. There was difficulty in finding a suitable candidate for the post of the Personal Assistant which fell vacant in the previous year. Finally I was able to secure from 1st October 1925 the services of a highly qualified zoologist, Dr. D. W. Devanesan, M.A., Ph.D. (London); mainly domestic considerations induced him to accept my offer.

A special temporary staff of gazetted officers was sanctioned for the pearl fishery, consisting of the following posts:—

(1) Additional Superintendent of Pearl Fisheries: M.R.Ry. M. V. Sankara Variar Avargal, Superintendent, Local Self-Government Secretariat, and formerly my Personal Assistant, was appointed to the post.

(2) Inspector of Pearl Banks: Rao Sahib J. A. Fernandez Avargal, Superintendent of Pearl and Chank Fisheries, was appointed to the post in addition to his ordinary duties.

3. Even more than in the previous two years, my time was taken up by administrative work and pearl fishery duties. I have not been able to pay even my usual visits to Ennur, Tanur, Chaliyam and Calicut, where technological and fisheries research are in progress. Since the close of the year, I have submitted a scheme of research for the next ten years, wherein I have proposed a small additional staff which will enable me to a great extent to supervise and direct the progress of research work.

4. The revenue this year is abnormally large on account of the receipts of over 2¼ lakhs from pearl fishery alone; likewise the expenditure has also swelled due to the purchase of a fishery vessel and the running expenses of the pearl fishery. The figures therefore are not comparable with receipts and expenditure in any previous year and possibly also with that of any in the future. But the most satisfactory feature is perhaps the coincidence of maximum receipts with maximum expenditure. The total receipts of the year from all sources were Rs. 8,46,841-10-7, and the total expenditure, including the unremunerative items of education and socio-economic work, and the capital expenditure on the trawler was Rs. 8,48,196-6-2. But Rs. 16,860 included in the expenditure represents the railway freight on salt of the 1924-25 season which was adjusted only in the accounts this year. This if excluded, the receipts will more than cover the total expenditure for the year.

The increased operations in fish-curing yards and their economic and efficient working yielded a surplus over expenditure of Rs. 35,181-0-0. The net receipts from chank fisheries amounted to Rs. 29,402-11-6. The inland fisheries yielded a net revenue of Rs. 8,876-14-8. The Tanur Experimental Station showed a net profit of Rs. 100-11-2, and the Marine Aquarium worked at a net profit of Rs. 3,991-10-0. But the Marine Biological Specimen and Oyster Supply Section and the Chaliyam Cannery

worked at a loss of Rs. 867 and Rs. 4,821-14-0, respectively, for special reasons explained below in the body of the report.

CHALIYAM FISH CANNERY.

5. As last year this report will review the working of the Cannery from 1st April 1925 to 31st March 1926 and not for the fisheries year ending 30th June 1926. In view of the large stock of canned fish at the Cannery and the poor sales the Government decided to suspend manufacture at the Cannery from 1st April 1925 in their order Mis. No. 446, dated 27th March 1925. The staff were accordingly reduced to—

The Superintendent	One watchman
One sales clerk	One sweeper
The Canning Overseer	One man cooly and
One fireman	Two boy coolies.

The rest of the staff, belonging to the permanent establishment, were transferred to other sections of the Department. The Cannery continued under my direct control with Mr. Baratan as Superintendent.

6. *Machinery.*—The Industrial Engineer who was asked to give the suggestions made by Messrs. Bradley and Burch, Ltd., in regard to both the dies complained of, a trial, also recommended that they may be sent to the makers for repairs, and Government, in their order Mis. No. 830, dated 9th June 1926, agreed to my proposals to send the dies to the firm for repairs. One of the dies (the larger oval die) has been sent to Messrs. Bradley and Burch, Ltd. The other has been retained till the return of Sir F. A. Nicholson who has kindly offered to take over the management of the manufacturing side of the Cannery from October next.

7. *Sales.*—The year under review opened with a balance of 177,409 tins and closed with a balance of 144,619 tins. 6,449 tins were written off (567 tins were issued as samples, 5,882 tins were destroyed under G.O. Mis. No. 1374, Development, dated 18th September 1925, and contents used as manure). Of those destroyed 3,961 tins were destroyed not because they turned bad, but because they belonged to an old experimental stock, the sale of which was suspended by Mr. Hornell as they did not find favour with the public. The actual spoils therefore for the year was 1,921 tins or so, or 1.08 per cent of the stock on hand at the beginning of the year. The sales during the year were poor, only 26,345 tins were sold against 33,886 tins in the previous year. The two

travelling salesmen appointed by Government during the year for the disposal of canned goods failed to do appreciable business, as there was little scope for the disposal of the goods within the Presidency. The terms of office of the travelling salesmen for Tamil and Telugu districts were consequently terminated on 24th February 1926 and 27th March 1926, respectively. In G.O. Mis. No. 640, Development, dated 28th April 1925, the Government sanctioned the appointment of one M. C. Madhavan as sales agent. He has, however, failed so far to produce the necessary security and the agency therefore could not be granted to him.

8. The Advisory Committee who were consulted regarding the future of the Cannery recommended on 7th October 1925 that a decision as to the future of the Cannery may be arrived at after Sir F. A. Nicholson is consulted in the matter. He has made the following valuable recommendations:—

(1) "Retain the Cannery as an important activity and instrument of 'fisheries,' promoting food production and distribution, and developing industry, trade and intelligence; in these objects it has, as yet, done only half its possible work."

(2) "Concentrate on reduction of manufacturing cost (a) by the closest attention to efficiency and economy, and (b) by stopping the pecuniary leakage caused by spoilage and by undue expenditure on wastage."

(3) "Reconsider the methods of sale."

(4) "Offer the present lines and stock of goods at reduced prices so as to increase general sales, meet competition, get rid of accumulated stocks and advertise and push our produce."

(5) "Widen the lines of production in the direction of 'Cheaper goods for the masses'."

(6) "For these and other purposes, use the best management available";

(7) "Change the location of the Cannery to a more useful centre, even at some expense and loss, since better supplies of raw material, publicity, ready supervision, technical help, the attraction of students and other benefits, will thereby be assured; moreover the sale of the Cannery, if desired at some future time, will, in such location, be profitable; if now sold or closed, much real loss is inevitable."

(8) "Develop its training capacity and make such training attractive and thorough."

Accordingly I have recommended to Government that the Cannery might be continued and that, as Sir F. A. Nicholson has kindly offered his help to direct the manufacturing and experimental operations at the Cannery from October next, he may be given full discretion and powers in the matter. As regards the methods of sale, reduction in price so as to increase general sales, meeting competition, getting rid of accumulated stock, I have recommended that the prices may be cut down by 17 per cent of the price at which the stock on hand has been valued. These recommendations are under the consideration of Government. If the reduction in price is approved by the Government, I have proposed the deputation of the Superintendent of the Cannery to Bombay to negotiate the sale of the whole stock at the Cannery at the reduced rates to canned goods merchants in Bombay.

9. The terms of the agency granted for the sale of canned goods in England to Messrs. Menon & Son, Ltd., are still under correspondence. The difficulties raised by that firm were considered and a revised set of terms was offered to them. A reply has not yet been received.

10. As indicated in the profit and loss statement submitted by the Government Auditors, the Cannery has shown a loss of Rs. 4,821-14-0. The loss is inevitable as the factory did not work. The write-offs alone amounted to Rs. 2,200.

The loan taken from Government last year was paid back in full during the year.

A small experiment that has been conducted for preventing rust in tins stored for a long time by smearing them with oil has yielded the most satisfactory results and the problem of preventing rust at a minimum of cost has been successfully solved.

The usual financial statements of the Cannery as drawn up by Messrs. Fraser and Ross are appended.

TANUR EXPERIMENTAL STATION.

11. The 1925-26 fishing season was scarcely an improvement on the unfavourable seasons of the previous three years. Shoaling sardines and mackerel were scarce on the Malabar coast from Madai to Parapanangadi including Tanur. The supplies of mackerel were more regular than sardines. High-class table fish was scarce and the only fish caught were coarse varieties.

and miscellaneous small kinds and prawns. The dearth of sardines and high-class fish reduced the output of the station. As full advantage was, however, taken of the few days in which sardine and mackerel appeared, the loss on the working sustained last year was averted and the station made a small profit.

Early in November a cyclone swept over Tanur, on the very first day drift-net fishing was commenced by the station resulting in the loss of the hired boat, three workers, and a dozen nets. The boat has since been salvaged in Manjeshwar. There was no fishing during the next two or three weeks and drift netting practically ceased for the whole year.

12. *Experimental fishing*.—The experimental fishing thus came to an abrupt end before the fishing season had hardly commenced. It was not possible to secure workers till the end of the fishing season as the local fishermen were afraid to venture into the sea at night. Long line fishing was, however, conducted for the first few months. The boats went out 61 days and brought 3,632 lb. of big fish valued at about Rs. 186 or about 20 lb. per rupee.

13. *Curing operations*.—88,284 lb. of fresh fish were purchased by the station during the year for Rs. 3,108-15-11 for curing, against 83,843 lb. for Rs. 2,959-1-5 in the previous year. The average price paid decreased from 7 pies per lb. in the previous year to 6½ pies. 71.75 tons of fish were purchased for oil, guano, and fish-meal operations for Rs. 1,057-6-0 against 23.75 tons in 1924-25. The average price of the miscellaneous fish was Rs. 40 per ton, while that of sardines was Rs. 13-10-0 per ton as against Rs. 18-3-0 per ton in the previous year.

14. *Fish curing*.—The usual methods of cure were continued. 32,784 lb. of prawns were semi-dried, 29,600 lb. of mackerels and 1,500 of cat fish were pickled, and the rest were salted. The total output consisted of 31,475½ lb. of cured fish and prawns and 3,768 lb. of prawn shells.

15. *Oil and fish-meal*.—There were sardine operations only on five days as in the previous year, but the quantity treated was more than double. The total output amounted to 12,972½ lb. of fish meal, 10,700 lb. of guano and 1,976 gallons of oil against 10,348 lb. of fish-meal, 297 lb. of guano, and 313 gallons of oil in the previous year. The high percentage of oil, 11.4 per cent in sardines, is a special feature of the year. The refining of oil was also carried on and about 50 gallons of A.I. edible oil was prepared.

16. *Sales*.—The sales during the year amounted to Rs. 12,443-6-1 against Rs. 10,645-3-9 in the previous year. Attempts to establish direct trade relations with Singapore were not successful as the parties wanted the stuff on consignment basis which could not be arranged. Banks offered to collect proceeds, but refused to handle the goods. Shipping firms who offered to transport goods as well as collect sale proceeds demanded a high percentage of commission. In view of the orders of Government that further steps should be taken to follow up the preliminary enquiries of Mr. Ginivan in Malaya, other proposals to depute an officer to Singapore are under consideration. There was a small order for fish-meal from Kenya and enquiries show that there is a good market there for fish-meal, shell-grit, cured fish, etc. The sale of fish-meal in India and Burma has steadily increased. The main customers are poultry breeders, though regular orders are placed by Government cattle farms and private individuals. Orders from South Indian ryots have been few. Propaganda for a few more years seems to be necessary to get over the innate prejudice of the ryot against a fish-meal diet for cattle and poultry. The sale of pickled mackerels has spread to the Travancore hill districts, Indian markets have proved better than Colombo as regards price. While the main stock of pickled mackerels in Malpe were sold to Colombo merchants at Rs. 7 to Rs. 8 per 1,000, they were sold to merchants in Coimbatore, Anamalai, and Travancore at Rs. 11 and upwards.

The station yielded a small profit of Rs. 100-11-2 against a loss of Rs. 3,762-9-3 last year. Had not the cyclone upset the fishing industry the station would probably have worked at a greater profit.

17. The products of the station were exhibited at the South Indian Athletic Association Exhibition, Madras, the Calcutta Poultry Exhibition, the Co-operative Conference at Chowghat and the Tiruppur Cattle Show. At the Show the station was awarded a silver medal for fish-meal.

18. *Training of students*.—The Superintendent of Fisheries, Behar and Orissa, visited the station and studied for a week the working methods with a view to their introduction in his province. On his return to Orissa he placed an order for one "paithu vala" and also asked for and obtained the plan of the smoker and the fish-drying chamber. He also visited the Prayagi fish-curing yard in the Chilka Lake with the Inspector of Fisheries, Vizagapatam,

It is understood that he has proposed to his Government the opening of fish-curing yards with duty free salt in Orissa.

Mr. A. T. Menon, a student of the Victoria Technical Institute, Bombay, underwent training for seven weeks in the methods of oil extraction, oil refining, etc.

EXPERIMENTS AND RESEARCH.

19. *Cured fish.*—(a) The manufacture of articles suited to individual markets as Burma and Egypt, in response to enquiries received, was undertaken. Samples of different kinds were sent to both countries. The Burmese market prefer fish hard dried and prawns with little or no salt, while Egypt, now supplied from European countries, seems to require a high-class product. A more thorough study of the market conditions is in progress.

(b) Further improvements have been made in the methods of avoiding saline excrescence in semi-dried prawns. Due care in steaming or boiling fresh prawns for no more than a few minutes during which the colour changes from green or brown to red, was found to eliminate the occurrence of saline excrescence to a large extent; further experiments on the prevention of pink eye or moulds is awaiting the scheme for the manufacture of sodium hypochlorite.

(c) Experiments in sterilization done in the Cannery last year were also tried, with mackerels and podimeen, in tins of 50 lb. capacity and found fairly successful. It is hoped that it will afford food for the masses at a rate cheaper than that of the ordinary canned fish, with the further advantage that the tins can be returned and re-used.

20. *Fish-meal.*—The experiments in preparing fish-meal from sardine with a low fat content could not be completed for want of sardines.

21. *Fish oil.*—The A.I. sardine oil prepared was submitted to Prof. Drummond of the Imperial Institute, London, for testing its vitamin content, and his report has been received. He finds that the amount of vitamin A present in the oil was negligible compared with the high vitamin A content of Lofoton and Newfoundland cod-liver oils. He has suggested that possibly the method of extraction is defective and therefore attention may be paid to improve the method of manufacturing the oil. It therefore remains for Tanur Station to find out if improved methods of manufacture would enhance the vitamin content of the oil—a difficult and highly

complicated task, but nevertheless an important line of investigation which it is proposed to take up at Tanur.

The best sardine oil as now prepared on the West Coast cannot yet take the place of cod-liver oil, as there is no comparison between the vitamin A content of sardine oil and cod-liver oil.

22. *Paint oil.*—The experiments in paint oil in the previous year showed that the deodorized oils have a lower drying capacity. As a result of further trials with suitable driers the difficulty has been got over partially and oils have been obtained which dry fairly quickly.

23. A study of power-driven fish-meal plant in America was made by the Industrial Engineer and the chances of its successful working are being investigated. The initial cost is heavy and since the main fish available for the industry are edible fish and are cheap only in seasons of glut, the prospects of continuous work even during the sardine season seems to be limited. The development of deep sea fishing is expected to help in the solution of the problem.

24. *Prawn curing in Colair Lake.*—Further experiments in prawn curing were conducted during the year by the Inspector of Fisheries, Vizagapatam. Thirty-five lb. of medium-sized prawns and three lb. of big prawns were cured and Rs. 19-0-3 was realized by their sale. The high prices that prevailed on account of the scarcity of prawns during this season and continued rainy weather prevented the contemplated operations on a larger scale. With a view to continue the research on the life history of prawns in the lake a search was made to locate adult or adolescent prawns at the close of the prawn fishery. Scarcely any was found either in the lake or in the Uppatteru. This clearly proves that the prawns that swarm in such enormous quantities during the floods come in subsequently. Again at the height of the dry season, viz., June, young prawns about half the usual size were noticed in small quantities in brackish water. Plankton collections were taken in the lake to study the nature and the quantity of food organisms of the prawns.

PRIVATE OIL AND GUANO FACTORIES.

25. There were only 463 factories against 515 in the previous year. Some of the factories did not conduct operations for want of sardines. The market price of guano ranged between Rs. 60 and Rs. 110 per ton and fish oil between Rs. 125 and Rs. 200 per

ton. The price of fish manure was Rs. 70 per ton. It is estimated on a rough calculation that 9,850 tons of guano, 4,980 tons of fish-oil and 1,000 tons of fish manure were manufactured last year against 4,000 tons of guano, 2,000 tons of fish oil and 1,000 tons of fish manure in the previous year. Their values are estimated at Rs. 7,50,000, Rs. 8,50,000 and Rs. 70,000, respectively, against Rs. 4,25,000, Rs. 4,16,000 and Rs. 1,00,000 the previous year. Sardines did not appear in the Udipi and Coondapoor taluks north of Tonse. Big shoals, however, appeared between Kaup and Tonse. Again catches of sardines were normal in the Kasaragod taluk and below average in the Mangalore taluk. The sardine season was a failure on the Malabar coast. There was no regular inspection of fish oil factories by the Fisheries staff, but when fish-curing yards were inspected, advantage was taken to inspect neighbouring guano factories. The Inspectors are, however, so overworked that they find very little time to undertake any systematic inspection of fish oil and guano factories. Health Inspectors employed by local boards have been inspecting fish oil and guano factories within the Chirakkal and Kurumbranad Taluk Board areas.

PEARL AND CHANK FISHERIES.

26. *General.*—The anticipations of 1924-25 were more than realized in the remunerative and successful pearl fishery which was held at Tuticorin last February and March. Notwithstanding the premature closure of the fishery on account of cholera within 40 days of its commencement and administrative difficulties caused by factions among parawars (divers), the longstanding prejudice among pearl merchants that the Indian fisheries are inferior to those of Ceylon, the unsatisfactory pearl fisheries in Ceylon in the year previous and the entire novelty of the work due to the inexperience of the staff including myself, the fisheries yielded a substantial net revenue of Rs. 1,60,267-5-11 indicating both the value of scientific control by a technical department and the efficiency and accuracy of the inspections, surveys and estimates. In fact, the contrast with Ceylon has many lessons for us. The fisheries on the other side have disappointed expectations, among other reasons, as the original estimates of oysters were wrong and beds were not located accurately as stated by the Marine Biologist to the Government of Ceylon in his report on the Ceylon Pearl Fisheries of 1925. A cursory examination of the pearl banks this year so far as the monsoon permitted shows the continuance of

oysters on the Tholayiram par and consequently the possibilities of another fishery early next year if not this October or November.

27. Though the best chank season which comprises the months of February and March was spent in pearl fishing, the pre-mature closure of the pearl fishery, a long spell of good weather extending till the middle of May and the fact that the divers were in our employ combined with the alertness and energy of the Superintendent and his staff enabled the prosecution of chank fisheries to maximum advantage in Rāmnād, where very nearly the average number of chanks in normal chank fishery years, was fished in spite of the pearl fishery. The net receipts therefore from chank fisheries amounted in the year to Rs. 28,402-11-6 against Rs. 3,844 in 1924-25 (the decree amount realized from Messrs. J. B. Dutt & Sons amounting to Rs. 12,438-2-9 has been excluded), which reflects credit on the Superintendent and staff.

A statement of receipts and expenditure on account of the Pearl and Chank Fisheries is tabled below :—

	Expenditure.			Revenue.			Profit or loss.		
	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
1. Tinnevely Chank Fishery.	8,985	3	4	16,500	2	5	7,514	15	1
2. Rāmnād Chank Fishery ...	22,393	8	8	40,431	1	8	18,032	9	0
3. Sivaganga Chank Fishery.	225	15	4	203	6	2	-22	9	2
4. South Arcot Chank Fishery.	...			955	0	0	955	0	0
5. Chingleput and Nellore Chank Fishery ...	...			760	0	0	760	0	0
6. Tanjore Chank Fishery ...	...			3,400	13	6	3,400	13	6
7. Pearl fishery ...	88,189	11	2	2,25,498	6	0	1,37,308	10	10
8. Beche-de-mer fisheries ...	466	9	11	470	13	0	4	3	1
9. Miscellaneous receipts from Pearl and Chank fisheries ...	...			248	15	1	248	15	1
10. Supervision charges, 75 per cent of the pay and travelling allowance of Superintendent, Pearl and Chank Fisheries ...	3,383	4	0	...			-3,383	4	0
Total ...	1,23,649	4	5	2,88,468	9	10	1,64,819	5	5

The total revenue from pearl and chank fisheries for the year amounted to the unusually large sum of Rs. 2,88,468-9-10. The revenues of pearl fisheries so far recorded date back to 1658 (vide page 46 of Madras Fisheries Bulletin No. XVI), the date when the Dutch took possession of the pearl fisheries. Previous pearl fisheries of any magnitude which are at all comparable with the

present fishery are four in number and belong to the years 1807, 1810, 1860-61, and 1889. I give below the gross proceeds from pearl and chank fisheries and the net income to Government as far as figures are available for the years:—

Year.				Gross. RS.		Net. RS.
1807	...	Pearl fishery	...	2,91,539	...	Not known.
1810	...	Do. do.	...	2,38,897	...	Apparently no chanks were fished.
1860-61	...	Pearl do.	...	2,50,276	...	2,21,861
		Chank do.	...	4,600		
				2,54,876		
1889	...	Pearl do.	...	1,89,984		
		Chank do.	...	902	...	1,58,483
				1,90,886		
1926	...	Pearl do.	...	2,25,498	...	1,64,701
		Chank do.	...	62,721		
				2,88,219		

Barring the year 1807, the revenue of 1925-26 is a record in the annals of the pearl and chank fisheries and falls short of that year's gross proceeds by only Rs. 3,094. The income in no other year has equalled or approached the revenues of the year under review. As regards net income, figures are available only for 1889 and 1860-61 and it is doubtful if all items of expenditure were taken into account in arriving at net proceeds. Taking the figures at their face value the year 1925-26 easily ranks second.

PEARL FISHERIES.

28. *General.*—The last pearl fishery of any consequence was in the year 1889 more than quarter of a century ago.

29. *Past fisheries.*—Under the British there have been 16 pearl fisheries including the present. In magnitude, the fishery held in 1926 stands fourth. The three previous fisheries which yielded a larger revenue were in the years 1807, 1810, and 1860-61. In the

last 100 years the 1926 fishery ranks second, and in the last half a century it is easily the first.

30. *Discovery and inspection of banks.*—As recorded before, the oysters were first discovered in November 1922; since then a series of inspections were conducted and their results were published in press communiques from time to time. A detailed inspection to ascertain the number of oysters on the banks, the exact area occupied by them, and the banks that were fit to be fished in 1926, was carried out in the spring of 1925. The staff being unaccustomed to the work, which involved a knowledge of marine survey, I decided to conduct the major portion of the inspection personally. In the course of the inspection, the usual methods that were in vogue were improved upon and a simple and at the same time accurate method was evolved.

The improvements effected consisted of:—

(1) The line of buoys was run from one end of the bank to the other end, usually from east to west.

(2) The banks were buoyed out in $\frac{1}{4}$ mile areas as they were found from experience to be the most convenient units. They helped to make calculations both simple and accurate.

(3) Different coloured flags were employed to indicate $\frac{1}{4}$ and $\frac{1}{2}$ miles, and bi-coloured flags to mark boundaries of areas inspected each day.

Due to the great care exercised, errors have been eliminated in spite of the inexperienced staff and novelty of the work. That errors can easily creep in, is seen from the report of the Marine Biologist to the Government of Ceylon, who attributed the failure of the last Ceylon fisheries among other causes to wrong computation and errors in locating banks. The "Lady Nicholson" and the "Sutherland" and three canoes of divers were employed during the inspection.

31. *Estimate of oysters.*—A total of $28\frac{1}{2}$ crores of oysters was estimated on all the banks, of which nearly 12 crores of large adult oysters were found on the Tholayiram par alone. The oysters on the Tholayiram and Pulipundu pars were the largest and the best, and they were decided to be fished in 1926.

32. *Pearl valuation statement.*—As it was the custom to lift a representative collection of oysters, wash them and value the pearls for the information of the public immediately before a pearl fishery is declared, in the autumn of 1925, sample oysters of Tholayiram, Pulipundu, Cruxian and Otti pars were lifted for

valuation. The pearls were valued by three accredited pearl merchants of Tuticorin and Kayalpatnam. The results were as follows:—

				Average price of pearls found in 1,000 oysters.		
				RS.	A.	P.
Pulipundu par	...	...	...	66	15	7
Cruxian par	...	...	...	11	14	5
Tholayiram par	...	...	...	9	2	6
Otti par	..	...	...	3	15	8

The Pulipundu pars yielded record value, while the Tholayiram and Cruxian groups yielded sufficient pearls to justify a fishery. The Otti group proved unfit. Accordingly a detailed pearl valuation statement was issued with a notice declaring a fishery in February 1926.

33. *Declaration of the fishery.*—The fishery was advertised in all important newspapers and Government gazettes throughout India, Burma and Ceylon. Notices and pearl valuation statements were posted to leading pearl merchants and the public. The long-standing prejudice against the Tuticorin pearl fisheries, and the disappointing results of the Ceylon pearl fisheries in 1925, prevented the attendance of the leading pearl merchants of Bombay who were conspicuous by their absence, due to which there was a slump in the pearl bazaar. The local merchants often combined to keep the price down, to the detriment of revenue, and inconvenience and loss to the public. If a fishery be held in 1927 I have in view the deputation of a subordinate officer to Bombay and Calcutta for personally advertising the next fishery.

34. *Divers and bouts.*—All available divers in Tinnevely and Rāmnād were enlisted and efforts were made to secure Arab divers. The total number of boats registered came to 143, of which 86 were from Kilakarai and 53 from Tuticorin, 3 from Pamban and 1 from Jaffna. 2,008 divers attended the fishery, of whom 1,081 were Muhammadans from Kilakarai and Periapatnam, 883 Christians, mostly from Tuticorin, and 44 Arab divers from the Persian Gulf. In the event of a future fishery, I consider special efforts should be made to secure a much larger body of Arab divers. It may be necessary to depute a canvassing agent to the Persian Gulf for the purpose.

35. *Tugs.*—Suitable tugs at reasonable rates were not available and caused considerable anxiety. Only at the last moment the

Tuticorin harbour tug "Minto" and the Cochin Port launch "Kerala" were secured. Fortunately, the weather was favourable for the boats to sail to the banks till the 3rd of March, and the boats required no great assistance by towing. Otherwise the want of tugs might have caused appreciable loss. From the 4th of March adverse winds prevailed, and as the "Kerala" did not arrive till the 12th, there was considerable inconvenience and a fall in the catch during those days, resulting in an approximate loss of revenue of more than Rs. 3,700 a day on an average. The purchase of the fisheries trawler will obviate these difficulties in the future.

36. *Pearl fishery camp.*—The camp was located in the time-honoured spot, *Silavathurai*, where all previous fisheries from ancient Hindu and British days have been held. While the masonry platforms on this site are marked in the village map as belonging to Government, the rest of the surrounding land was reported to belong to the inam village Mapilla Urani. The discussions with the inamdars over the lease of this site dragged on till December 1925. The delay in obtaining possession of the site caused no small inconvenience, worry and additional expenditure in the hurried construction of the camp. The camp measured 143'99 acres. Great care was exercised in laying out the camp as the smell of rotten oysters, and innumerable flies that breed in the offal are well known as the inevitable plagues of a pearl camp both in Ceylon and India, and a considerable measure of immunity from both were obtained by carefully planning the camp. The total revenue of Rs. 7,319-8-0 was realized by the auction of sites for hotties and shops to merchants.

37. *Water-supply.*—Among the many disruptive factors that have led to the failure of pearl fisheries in the past, not the least potent has been the spread of epidemics, chiefly cholera, both in India and Ceylon. An effective safeguard against cholera is a hygienically pure water-supply which could be kept free of contamination. The town of Tuticorin and its vicinity suffers from a scarcity of good drinking water. What little could be had is from an open irrigation tank subject to pollution. My first efforts were therefore directed to the securing of an adequate clean and wholesome water-supply for the camp. Through the kind services of the Industrial Engineer, boring experiments were conducted. A good and sufficient supply of wholesome spring water was located along the western border of the camp, which enabled the

sinking of tube wells worked by hand pumps. As many as 7,000 to 10,000 people resorted daily to these wells. The expenditure on tube wells was Rs. 1,055-3-6 exclusive of coolies to work the pumps. Tuticorin and the surrounding villages had cholera when the pearl fishery commenced. Though infection was brought into the camp on two different occasions when two persons who had contracted the disease strayed into the camp and died there, and possibly on many other occasions which never came to notice, the spread of cholera in the camp was effectively checked by the complete control over water-supply, and the absence of the fly nuisance. Even on the last occasion when cholera infection spread among residents in the camp, no more than half a dozen residents caught the infection through flies which had perceptibly increased by then. When compared with the heavy mortality caused by cholera in pearl fishery camps previously, the above facts testify to the extremely healthy conditions that prevailed in the camp and to the wisdom of the protective measures adopted, particularly the tube wells. The institution of tube wells for the first time in a pearl fishery camp this year constitutes perhaps the most important advance in the matter of pearl fishery administration.

38. *Registers and reports.*—I was surprised to find that except the general reports on pearl fisheries by Superintendents and Collectors printed with Government orders reviewing them, there were no records of any description to indicate the registers, forms, receipts, notices, rules and regulations of previous pearl fisheries except a few forms devised by Mr. Hornell for the small Tondi pearl fishery in 1914. The magnitude of the present fishery and the new methods employed rendered many of Mr. Hornell's forms unsuitable. The task, therefore, of standardizing forms, registers, notices, permits, etc., required for use in the pearl fishery had all to be done for the first time and occupied a very considerable portion of my time. The absence of reports is deplorable not merely because they might have helped in shaping the procedure to be adopted but very much more because of the fund of valuable information, scientific and otherwise, that has been irrecoverably lost. For this fishery at any rate accurate records of statistics and a volume of detailed information concerning every step in the fishery from start to finish is available for all time in the registers and books that have been maintained.

39. *Staff and their duties.*—I conducted the pearl fishery personally and remained at the camp throughout the month and half for

which the fishery lasted. Rao Sahib J. A. Fernandez was appointed Inspector of Pearl Banks in addition to his routine duties as Superintendent of Pearl and Chank Fisheries. M.R.Ry. M. V. Sankara Variar was appointed Additional Superintendent to look after the shore duties in the pearl fishery camp. The other members of the special staff employed are shown in statement XIV.

In the course of the fishery some additional staff was found necessary and the following were sanctioned by Government:—

1 Assistant Treasurer.

1 Assistant Beach Master.

1 Head Clerk in lieu of an additional clerk and six additional searchers.

40. *The afloat establishment* consisting of the Inspector of Pearl Banks, the Assistant Inspector of Pearl Banks and the staff of fishery vessels, buoyed out the area of the banks to be fished each day, towed the boats to and from banks whenever necessary, supervised and patrolled the diving operations on the banks, collected the Government share of oysters at the close of the fishery on board six depot vessels and transhipped them to the Kottu ashore. The difficulties in the way of the afloat establishment were great with the changes in wind and weather, the unruly conduct of divers and boatmen and the ingenious methods employed by them in concealing oysters and pilfering pearls, the absence of sea-worthy vessels and tugs and the handsome bribe offered by divers to the menial establishment.

41. *The shore establishment.*—The Additional Superintendent and staff conducted operations on shore and carried out the office and accounting work of the fishery. The Kottu Manager received every evening the Government share of oysters, estimated their number approximately for purposes of auction in the night. The method of estimating the number of oysters and delivering them by weight to purchasers was entirely a novel one and is a distinct improvement over the methods hitherto adopted in any fishery.

The Beach Master and the account staff deserve special mention as perhaps the most hardworked members of the subordinate staff at the camp. They were literally overwhelmed with work through the day and till late hours at night.

The Police were of great assistance. There was no grave crime in the camp, which reflects credit on the Police.

There was a hospital and a small sanitary staff under a qualified Sanitary Inspector.

There was a temporary post and telegraph office in the camp and a customs office. The Collector of Customs kindly agreed to the landing and shipping of goods at the camp. This facilitated the work of recruiting boats for the fishery as they called at the camp and sailed from there.

42. *The fishery.*—The fishery commenced on the 17th February, the declared date of opening. The Hon'ble the Raja of Panagal in company with the Hon'ble Sir T. N. Sivagnanam Pillai, Minister for Development, formally opened the pearl fishery. The daily round of duties at the camp commenced with the issue of fishing permits in the night by the Beach Master and ended with the delivery of oysters fished to purchasers, which latter went on practically throughout the day. The Beach Master issued fishing permits and gunny bags to boats and divers by night, usually from 8 to 12 p.m. The permits issued were in six colours corresponding to the colours of flags of the six depot vessels stationed on the banks, in order to enable an equal distribution of boats to the depot vessels for delivery of the Government share of oysters. The boats sailed at all hours of the night to the banks, depending on the starting of the land breeze. They arrived at the banks between 7 and 8 a.m. When winds were adverse, towage was resorted to. The fishery commenced between 7 and 8 a.m. and was generally stopped at 12 noon. On the conclusion of the day's fishing, the boats arrayed themselves alongside of the respective depot vessels and one by one delivered the Government share of oysters and returned ashore between 3 and 6 p.m. after obtaining a return permit, with the divers' share of oysters duly sealed in gunny bags by the depot boat establishment. The Beach Master and staff with a posse of constables examined the return permits and checked the entries therein with the number of sealed bags brought back by divers, before they were permitted to enter the camp and sell their catch to the public who, by then, generally gathered in the oyster sale ground. On an average, about 10,000 visitors gathered in the camp in the afternoon of every fishing day. The Government share of oysters from the depot ships usually arrived in the camp under guard every day between 6 and 9 p.m. After a rough estimation of the number of oysters for auction purposes the Kottu establishment re-bagged the oysters eliminating stones and rubbish in the night. The auction sales were uniformly held at 8 p.m., and after the beginning of the Ramzan festival at 9 p.m., and continued till midnight and sometimes later. During the first few days, due to the paucity of

merchants mentioned above, and a suspicion on the part of the public about the presence of pearls in oysters due to a long-standing prejudice against the Tuticorin pearl fisheries, the prices were low but fortunately the occurrence of pearls on an unusually large scale served to re-assure the merchants and the public who gradually gained confidence and bid higher sums. Every morning the purchasers at the auction sale of the previous night paid the balance due from them at the treasury, obtained certificates of payment and orders for delivery of oysters from the Additional Superintendent and presented them at the Kottu. The oysters, cleaned and bagged, were then weighed out to them according to the average weight per 1,000 oysters, worked out by the Kottu establishment every morning. The new system of delivery by weight in lieu of the time-honoured method of counting oysters, still in vogue in Ceylon, had many advantages in saving time and trouble and constituted one of the improvements in method effected during the last pearl fishery.

The fishery lasted from 17th February to 27th March, during which there were 33 fishing days. The total number of the Government share of oysters was 9,309,493. The Government share being two-thirds the catch, the total number of oysters fished was estimated at 13,964,239. The Jadhithalaivanmore fished 132,600 oysters inclusive of his divers' share. The grand total of oysters fished was therefore 14,096,839.

The Cruxian par was fished for two days, the Pulipundu for six days and the Tholayiram par for the remaining period. The maximum and minimum number of oysters on any single day were 698,000 and 62,980, the largest and the smallest number of boats attending the fishery on any single day were 139 and 20, and the highest and the lowest number of divers who participated in the fishery on any single day were 1,833 and 253. Of the Government share, 867,300 oysters were obtained from the Cruxian par, 1,545,993 from the Pulipundu group and 6,896,200 from the Tholayiram par. The revenue realized by the sale of oysters was Rs. 2,16,508-4-0, and the miscellaneous receipts amounted to Rs. 8,990-2-0 aggregating to a total revenue of Rs. 2,25,498-6-0 from the pearl fishery.

The finances of the fishery were as follows:—

	RS.	A.	P.
Gross receipts	2,25,498	6	0
Gross expenditure	71,061	10	8

				RS.	A.	P.
Difference	...	...	...	1,54,436	11	4
Add assets	...	...	...	5,830	10	7
				1,60,267	5	11

43. *Adverse influences.*—Although considerable success attended the fishery, the results were obtained in spite of a number of adverse factors, but for which my task would have been much lighter and the profits to Government much greater. The Tuticorin pearl fisheries, for some reason or other, have fallen into disrepute during the last 100 years or more. The leading merchants of Bombay were conspicuous by their absence, due to a lurking suspicion that the Tuticorin pearl fisheries may not prove remunerative, particularly as the Ceylon pearl fisheries, with their better reputation, had disappointed expectations in the previous year. It is only when the fishery had run for a week without break-down and many pearls had been found by local merchants, that the Chetti merchants of Madura and Rāmnād as well as a few Bombay merchants began to arrive and the prices offered rose from Rs. 13 on the first day to Rs. 20 and more for 1,000 oysters. The fishery attained its maximum proportions during the next three weeks, the highest revenue on any single day amounting to Rs. 13,268-8-0. In the last week of the fishery the infection of cholera began to spread and some eight residents in the camp died. This scared away the divers, but the merchants continued in the camp and requested that the fishery might be carried on. I consider this the greatest achievement of the present fishery. So far as I am aware, this has never been the case in any fishery in India or Ceylon and proves beyond doubt that the merchants and the public were more than satisfied with the results though they were extremely suspicious to start with. If reports are to be believed there was not a single merchant who had lost his investment while several had unexpectedly large profits. Some exceptionally large and valuable pearls were found. Though merchants as a rule are shy of reporting their finds, one pearl about which there is no doubt whatever, found in an oyster from the Tholayiram par and brought to me by the finder, weighed 6 carats $56\frac{1}{4}$ cents and measured 22 millimeters in circumference and was valued at Rs. 3,000 locally. The prejudice among the present generation of merchants that the large and lustrous pearls do not occur in oysters on the Tinnevely

coast, has been exploded and I have confidence that if another pearl fishery were to be announced, we shall have a greater assemblage of divers and merchants.

Cholera has been perhaps the most persistent of our enemies and finally led to the disruption of the camp and the premature closure of the fishery. The absence of tugs, the occurrence of Easter and Ramzan in the first week of April were other adverse factors in operation.

44. I am most of all indebted to Mr. Tampoe, the Collector of Tinnevely, for the invaluable help rendered by him and the District Revenue staff. The assistance given and the interest taken in the fishery by Mr. Toovey, the Sub-Collector of Tuticorin, and Mr. Godfrey, the Port Officer, Tuticorin, were great.

I am pleased to record the ardent, faithful and unsparing manner in which the whole of the fishery staff from the Superintendents down to the lascars of the fishery vessels performed their duties under exceptionally trying circumstances. Needless to say that the fishery could not have been the success it has been but for their fidelity and willing co-operation.

A full report on the pearl fishery was submitted to Government with my letter No. 1164 M/26-1, dated 15th May 1926.

45. *Pearl Fishery Ordinance.*—The need for legislation to protect, develop and work the pearl fishery was explained to Government last year. The Government, however, deferred the consideration of the question till experience was gained during the pearl fishery of 1926. A further report on the practical difficulties encountered at the pearl fishery in the absence of legislation is about to be submitted to Government.

CHANK FISHERIES.

46. *Tinnevely.*—46,588 full-sized chanks, 6,308 undersized and 1,460 wormed chanks were fished during the year as against 97,581 full-sized, 12,343 undersized and 1,514 wormed chanks in 1924-25. Despite the pearl fisheries, arrangements were made to conduct chank fishing as usual from the 29th October 1925. The crew of fishery vessels were posted on each boat to prevent the divers fishing pearl oysters and a launch also supervised operations. The fishing was, however, irregular and results unsatisfactory partly on account of inclement weather and chiefly because pearl oysters occurred on all chank beds and chank diving had to be

restricted to those spots where pearl oysters were rare or absent. The banks fished were chiefly north of Tuticorin. The maximum number of boats were only seven and the divers consisted to a considerable extent of men who were learning to dive in anticipation of the pearl fishery. Fishing continued till the last week of January and 33,176 shells were collected, the balance of the shells fished for the year represent those picked up during the pearl fishery and those caught in nets.

There was regular fishing for 51 days during this period and the average earning per head per day on the fishing days was Rs. 1-6-0 as against Rs. 1-10-7 during the previous season. The fishing as stated above was not regular and the comparatively poor earnings were due to the presence of a number of men who were keen on learning diving rather than fishing chanks.

The largest number of divers that went out to sea on any one day was 54 as against 82 during the last season and these were all Tuticorin men. No foreign divers were recruited. "Leverett" accompanied the boats on almost all the days and towed them whenever necessary.

Hitherto, the local divers were all Roman Catholic Parawars to whom diving was a hereditary profession. A few Hindu Pallars who have learned chank-diving and who are anxious to continue it as a profession joined the diving force during the year. Of the seven boats that worked, one was manned entirely by Pallar crew. They are novices to sea life and could not manage the chank canoes properly. They had an accident at sea when their canoe capsized on account of rough weather and their Mundock (lineman) was lost. This did not damp their enthusiasm and they participated in the pearl fishery.

47. *Immature shells*.—A total of 6,868 immature shells were fished, of which 560 shells were returned alive to sea. The rest could not be returned as the divers extracted the flesh and used them for food in spite of dissuasions.

48. *Idinthakarai*.—1,082 shells were collected at Idinthakarai, all of them being caught in nets. Nothing further could be done in the way of increasing the collection on account of the preoccupation of the staff with the pearl fishery.

49. *Contract*.—The season that has just expired is the first year of the new contract entered into with the Dacca Industrial Union. The prices agreed to, viz., Rs. 350 per 1,000 full-sized chanks and

Rs. 25 per 1,000 for under-sized and wormed shells are the highest on record obtained for the Tuticorin shells, due to the prevailing scarcity of chanks.

The Union complained that there were in the full-sized lot undersized and wormed shells and that they could not in future accept them in view of the high prices they were paying. The Union was appraised of the difficulty that is experienced in gauging the chanks fished by divers and was informed that the gauge limit mentioned in the agreement was only a rough indication of the size and it was not possible to keep to the precise gauge size in practice. The same difficulty was experienced in the early days of the chank fishery and as early as 1881, Government were compelled to withdraw the right of the purchasers to gauge the shells in view of the fact that purchasers were rejecting a large number of shells actually paid for by Government. Vide G.O. No. 1669, Revenue, dated 9th November 1881. The conditions of sale were consequently altered and the purchasers were offered the shells as they were gauged by the department. A specific clause in the agreement provides that "the Secretary of State accepts no responsibility as regards the failure of any of the shells to come up to the specification." The difficulty is that shells, when fresh, appear to be larger on account of marine life and substances covering them and when they dry they become slightly smaller. Also the worm holes which are not visible when fresh show themselves as the shell dries. These defects are inevitable however strict the gauging may be. The Union therefore were informed that the shells cannot be gauged before delivery.

50. *Ramnad chank fisheries*.—A total of 138,492 chanks were fished as against 81,087 shells during 1924-25.

A statement of catches for the last five years is furnished:—

Year.	Rameswaram, including Mandapam.	Kilakarai, including South Vedalai.	Tirupalagudi, including North Vedalai- patti and Sivaganga.	Total.
1925-1926	100,962	8,030	29,500	138,492
1924-1925	21,250	18,797	41,040	81,087
1923-1924	88,390	13,880	75,005	177,275
1922-1923	111,906	2,492	30,316	154,714
1921-1922	107,393	11,845	37,542	156,780

From the above it will be seen that this season's results compare favourably with the pre-pearl fishery years. This was quite unexpected and is due to making the best use of divers at Rāmēswaram after the close of the pearl fishery.

51. *Rāmēswaram*.—Fishing at this place usually commences about the middle of February and lasts up to the third week of April. The best period is the month of March when we usually fish about two-thirds of the total catch of the season. There were no divers at Rāmēswaram at this time as the Kīlakai divers were at the Tuticorin pearl fishery and the local divers went away to Ceylon for the Ceylon Government's inspection of pearl banks.

Immediately after the pearl fishery closed, the Superintendent sent his staff to Kīlakai to recruit the divers for Rāmēswaram and commenced the fishery on the 5th of April though it was the fag end of the season. A spell of good weather occurred as the south-west monsoon which usually breaks out during the third week of April did not commence this year till the middle of May. The services of the divers were available, it being too late then, for them to go to Ceylon. The largest number of boats and divers that worked in the fishery were 21 and 211, respectively, and they worked till 20th May 1926, when fishing in the deeper beds became impossible. The largest number of divers was as usual from Kīlakai and Periapatnam and the 211 divers employed were made up as below—

Kīlakai divers	...	...	...	...	104
Periapatnam divers	...	...	...	...	59
Vadalai divers	...	...	...	...	28
Rāmēswaram divers	...	...	...	...	20
Total					211

The average earning per head per day during the fishing period from 5th April to 20th May was Rs. 1-2-10. The average earning during 1923-24 season when the Rāmēswaram fishery was last conducted was Re. 0-13-0 on the working days and Re. 0-11-7 during the fishing season. The improved earnings were due to the increase in the price of chanks paid to divers and to the better catches obtained. The respite the beds enjoyed for one year has considerably increased the output, and the divers report an abundance of shells wherever they went. This is biologically important

as it proves that the beds when depleted get quickly populated. A total of 83,737 shells was fished at Rāmēswaram during the season under report.

52. When the deeper beds were fished at Rāmēswaram, towing was required for 29 days. "Leverett" towed for 23 days and "Sea Scout" for 6 days.

53. *Mandapam*.—A total of 17,222 shells was fished at Mandapam against 12,249 shells during 1924-25 season and 29,339 chanks during 1923-24 season. The chief divers who work in this place are from Periapatnam and Vadalai. Fishing is possible here from May to July and as the divers were working at Rāmēswaram during May, the catches represent what were fished in June and those collected during the other months.

54. *Kīlakai*.—A total of 8,030 shells was fished as against 18,797 shells during 1924-25 season and 13,880 during the 1923-24 season. Fishing is confined to the inshore beds and the poor catches were due to scarcity of chanks in the inshore beds.

55. *Tirupalagudi*.—A total of 28,426 shells was fished as against 41,040 shells during the last season and 75,005 during 1923-24 season. During the best part of the season the divers attended the pearl fishery and hence the poor results. No Valampuri shells were fished.

56. *Sivaganga fishery*.—A total of 1,034 shells was collected against 908 shells in 1924-25 and 3,033 shells in 1923-24. The fishery is responsible for a loss of Rs. 23. The loss during the previous two seasons was Rs. 134 and Rs. 74, respectively.

57. *Immature shells*.—6,761 shells were returned alive to sea out of a total of 10,728 immature shells brought ashore. Of this, 6,506 shells were returned to the beds at Rāmēswaram and 255 at Kīlakai.

58. *Rāmnād chank fishery lease*.—The season under report is the 13th year of lease and there are yet two more years for the expiry of the lease. Government who were approached for the renewal of the lease have ordered that the application may be made at the end of the current season.

COROMANDEL FISHERY.

59. *Tanjore chank fishery*.—This fishery brought in a rental of Rs. 3,400-13-6 for ten months during the season, the annual rental being 3,710. It is desirable to work this fishery departmentally and proposals will be submitted after the pearl fisheries cease.

60. *South Arcot chank fishery*.—Rental realized was Rs. 955.

61. *Chingleput and Nellore districts chank fishery*.—Rental realized was Rs. 760.

BECHE-DE-MER FISHERY.

62. 1,187 lb. were cured as against 1,900 lb. during the previous year. The charges incurred on account of this experimental industry was Rs. 466-9-11. The receipts amounted to Rs. 470-13-0.

ADVANCES TO DIVERS.

63. In view of the pearl fishery, efforts were made to recruit divers for the chank fishery. A total of Rs. 2,362-7-3 was outstanding with the Tinnevely and Rāmnād district Divers, of which a sum of Rs. 35-2-0 was written off as irrecoverable, with the sanction of Government. A further advance of Rs. 310-0-0 was issued as an inducement to divers to fish chanks before and after the pearl fishery. A sum of Rs. 240-4-3 was recovered from the catches of divers and the balance outstanding at the close of the season was Rs. 2,397-1-0. The advance could not be recovered from the earnings of the divers at the pearl fishery as it terminated abruptly.

64. *Boat loan to divers*.—A loan of Rs. 155-3-0 was outstanding with the divers at the close of 1924-25 season. A further advance of Rs. 200-0-0 was made during the season, making the total loan of Rs. 355-3-0. Of this, a sum of Rs. 80-0-0 was recovered and the balance outstanding on 30th June 1926 is Rs. 275-3-0.

FISHERY VESSELS.

65. "*Lady Nicholson*."—The charges of her upkeep came to Rs. 12,487 during the season under report as against Rs. 9,815 during the 1924-25 season and Rs. 10,267 during the 1923-24 season. The increased charges were due to her employment in the pearl fishery and to the renewal of her cables, sails and rigging. She was also engaged in towing the pearl fishery boats until the arrival of "*Kerala*." She was anchored on the banks during the pearl fishery, and the fishing operations were directed from her. During the year, she was on active commission for 48 days.

66. "*Leverett*."—Her running charges came to Rs. 5,282 against Rs. 3,991 during the previous season and Rs. 3,030 during the 1923-24 season. She was on commission for 166 days as follows :—

26 days at the Tuticorin Chank Fishery, 63 days on the pearl fishery, and 77 days in the Rāmnād Chank Fishery. The increased running charges were due to her pearl fishery duties.

67. "*Sutherland*."—She was employed entirely for the pearl fishery. Her running charges during the season under report came to Rs. 4,228 against Rs. 2,270 during the previous season, and Rs. 1,685 during 1923-24 season. The increase was due to the pearl fishery work, i.e., inspection and patrol of pearl banks. She was on commission for 105 days.

68. "*Pearl*."—She was solely engaged in Rāmnād at the chank fishery. Her running charges came to Rs. 2,360 against Rs. 1,615 during 1924-25 season and Rs. 1,522 during 1923-24 season.

69. "*Sea Scout*."—Being a light vessel with good speed she was employed for the patrol of pearl banks now and then. Her full crew were engaged during the pearl fishery and her maintenance cost the department Rs. 1,277-6-8. She was on commission for 86 days.

The increased running charges of all the vessels during the year under report were due to the additional duties to which they were put on account of the pearl fishery.

INLAND PISCICULTURE.

70. The developments in this section were :—

(1) Two proposals for additions and alterations to the Chingleput Fort Moat Fish Farm and the Mopad Fish Farm, respectively, received the sanction of Government.

(2) The construction of the Praema Fish Farm sanctioned last year is in progress.

(3) Fishery rentals generally improved partly on account of good rains and partly by successfully combating combinations in auction sales by accepting private tenders.

(4) For the first time this year the exotic food fish Gourami under cultivation was introduced south of Madras in the newly constructed Vellore Fort Moat Fish Farm.

The scientific work of the section continued under my personal supervision, but no material progress in systematic research was possible with the many demands on my time. If the post of a Research Assistant asked for in my Ten Years' Programme of Research work is sanctioned, I trust a beginning can be made in Limnological investigations.

71. The total receipts from inland fisheries amounted to Rs. 1,11,005 against Rs. 1,09,467 in the previous year and the aggregate expenditure was Rs. 1,02,128 against Rs. 98,088 in 1924-25 leaving a credit balance of Rs. 8,877 on the year's working.

72. The policy of accepting private tenders when public auctions fail to fetch a reasonable rent, initiated last year besides ensuring revenue has had the desired salutary effect on villagers in the Nellore and Chingleput districts. There was healthy competition in the case of several tanks and reasonable amounts were realized at public auctions. A larger number of tanks than in the year previous were disposed of by private tender as public auctions failed.

Name of tank.	Highest bid in auction.	Amount obtained by private tender.	Gain.
	RS. A. P.	RS. A. P.	RS. A. P.
Manimangalam	60 0 0	80 0 0	20 0 0
Parandur	25 0 0	100 0 0	75 0 0
Nirvalur	14 0 0	40 0 0	26 0 0
Kuttirambakam	17 8 0	40 0 0	22 8 0
Penubarti	...	55 0 0	55 0 0
Mudivarti	81 0 0	150 0 0	69 0 0
Peddaputtedu	50 0 0	70 0 0	20 0 0
Vavilla	35 0 0	50 0 0	15 0 0
Chaukacherla	67 0 0	85 0 0	18 0 0
Pantapalam	20 4 0	40 0 0	19 12 0
Papireddipalam Kanakacheruvu.	8 0 0	25 0 0	17 0 0
Muthukuru Large Tank	10 4 0	30 0 0	19 12 0
Idagalli	...	20 0 0	20 0 0
Kalevetapalam	3 8 0	20 0 0	16 8 0
Anantavaram tank of Varakavi-			
pudi	51 8 0	75 0 0	23 8 0
Purini Tank	37 0 0	70 0 0	33 0 0
Puduparti	...	25 0 0	25 0 0
Zualadini	...	50 0 0	50 0 0
Musunoor Tank	85 0 0	180 0 0	95 0 0
Mannangidini	170 0 0	220 0 0	50 0 0
Vasili tank and Madugu	85 0 0	185 0 0	100 0 0
Chagollu	30 0 0	100 0 0	70 0 0
Bitragunta	25 0 0	50 0 0	25 0 0
Chevuru	180 0 0	230 0 0	50 0 0
Sevilimedu	23 4 0	100 0 0	76 12 0
	1,078 4 0	2,090 0 0	1,011 12 0

It will, however, be noticed that barring five tanks, the tanks now given on private lease are not those for which private tenders were accepted before.

73. The rainfall in the districts of Salem and Chittoor and some other localities was below normal and due to want of water the following tank fisheries realized small or no rentals:—

Name of district and tank.	Rent realized.	Compensation.
	RS. A. P.	RS. A. P.
<i>Salem District—</i>		
Cauvery fishery	145 10 6	1,207 0 0
Three tanks under Barur system	10 0 0	20 0 0
Penukondapuram Tank	22 0 0	118 0 0
<i>Chittoor District—</i>		
Kandukur Vyasasamudram	15 0 0	200 0 0
Rangasamudram	...	
Tippasamudram	...	
Tsadam	...	
<i>Trichinopoly District—</i>		
Panjampatti	133 6 6	These fisheries belong to Government and no compensation is paid to local bodies.
<i>Anantapur District—</i>		
Yellanur	28 0 0	
<i>Kistna District—</i>		
Peddinayakudu	9 14 0	
<i>Kurnool District—</i>		
Kocheruvu	5 2 0	
<i>Nellore District—</i>		
Janakiamma Tank	21 0 0	
Nadimi Tank	2 5 0	

74. The tanks noted below were not auctioned on account of too much water:—

Name of tank.	Average annual rental for past five years.
	RS. A. P.
<i>Chingleput District—</i>	
Kondangi	110 0 0
Rallakuppam	1 12 0
Sirukundram	45 6 0
Edamachi	213 3 0
<i>Nellore District—</i>	
Chennayapalem	124 6 0
Kaluvaya	150 3 0

75. In a few villages the disappointed villagers proved truculent and the outsiders who took up the fisheries were molested and the fish looted, but a reference to the Collector and Police secured the necessary protection to the lessees though the steps taken were purely administrative and had no legal sanction.

76. *Prohibition of fishing by the Public Works Department.*—The question of prohibiting fishing within 100 yards of anicuts and

masonry works in rivers and channels had engaged attention as far back as 1882. The Public Works Department Officers had expressed opposite views and the prohibition has been enforced and withdrawn from time to time. With the advent of the Fisheries Department, Mr. Wilson, the late Piscicultural Expert, conducted extensive enquiries in consultation with the Public Works Department Officers, into the actual working of the prohibition which was then in force and it was finally decided by Government in G.O. No. 94 I., dated 25th February 1916, to abolish the restriction imposed as it was brought to their notice that the retention of the clause had not the desired effect of protecting immature fish but had, on the other hand, resulted in disputes between the lessees and the water establishment, and that the prohibition order was a dead letter and clandestine fishing prevailed everywhere with the connivance of the low-paid anicut lascars.

Since 1916, no case of damage to irrigation works by fishery lessees has been reported and the clandestine fishing that went on despite the orders prohibiting fishing in the vicinity of anicuts and sluices was legalized from that year, to the considerable advantage of both fishermen and Government. The 100 yards below masonry works is the most important section for fishermen as fish naturally swim against current and always congregate in this section. The cancellation of the prohibition and the inclusion of this important section below anicuts in leases contributed substantially to the increase in fishery revenue in the Cauvery and channels which almost doubled since 1916. The destructive floods of 1924 which caused the breach of several anicuts and flood banks, rendered the temporary enforcement of the prohibition near irrigation works necessary on account of the exceptional conditions then prevailing, but on the basis of this emergency measure Government in the Public Works Department appear to have decided on the enforcement of the restriction on fishing as a permanent measure—vide G.O. No. 72 I., dated 4th February 1926. In the absence of a reference from Government, I am not aware of the reasons which led them to impose the restriction permanently. The introduction of the new clause in fishery leases prohibiting fishing near masonry works necessitated by the Government Order, has already caused great inconvenience and loss. As the fishery lessees of Perar Fishery, Mannārgudi Taluk, refused to bid for the fisheries, the Collector, in consultation with the Superintending

Engineer subsequently, had to delete the clause. I anticipate considerable opposition on the part of the lessees if the restriction is enforced, nor am I convinced that the prohibition order could be effectively carried out under existing conditions. This has been confessed by the Public Works Department officers themselves. In the circumstances, I have recommended to Government the withdrawal of the restrictions in my letter No. 497 I/26-3, dated 26th July 1926.

77. *New waters acquired.*—In G.O. No. 100 I., dated 20th February 1914, the Government ordered that the fisheries of a number of new tanks under construction by the Public Works Department should be controlled by the Fisheries Department and the revenues derived therefrom should be credited to Provincial revenues. Seventeen projects were reported to have been completed since 1914 by the Chief Engineer, out of which the fisheries of seven had been acquired prior to 1926 and the following five have been brought under the control of the Department for the first time this year:—

Dondapad Tank.	} Guntūr District.
Atmakur Tank.	
Jangamaheswarapuram Tank.	} Cuddapah District.
Nagavaram Tank and Supply Channels.	

Of the remaining five, three remain yet to be acquired and two others are under the control of the Palni Game Association and the Collector of the Nilgiris.

78. *Fishery legislation.*—In the earlier years of the Fisheries Department, the need for legislation was not felt. With the acquisition of fishery rights in important waters in the Presidency and with the initiation of cultural methods to improve the quality and quantity of fish in them, the need for legislation was felt not only to protect the fisheries of waters improved, but also to safeguard the rights over fisheries leased out against poachers. After the acquisition of the Cauvery River Fisheries in 1914, Mr. Wilson saw the fisheries of Lower Anicut poached in broad daylight though the fishery rights had been leased out. The Police and the Magistracy could not help him in the matter, there being no legal provision to arrest or prosecute poachers. Again in 1914 after the acquisition of the fisheries of Kurnool-Cuddapah Canal and Tanks, the Thangadacha Tank stocked with valuable non-indigenous fish at great cost was fished with impunity by the surrounding villagers, and the trial case instituted against poachers in the Magistrate's Court at Nandyal was dismissed for want of legal provision. The

Government thereupon framed rules under section 6 of the Indian Fisheries Act, 1894, prohibiting all fishing in waters improved by the Fisheries Department for a period of two years. The notification has been repeated up to December 1923 and was in force till 18th December 1925. During the 12 years that the notification has remained in force, the fact that the Indian Fisheries Act does not contemplate the leasing of fishery rights which belong to Government or the protection of revenue and their collection, has been more than once pointed out by various Collectors and myself. Legislation therefore is an emergent necessity and the question of revising the Act under the powers conferred on the local legislature by the Devolution Rules is under the consideration of Government.

FISH FARMS.

79. The five fish farms at Sunkesula, Praema, Ippur, Perambur, and Vellore worked satisfactorily during the year and the fry bred in these farms were distributed to the waters in their neighbourhood controlled by the Department.

(1) *The Sunkesula Fish Farm.*—The farm was visited by the Hon'ble Minister for Development on 3rd October 1925. The extensions sanctioned to the Praema farm on the Nallamalais which is expected to be completed by the close of the current year will considerably relieve the congestion complained of at the Sunkesula farm during previous years. The infiltration gallery in the river failed to secure a sufficient quantity of water for the farm during dry weather. The matter has been referred to the Executive Engineer.

Gourami and Etroplus continued to thrive and breed in the farm. The Kurnool-Cuddapah Canal and Tanks have been as usual stocked with etroplus from the farm and carp fingerlings from the Sunkesula Anicut.

The District Medical Officer, Bellary, was supplied with 543 larvicidal fish for anti-malarial stocking operations.

The Edurur swamp which used to provide the nursery for growing murrel for the market at Kurnool has become heavily silted up. Proposals to bring a major portion of the swamp under cultivation have been made. The fish from the swamp were sold for only Rs. 122-15-0 against Rs. 325 in the previous year. It may be necessary to abandon murrel culture in the farm in the near future.

(2) *Praema Larvicidal Farm.*—The four additional ponds sanctioned by Government are still under construction and the Public Works Department have promised to complete them before the end of the current year. Sixty-two water holes on the Nallamalais were stocked with 26,000 larvicidal fish from Praema.

(3) *The Ippur Fish Farm.*—The farm enjoyed a full supply of water during the year. There was an unusually large crop of Etroplus fry available this year with which all the important tanks of the Nellore District and the newly acquired Bhavani Tank of the Guntur District were stocked. The breeding of Gourami in the farm, however, was not successful. As funds permitted, the remodelling of the Gourami Pond was taken up and the stock of Gourami from the ponds which have been drained has been sent to the Vellore Fort Moat Farm. The new ponds will enable the experiments on Gourami breeding referred to in paragraph 80 of my last year's report to be conducted.

(4) *The Perambur Fish Farm.*—Both Etroplus and Gourami bred unusually well during the year. The elimination of predaceous fish from the Gourami Pond resulted in Gourami breeding extensively. Two hundred and twenty-four young Gourami were transferred to the Vellore Fort Moat Farm. There are yet some hundreds of fry awaiting distribution to other fish farms. The proposal to utilize the ditches in the abandoned Government Brick Fields at Chetput had finally to be abandoned as the Health Department objected to the permanent retention of these ditches. The limitations existing at present on piscicultural operations in the City of Madras will therefore continue to impair work till a suitable site for a fish farm is found.

The Garrison Engineer, Fort St. George, raised the question of the levy of a rent and proposed other unacceptable conditions for the occupation of their building and ponds in the Old Powder Factory, Perambur. As the rent demanded was excessive, Government have been addressed to move the Government of India for either the remission of rent, or for its reduction to a reasonable sum on the basis of the valuation by the Public Works Department. The Powder Factory and its neighbourhood is the resort of bad characters. The protection of the stores and fish from theft has always been a matter of difficulty. The delinquents have been prosecuted on the few occasions when they were actually captured, but on many occasions they have escaped, in spite of the vigilance of the Sub-Assistant Inspector and staff.

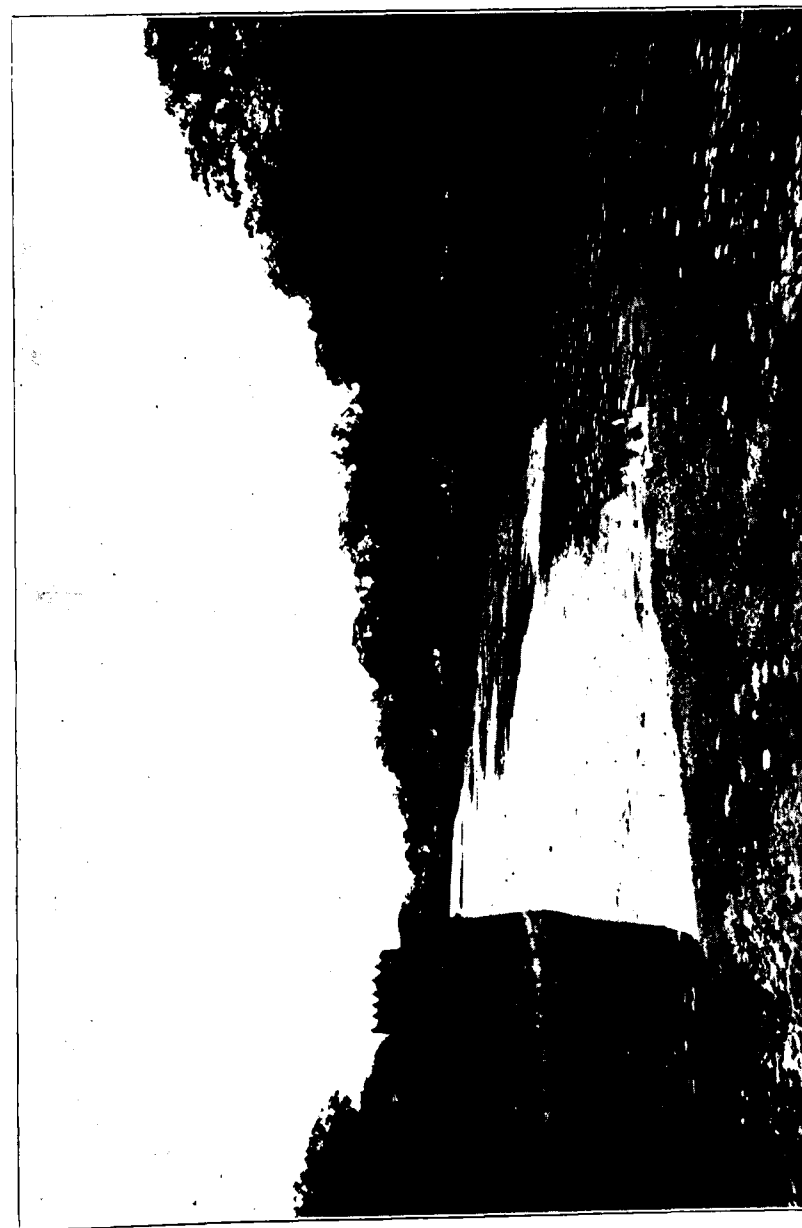
During the year on one occasion the Sub-Assistant Inspector as well as the Military staff were actually assaulted by a gang of rowdies who attempted to trespass into the Factory grounds. The matter was duly reported to the Police and the culprits have been brought to book. The need, therefore, for a gun at the farm has been pointed out by the Assistant Director of Fisheries (Inland). Proposals will be submitted to Government in due course.

(5) *The Vellore Fort Moat Farm.*—The dam across the Nakkal kalava to provide a supply to the Fort Moat, erected in the previous year, was not of sufficient height and was therefore raised by one foot at a cost of Rs. 77 during the year. In consequence, the moat, after a lapse of several years, received a full supply during the last north-east monsoon. This is a blessing to the town as a permanent supply of water is thereby ensured in wells throughout the town. Excepting the section between the sally port and the main entrance, there is no probability of any section of the moat running dry for a series of years. As noticed above, the Farm was stocked for the first time this year with 324 Gourami from Ippur and Madras. Another section between the stone wall and the sally port reserved for sporting fish has been stocked with 1,000 Etroplus fry. The sale of fishery rights in the northern section of the moat and in the shallow section between the sally port and the main entrance was auctioned as usual and fetched a sum of Rs. 1,030.

INCOMPLETE SCHEMES.

80. *Mopad Farm.*—The Government sanctioned in G.O. No. 154 I., P.W.D., dated 18th March 1926, a sum of Rs. 2,600 for rectifying defects in the construction of the Mopad Fish Farm. So far no action has been taken by the Public Works Department despite several reminders sent by the Assistant Director of Fisheries (Inland) to the Executive Engineer, Nellore. Though Government had indicated in their order the source from which to meet the expenditure, the Executive Engineer, Nellore, in his last communication states that necessary funds have not been provided.

Mopad is a dry arid tract subject to high winds at times. Though a tiled roof for the staff quarters was provided in the original estimates for the construction of the farm, the then Superintending Engineer converted it to a thatched roof, on the grounds of coolness and comfort, but had overlooked the danger arising from fires which prevail in this tract. On 8th July 1925, in



Vellore Fort Moat Farm : which has been recently stocked with the exotic fish, Gourami.

the progress of a terrific gale, the huts caught fire and were burnt down in spite of the usual precautions against fire. The matter was reported to Government in my letter No. 1532-I/25-I, dated 11th August 1925. Temporary huts have now been provided for the staff at a cost of Rs. 508 pending the reconstruction of the staff quarters.

The reservoir received a full supply of water during the north-east monsoon. In consequence, fishing operations proved more laborious and line fishing was resorted to, which yielded during the year 131½ lb. of fish, besides catches made by usual netting methods throughout the year. A sum of Rs. 720-11-3 was realized by the sale of fish as against Rs. 782-3-3 in the previous year. The slight decrease is due to the maximum water-supply in the reservoir.

81. *Chingleput Fort Moat Farm.*—In their proceedings No. 413 I, dated 13th March 1925, the Government in the Public Works Department ordered the early execution of the following works:—

(1) Improvements to the rear cistern of the Kolavoy sluice, Rs. 91.

(2) Excavating a field channel including land compensation, Rs. 300.

In spite of reminders the work has not been commenced by the Public Works Department during the last year and a half.

An estimate to rectify various constructional defects in the farm at a cost of Rs. 1,680 forwarded by the Executive Engineer was duly approved and returned to him. In the meantime the Assistant Director of Fisheries (Inland) reports that some of the structures are deteriorating badly, for instance, the watchmen's sheds which were constructed by the Public Works Department are in a bad state of repair: the cracks in the walls have further widened and there is grave danger of the shed collapsing. The Executive Engineer has been addressed by him on the subject. The moat is being kept clean of weeds and debris and stocked with larvicidal fish to mitigate the mosquito nuisance.

82. *Tippu's Tank, Coondapur.*—The award of Rs. 5 for each crocodile killed has not elicited any response from the public. With a view to draw the attention of gun licence holders to the reward offered, notice boards have been put up in conspicuous places. Before the culture of the milk fish *Chanos* could be taken up, a great deal of preliminary biological research on the eggs, breeding season, larvae, rate of growth, food, etc., remain to be

done. It has not been possible to take up these investigations for want of staff.

NEW SCHEMES.

83. No progress was made with the proposal to cultivate Gourami for the fish market in Kurnool in the permanent water springs on the Yerramalais near Chinnatekkur and Nanur as I was not able to arrange a tour to inspect the waters. I expect, however, to do so in the current year.

84. *Ganjām tank stocking scheme*.—The scheme was held in abeyance by Government apparently for financial reasons. It will be submitted as a part II scheme again this year.

85. *Russellkonda Fish Farm*.—A scheme for establishing a fish farm at Russellkonda has been investigated and will be submitted after the Ganjām Tank stocking scheme receives the sanction of Government.

86. *Hilsa hatchery*.—The Government sanctioned an expenditure of Rs. 500 for preliminary investigations with a view to continue the cultural operations on hilsa in the Gōdāvari and Kistna Rivers and rearing the young in the Colair Lake. The hilsa season in the Kistna and Gōdāvari began a few weeks back. I expect to carry out the investigation and perform a few preliminary experiments within the next few weeks. The Bezwada Anicut, which is about 50 miles from the sea, seems to afford better facilities than Dowleshweram which is closer to the sea. Most of the hilsa that were caught near the Bezwada Anicut late in the season are reported to have ripe eggs, while such fish seem to be very rare at Dowleshweram. Also as the Gōdāvari breaks up into numerous branches before she enters the sea, and there are very extensive backwater fisheries along the estuary of that river, most of the hilsa entering the river are netted there alone and only a few fish appear to reach the anicut. On the whole, therefore, I am inclined to believe that the Bezwada anicut will afford the best facilities. A hatchery at one of these anicuts and a nursery on one of the Colair Lake islands are essential for conducting hilsa operations in the future. Proposals with estimates will be submitted to Government after conducting the preliminary experiments this year.

EXPERIMENTS AND RESEARCH.

87. *Experiments in deep water tank fisheries*.—Steps have been taken for further experiments in deep water fishing at Mopad. The fishing methods at the Ennur backwaters in Madras which

were considered to be suitable for adoption at Mopad were closely studied and the one or two methods which were selected as suitable were taught to the head fisherman at Mopad who was deputed to Ennur for a fortnight. The nets and tackle selected were purchased for Rs. 83 and a flat bottom boat for Rs. 180. The method will be tried at an early date at Mopad.

88. *Gourami*.—This fish continues to thrive and breed in fish farms at Sunkesula, Ippur, and Perambur. During the year it has been introduced into the Vellore Fort Moat Farm. Accidentally when inspecting the Powder Factory Farm I observed that the fish feed voraciously on certain common garden shrubs. Experiments instituted at the Powder Factory Farm to determine the common plants on which the Gourami feed has brought to light the fact that it is partial to a number of common garden shrubs, while it does not feed on others. A collection has been made of these and the plants have been identified. Further experiments at Ippur and Kurnool are underway. When finally the number of common garden plants on which the Gourami could be fed has been determined, instructions will be framed for the public who are interested in fish breeding and to whom Gourami fry will be sold for cultivation.

89. *Mullets*.—The characters of the fry of mullets with which tanks are stocked remain yet to be determined before selective stocking of fresh water tanks with mullets could be done on a scientific basis. A beginning has been made this year by the Inspector of Fisheries (Inland) in the study of the adult mullets of the local backwaters. Under my guidance, all the available species of mullet at Pulicat have been identified. Collections from Ennur and Krishnapatam have been received and remain to be worked at. A further collection from Covelong is expected shortly. After the species of mullets occurring in these waters are ascertained, the study of their breeding habits and fry will be taken up. The need for an Assistant exclusively for limnological research is badly felt.

90. *Catla catla*.—There was a scarcity of catla fry in the channels of the Gōdāvari during the year, due to which only 430 fingerlings were transferred to the Hoginkal falls in the Cauvery and 190 young catla were placed in the Attigunta Tank attached to the store shed in Nellore. More favourable conditions are prevailing this year and it is expected to stock all the large new reservoirs acquired recently with this carp.

91. *Tench*—The tench and English carp continue to thrive in the Sunkesula Fish Farm. When the Præma Farm is completed, it is hoped to transfer the acclimatization of this fish to ponds there which afford better facilities for the growth and breeding of this fish.

92. There were several enquiries during the year regarding fish and fish culture :—

(1) The Warden of the Punjab Fisheries was advised as to the best methods of stocking some of the salt lakes in his province.

(2) The Thakore Sahib of Rajkot was advised regarding the breeding of murrel and mahseer.

(3) The Kenya Angling Association, South Africa, were instructed as to the best methods of dealing with some of their rivers and lakes.

(4) Mr. Cotton of the Anamalai Estate purchased 6,500 mahseer fingerlings from Sunkesula at a cost of Rs. 521-3-0. The transport of mahseer fry, though a novel one, was a complete success notwithstanding the distance and the heat which prevailed at the time of transport.

(5) Mr. Cooper of Karamalai Estate has been advised as to the best kinds of fish for stocking and their cost.

(6) At the request of the Palni Game Association, a consignment of trout fingerlings purchased at Avalanche by the Association was transported to the Palni Hills. Out of 800 fingerlings 550 survived the journey and were handed over to the Forester deputed by the Association at Kodaikanal Road Station. 439 of them reached the Kodaikanal Lake alive.

PUBLIC FISH-CURING YARDS.

93. There were 106 fish-curing yards at the commencement of the year including the private yard at Malpe (Malpe II) and the Hosabettu yard which is run for six months in the year and the temporary yards at Pukklipeta in Ganjam and Nilattur in Nellore. The Pembalur Yard on the West Coast was closed with effect from 1st April 1926. Two new yards, Kizhur Yard on the West Coast and the Mulapeta Yard in Gōdāvari East District, were opened on 1st October 1925 and 16th March 1926, respectively. The total number of yards therefore at the close of the year was 107.

In place of the Pembalur Yard which was closed, it is proposed to start a yard at Kadalundi. A suitable site was procured by

fishermen from a jenmi who gave a written permission to Government for the use of the site for locating the yard, as long as they wanted, free of any liability. The jenmi had, however, made a private agreement with curers for the payment to him of a rent of eight annas per annum on every shed erected by them on the land. The Government, however, wanted that the agreement handing over the use of the land to them should be registered. Meantime the jenmi had left the place for Tinnevely and his local representative was therefore called upon to obtain a power-of-attorney authorizing him to get the transfer deed registered. It is expected that the yard will be opened shortly.

As the Shiriya Yard was inconveniently situated, the proposal to shift the yard to a more convenient site to the west of Kumbla Railway Station was approved by Government. The yard is in the process of being shifted.

Proposals to open a yard at Krimanjeshwar, 12 miles north of Gangoli, is under consideration.

The fishermen of Vyravankuppam and Lighthousekuppam near Pulicat applied for a separate yard. The leading fishermen are willing to abide by the conditions required by Government for opening a new yard and have offered a deposit against loss, as well as payment of cost by cess. As there are already two yards, viz., Pulicat and Sathankuppam, within a distance of about a mile and a half it is feared that transactions may suffer in these two yards if a third yard is opened. The Assistant Director of Fisheries (Inland) has been asked to investigate the question further.

Since the close of the year proposals to reopen the Srirangapuram Fish-curing Yard in Vizagapatam town has been submitted to Government with my letter Ref. No. 1357 F-26/16, dated 16th August 1926.

94. *Transactions*.—Statement No. XI shows the transactions in the fish-curing yards during the year.

The weight of fish brought to the West Coast Yards was 1,150,492 maunds, the salt issued was 187,375 maunds 33 seers yielding a revenue of Rs. 2,34,220. The quantity of cured fish removed from the yards was 669,597 maunds. A total of 258,303 maunds of fish was brought to the yards of the East Coast, the salt issued was 38,913 maunds 31 seers and the sale proceeds of salt were Rs. 48,642. The cured fish removed from the yards was 160,407 maunds.

The total quantity of fresh fish cured was therefore 1,408,795 maunds; the salt issued was 226,289 maunds 24 seers and the revenue collected by the sale of salt was Rs. 2,82,862, against 1,305,027 maunds of fresh fish cured, 204,307 maunds of salt issued and Rs. 2,55,384 collected in the previous year.

95. *Fish-curing industry.*—Operations on the whole show an increase in the South Kanara District and in the Ponnani Taluk, but the year proved one of the worst for the fishing community in the rest of Malabar. The unusual occurrence of a cyclone on the Malabar Coast added to the calamities of the fishing population. Sardines and mackerels were both scarce except in South Kanara and the Ponnani Taluk. A terrible cyclone swept over the central portion of Malabar at midnight on 10th November 1925 and lasted, with a short lull at daybreak, until about 8 a.m. on the 11th. Tellicherry and Tanur suffered the worst. The course of the storm, appears to have been northerly or north-westerly and to have extended from Cochin to Cannanore. The number of fishing boats lost was computed to be 83 and the number of fishermen missing is estimated at 187. Habitually improvident, the fishermen had put by nothing against such contingencies. A series of bad years had rendered them already heavily indebted. Many fishermen families were rendered destitute by the loss of their earning members and the distress was only partially alleviated by the efforts of the Cyclone Relief Committee who supplied boats and net-making yarn to the distressed. Five boats were also supplied to the survivors at Tanur and Paravanna.

The funds of the co-operative societies having already been drained by the series of bad years, they could not render the needed help. Whatever help they could render has been rendered. Instances have been known where fishermen had to accept the exorbitant terms on which their merchant creditors were prepared to make advances, for instance, purchasing rice bags at Rs. 20 and Rs. 25 when the market value was only Rs. 13 and Rs. 15. Private and public charity has, however, been forthcoming in liberal measure and the distressed have been greatly helped.

The Uppala Yard shows a consumption of only 56 maunds for the year, the revenue was Rs. 70 against an expenditure of Rs. 626. It seems hardly worth while retaining this yard. The Thayali Yard yielded a revenue of Rs. 349-8-6 against an expenditure of Rs. 1,641-8-2. A petty yard officer in place of a yard



Handling of the Rampini Nets—Malpe, South Kanara.



A large haul of fish landed by the Rampini Nets at Malpe, South Kanara.

officer for this yard will probably suffice. The yard, however, is intended to be run on co-operative lines and the working of the co-operative society has been receiving special attention. Shiriya Yard shows a revenue of Rs. 376 against an expenditure of Rs. 550. With its removal to Kumbha it is expected to yield better results.

The fishing season on the East Coast has been on the whole favourable. The yards in Tinnevely, Rāmnād, Tanjore, South Arcot, Nellore and Chingleput districts show a credit balance of Rs. 9,024-2-11 over expenditure, whereas there was a loss of Rs. 3,101-0-5 in the case of the yards in the Northern Circars, not due so much to scarcity of fish as to difficulties in procuring cheap salt. The salt famine referred to in the last year's report still prevails in these districts.

96. *Damage to fish-curing yards.*—The cyclone on the West Coast damaged the yards within its zone from Meladi in the south to Tellicherry in the north. The combined guard and store shed in Meladi sustained serious damages and had to be repaired at great cost. In Badagara the additional storage shed was destroyed and a new one had to be erected at a cost of Rs. 500. The fence was also severely damaged. The fence at Madapalli Yard was totally destroyed. At Tellicherry one of the additional store sheds was destroyed and the other damaged. Two additional store sheds have since been put up at a cost of Rs. 1,000. The fence was also badly damaged. A large number of curing sheds in all the yards affected by the cyclone have been damaged, but have since been repaired. At Parapanangadi, the erosion of the northern part of the drying grounds recommenced with this year's rains, but was to some extent counteracted by a wall of sand bags. The sea is also encroaching on the western side and has already destroyed the fence there. The yard will have to be shifted to a new site in the near future. The Quilandy Yard is also being encroached upon by the sea. The Government have sanctioned the acquisition of 1 acre and 60 cents of land for the extension of the drying grounds.

97. *Improved curing sheds.*—Of the 49 curing sheds in the Cannanore Yard 43 were converted into masonry buildings with cemented troughs and floors in 1924-25, and the remaining six thatched sheds, converted to masonry buildings by the owners in 1925-26. The advantage of improved buildings is being generally recognized and smaller sheds are being constructed gradually without Government help in some of the yards like

Madai and Elattur. In the Beypore North Yard, a curer has applied for a loan of Rs. 100 for reconstructing a curing shed on the improved model. New tickets were issued in yards only on condition that curing sheds are built by applicants on the approved type-design.

98. *Store shed in yards.*—The Government have in G.O. No. 491, Development, dated 29th March 1926, sanctioned the construction of additional store sheds in Gangoli, Madai, Cannanore, Tellicherry, Tanūr, Palapatti, and Mannalamkunnu yards. The work will be started as soon as rains cease. Two additional store sheds have been constructed in the Tellicherry Yard in place of one store shed destroyed and the other damaged by the cyclone. These will accommodate only 2,500 bags of salt. If another similar shed is constructed, the total storage accommodation, excluding the temporary sheds now available, will be nearly 8,000 maunds which will suffice for the needs of the yard. The necessary site measuring 25 cents has been acquired in pursuance of G.O. Mis. No. 856, Development, dated 11th June 1926, at a cost of Rs. 271-10-6. Badagara has also been provided this year with a large store shed which will accommodate over 1,800 bags. On account of the poor fishing season and cyclone disaster, great difficulty has been experienced this year in getting the curers to execute the annual repairs to salt store sheds built and maintained by them. The work was carried out departmentally and the cost will be recovered by the levy of a cess from curers. According to the Salt Manual, even when curers construct a store shed at their expense, the maintenance charges are borne by Government. During the closing years of the Salt Department regime, this practice appears to have been modified in some yards where the curers were made to pay the cost of upkeep also.

Additional store sheds are still required in a number of yards on the West Coast before each yard could accommodate the salt that it is likely to consume in a season. Proposals for the construction of additional storage sheds in eight more yards have been submitted to Government as Part II scheme for 1927-28.

99. *Salt supply.*—Owing to the unexpectedly heavy catches of mackerels, yards in South Kanara District ran short of salt. I append a statement showing the yards which were without salt, the period during which there was no salt and the quantity of salt that would have been consumed in the yards if salt were available,

Name of yard.	Period.	Quantity that would have been consumed. MDS.
1. Gangoli	... 15th to 22nd November and 27th to 29th December 1925.	300
2. Hungercutta	... 14th to 16th and 26th to 28th December 1925.	400
3. Malpe I	... 19th November to 15th December 1925.	6,000
4. Malpe II	... 20th November to 2nd December 1925.	800
5. Udayavar	... 30th November to 4th December, 10th to 15th and 21st to 22nd December 1925.	1,100
6. Hosabettu	... 14th to 20th January 1926.	100
7. Hosdrug	... 5th to 9th January 1926 ...	25

Owing to the failure of salt manufacture in the Chingleput and Nellore districts during the season, due to heavy rains, the price of salt rose and caused great difficulties in securing an excise licensee for the regular supply of salt to the yards at a fixed rate. Mr. Rajaprakasa Rao, the excise licensee of Tada who agreed to supply salt to six yards in and around Pulicat at As. 4-2 a maund, raised his rates. So the purchase of salt from the Madras Salt Depot at As. 5-6 per maund had to be resorted to. To obviate these difficulties the Collector of Salt Revenue was requested to provide monopoly salt in the factories of Tada and Krishnapatam as well as in the Northern Circars under the "dittam" system. He has kindly promised to do this every year.

The salt famine of the previous year became even more acute during the year under review in the Northern Circars. To avoid purchasing excise salt, the price of which was ranging abnormally high, the Collector of Salt Revenue was requested to reserve the minimum quantities of salt required for the yards in the monopoly factories of Ganjām, Pundi, Naupada, Calingapatam and Polavaram. The quantities thus reserved were based on the previous year's consumption. The fishing season this year was very favourable and the demand for salt far exceeded the quantity asked to be reserved. I have had to address the Collector of Salt Revenue several times for special issues of monopoly salt wherever possible to fish-curing yards. Nevertheless some of the yards went without salt at the height of the season. Others had to be supplied at times with excise salt purchased at a cost of Rs. 1-8-0 and Rs. 1-12-0.

per maund to meet urgent demands. The yards of the Northern Circars, therefore, on the whole, were run at a loss during the year. I am arranging to request the Collector of Salt Revenue to reserve larger quantities of salt for the fish-curing yards next year.

Much attention was paid to wastage of salt in transport to the West Coast fish-curing yards. The Assistant-Commissioner of Salt, Southern Circle, reported (1) that there was considerable leakage of duty free salt from fish-curing yards and (2) that the fish-curing yards are no longer benefiting the fishermen for whom the yards were originally started as the fishermen were heavily in debt. As regards (1) the Collector of Salt Revenue, after a full discussion on the subject with me, found that the Assistant Commissioner's contention could not be accepted. The consumption of salt since the yards were transferred to Fisheries is considerably below the normal consumption in previous years and no irregularities such as large thefts or illicit disposal or abnormal wastage of salt has been reported. (2) As to whether the yards are serving the purpose for which they were started, I pointed out that the only information we have regarding the financial condition of fishermen prior to the issue of duty free salt for fish-curing, is that given in the report on Sea Fisheries of 1873 by Dr. Day wherein he advocated the establishment of fish-curing yards. He has stated that the fishermen were not curers, and were heavily indebted to the latter. The middlemen curer is not therefore a later creation of fish-curing yards. From a census of curers in the West Coast yards taken two weeks ago it was found that a very considerable proportion of the curers (ticket holders) in fish-curing yards now are actual fishermen, showing the vast improvement the establishment of fish-curing yards and the grant of duty free salt has made in the financial condition of fishermen and the fish-curing industry. The institution of fish-curing yards therefore has achieved the aims for which they were started and is benefiting the class whom it was intended to benefit. The criticism of the Assistant Commissioner, however, served the useful purpose of drawing attention to improvements that were possible in the procedure adopted in transporting salt and safeguarding salt revenue and, in consultation with the Collector of Salt Revenue, I have been taking steps to minimize any possibility of theft or leakage of revenue. The system now adopted is in many respects a great improvement on the system that has been in vogue hitherto for many years, when the yards were under the control of the Salt

Department. Rigorous steps are now taken to ascertain the wastage in consignments of salt immediately on arrival on the West Coast and whenever the transport contractor could not account satisfactorily for wastage, issue price and duty are collected from him.

A total wastage of 8,216 maunds 38 seers occurred on salt transported to the West Coast during the year against 3,381 maunds, 28 seers in the year previous. This includes two consignments of 3,200 maunds and 2,286 maunds respectively lost through the sinking of two schooners. A wastage of 20 maunds and 3 seers occurred on the East Coast against 11 maunds and 8 seers in the previous year.

100. *Fish statistics.*—The form devised for use in all the fish-curing yards on the West Coast in connexion with the scheme for estimating landings and roughly the value of sea fisheries was introduced in all the yards from 1st July 1925. It is a monthly return filled in by the yard staff and returned to the Calicut Research Station for tabulation. The results are of great interest and throw considerable light on sardine, mackerel and other important fish and fisheries also on the biological and economical problems connected with them. Detailed analysis of the figures for the whole year is under preparation at the Research Station. A copy of the form for the West Coast and two month-wise statements showing weights and value of fish landed on the West Coast during the fisheries year ending 30th June 1926 are appended. During the year under review 4,883,481 maunds of fish priced at Rs. 63,04,357 were captured, of which 1,112,449 maunds were sardine valued at Rs. 10,80,551 and 2,741,541 maunds were mackerel valued at Rs. 31,93,647. The figures herein reported represent only the information gathered by yard officers so far as their duties permitted. There are stretches of the coast which are beyond the reach of these officers who are fixed to the yards and information regarding landings there, are therefore not included. As stated last year the yard staff on the West Coast as now distributed have little opportunity to attend to statistical work of this kind except in the neighbourhood of their respective fish-curing yards. A large body of itinerating officers with a limited jurisdiction will be required if the collection of statistics is to be satisfactory or approximately complete. I trust that the reorganization of the fish-curing yard staff now under the consideration of Government will provide a more satisfactory machinery for the

collection of statistics. Not only will there be itinerating officers for small sections of the coast on the West Coast but all the East Coast men who for the most part are peons with scanty or no education will be petty yard officers with a minimum of high school education. The existence of peons has prevented the extension of the scheme—for the collection of fishery statistics to the East Coast so far. The difference the change proposed will make will be enormous both with regard to the intelligent collection of statistics as well as for the propagation of socio-economic work in all the important fishing villages.

101. *Staff.*—The reorganization of the fish-curing yard staff referred to in paragraph 123 of my last year's report was submitted to Government with my letter No. 1869 F./25-2, dated 16th January 1926.

The important proposals were :—

(1) The number of yard officers on Rs. 35 to Rs. 80 to be reduced from 33 to 25 on enhanced salaries of Rs. 35 to Rs. 120.

(2) Eight of the yard officers on the West Coast to be placed on inspection duty in charge of eight sub-sections into which the West Coast is to be divided, and one extra yard officer to be assigned for the Inspector of Fisheries, Vizagapatam, and Superintendent, Pearl and Chank Fisheries, respectively.

(3) All yards now in charge of peons to be placed in charge of petty yard officers.

The scheme received the approval and support of the Collector of Salt Revenue. But Government in their memorandum No. 378-II/26-2, dated 14th May 1926, decided that there were not sufficient grounds to alter the scale of pay of yard officers and enquired whether the scheme otherwise may be considered. If the pay of the yard officers are not to be altered, the class of men that it was contemplated to recruit will not be available and the present class who seek employment as yard officers will continue, and they cannot be entrusted with the larger duties and responsibilities contemplated in the reorganization scheme. I had therefore to modify the proposals, and a revised scheme has been submitted to Government since the close of the year. Barring the increased prospects and pay to yard officers, which Government are unable to consider, the other advantages of the original scheme have been mostly retained in the new proposals.

102. *Licence fees on fish-curing yards.*—In June 1925 I applied to Government for the exemption of ticket holders in Government



Sun drying of Cat-fish-- Mangalore.

fish-curing yards from payment of fees for licences under section 193 of the Madras Local Boards Act of 1920 in view of the doubling of the issue price of salt. The Government considered that the ticket holders concerned should in the first instance seek relief from the taluk boards concerned. The ticket holders accordingly were instructed to represent their grievances to the taluk boards. Since the close of the year reports have been received to show that there was no uniformity in the matter of the levy of the fees by the different taluk boards. All of them, except Nangunēri and Srīvaikuntam taluk boards of Tinnevely District, had refused to cancel or reduce the levy of the fees, which ranged from Rs. 5 to Rs. 28, while the Ponnāni Taluk Board President had asked the Assistant Director of Fisheries (Coast) that the Fisheries Department should take out licences for the fish-curing yards. The net result of levying indiscriminately heavy licence fees on an industry, to encourage which even Government have waived the levy of the salt tax, would be detrimental to the fish-curing industry and may lead to curers curing fish clandestinely in their houses, with very little chance of discovery, to escape licence fees. If this happens all the good work done in augmenting the trade and improving the financial condition of the fishermen during the last fifty years through the issue of duty free salt, as well as the improvements in the sanitary condition and methods of cure effected by this Department, will be undone. As the intention of the Local Boards Act was apparently not revenue but to empower local boards to control the industry in the interests of public health, Government have again been addressed in the matter.

103. *Receipts and charges.*—The total revenue derived from fish-curing yards was Rs. 3,95,269-12-10 and the total expenditure (excluding Rs. 16,860 for railway transport of salt for the year 1924-25 debited to the 1925-26 accounts was Rs. 3,60,088-12-10, leaving a credit balance of Rs. 35,181-0-0. The increased profits are due to the favourable fishing season on the East Coast and the good mackerel fishing season in South Kanara and Ponnāni. The financial results bear out my recommendations in my letter Ref. No. 775 F./24-12, dated 27th August 1925, to reduce the issue price per maund of salt by As. 3-4. In a normal year when the consumption of salt rises to 260,000 maunds, I anticipate that the profits will completely cover the expenditure with issue price of salt fixed at Re. 1-0-8.

DEEP-SEA FISHING EXPERIMENTS.

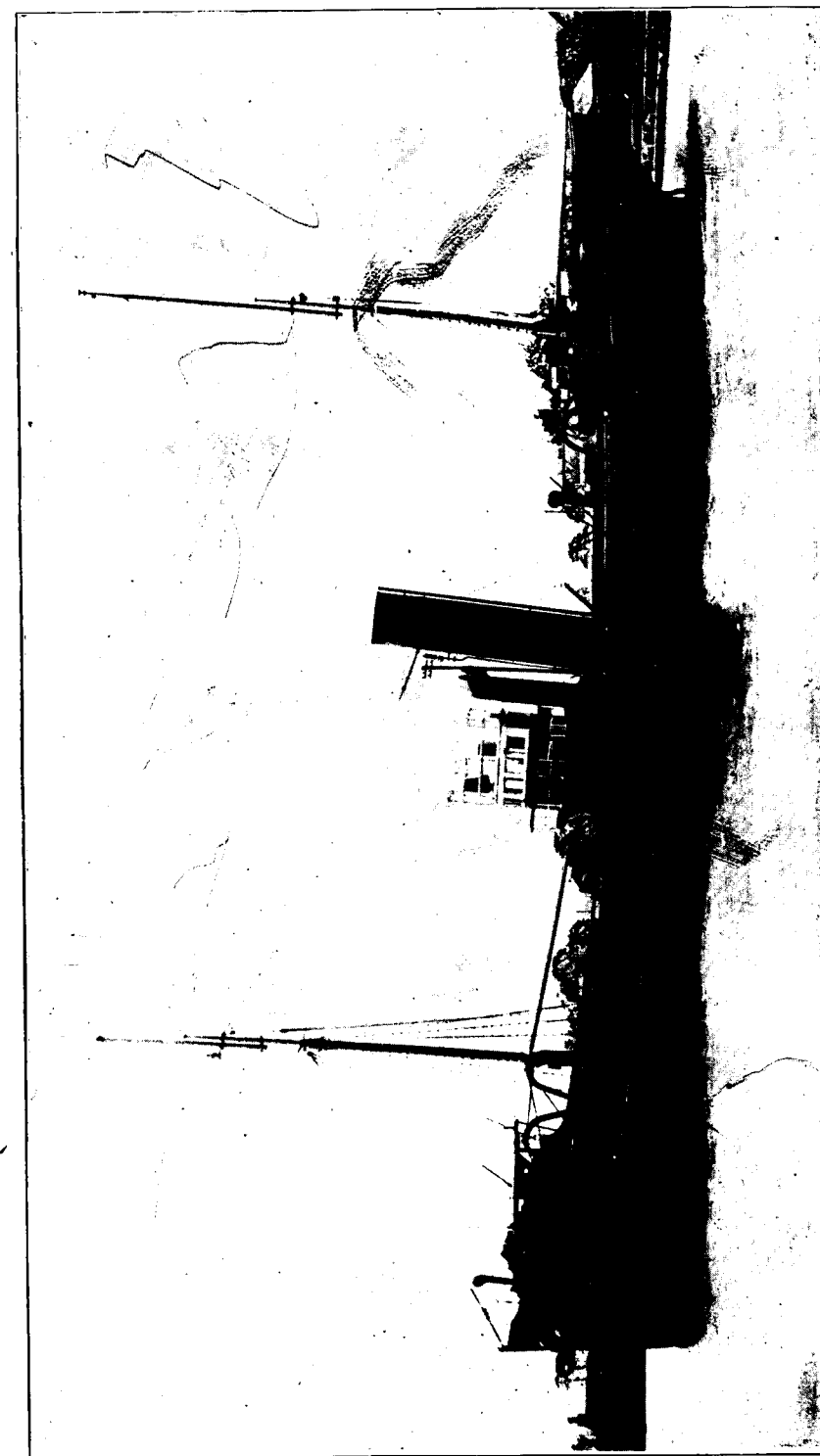
104. A second-hand admiralty trawler "T.R. 8" was purchased and re-conditioned at a cost of £5,699. She left England on 13th March 1926 in charge of Captain Cribb who was re-entertained as Assistant Director of Fisheries (Marine). The trawler arrived at Tuticorin on the 21st April. The total expenses incurred are as follow:—

Cost of second-hand trawler, re-conditioning	
her for the tropics, and navigation to India. £7,246=Rs. 96,612	
Repatriation of crew in India	Rs. 7,844
Total ...	Rs. 1,04,456

As the south-west monsoon was to commence shortly, she could not be kept at the open road-stead in Tuticorin and was therefore brought to a safe anchorage at Pamban near the South Indian Railway slip-way at Kundugal. She needed painting and cleaning badly. Though she is said to have been remodelled to suit tropical conditions, the cabins are too hot for any one to live in. If the vessel is to undertake pearl-bank inspection, deep-sea fishing and research, the main purpose for which she has been purchased, new cabins for officers are necessary. A laboratory also will require to be fitted up on board. Estimates and plans are under preparation and will be submitted to Government as soon as they are ready. Meantime, however, she is fit to undertake salt transport as well as towage of fishing canoes in the event of a pearl fishery. She will require to be docked for the cleaning of her bottom which in the tropics becomes quickly foul. It has been estimated that she will have to be docked for bottom cleaning and painting every four or five months if she is to be kept in a sea-worthy condition. She will shortly proceed to Ceylon as soon as the Government slip-way there is free to take her, after which she will return to Tuticorin to undertake salt transport to the West Coast.

MARINE AQUARIUM.

105. The Marine Aquarium continued to be the immense popular success that it has been hitherto. Financially the year under report is a record, not only for the octennium during which this institution has been administered by "Fisheries" but also for the



Trawler "Lady Goschen"—Purchased for £3,000 in 1926.

two decades of its tenure. The gate collections realized was Rs. 8,532-7-0. The sale proceeds of 686 copies of the English guide, 154 copies of the Tamil guide, 354 packets of picture post cards, an odd number of loose picture post cards, bulletins and publications, amounted to Rs. 243-13-0. Rs. 576 were realized from the lease of the Aquarium restaurant. The aggregate total receipts for the year were, therefore, Rs. 9,352-4-0 against Rs. 8,144 the year before. The total expenditure for the year was only Rs. 5,401-4-0, leaving the unprecedented profit of Rs. 3,951. The statement below gives the receipts and expenditure for the eight years ending 1925-26.

Year.				Collec- tions.	Expen- diture.	Profit.
				RS.	RS.	RS.
1918-19	...	...	...	3,783	2,064	1,719
1919-20	...	...	...	9,318	4,457	4,861
1920-21	...	...	...	9,772	4,998	4,779
1921-22	...	...	...	9,111	4,795	4,316
1922-23	...	...	...	9,461	7,486	1,975
1923-24	...	...	...	8,933	7,298	1,635
1924-25	...	...	...	8,144	6,354	1,700
1925-26	...	...	...	9,426	5,401	3,951

The increased revenue is partly due to the World Theosophical Convention and the Boy Scouts Jamboree held during the cold weather, but chiefly to the rigid economy effected in the working charges and the reorganization of the staff. Since the close of the year, I have submitted proposals for the permanent reorganization of the Aquarium staff.

106. The number of visitors rose during the year to 111,931 from 88,627 in the previous year. The record attendance on any single day, as usual, was on the Kannu Pongal Day, when 3,831 persons visited the Aquarium. Several batches of students from different schools and colleges accompanied by their teachers visited the Aquarium and were admitted as usual at half rates. The Aquarium was reserved for gosha parties of zamindars and rajas on occasions. The 1,567 scouts who attended the Jamboree were also admitted at half rates. Parties from the Government House visited the Aquarium more than once. The Hon'ble Mr. S. R. Doss, Law Member of the Government of India, also visited the Aquarium.

* The profits shown are fictitious as the full salary and allowance of the Research Sub-Assistant and peon have not been debited.

107. The sale of canned goods in the Aquarium was dull. Tins worth Rs. 437-14-6 were sold as against Rs. 508-2-6 the previous year.

108. The improvements effected during the year were:—

(1) Alterations were proposed to the turnstyle for the proper registry of the number of visitors admitted. It was found that the low-paid keepers made money by cleverly manipulating the turnstyle at the Aquarium. The Executive Engineer was addressed to rectify this defect and the Public Works Workshops who have undertaken the work have not yet effected the proposed alterations.

(2) The Corporation have been paid Rs. 60 during the year for the tap water supplied in excess of the free allowance. As fresh water is available in the well attached to the Aquarium, the Public Works Department have been addressed to lay a pipe line from the well to the Aquarium. The work is under execution. When completed the payment to the Municipality will cease, effecting a further economy in running charges.

(3) A motor air pump ordered for the Aquarium has arrived and will be set up in the current year. It is expected to cheapen air pumping charges and to render the supply effective and continuous. The hand pump worked by coolies is costly and at the same time requires constant supervision, particularly at night.

(4) The Government in the Public Works Department sanctioned in their memorandum No. 6321 C/25-1, dated 30th October 1925, the proposal to construct large glass tanks in place of the turtle tank in the Aquarium, but the work has not so far been taken up by the Public Works Department.

(5) An extension to the entrance room of the Aquarium is under consideration. The turnstyle as at present placed allows of visitors getting a view of the tanks even before they pay and pass through the turnstyle. A number of visitors have been noticed on more than one occasion to congregate at the entrance room with no intention of paying and going into the Aquarium. To avoid this inconvenience, it is proposed to shift the turnstyle to where the present entrance door stands, and build a small new entrance in front. Detailed proposals will be submitted to Government when ready.

109. *Rāmēswaram Aquarium.*—If the proposed Marine Biological Station be established on the Krusadai Island, the need for an Aquarium as an adjunct to that station is sure to arise. Aquaria are essential for conducting research in Marine Biological Stations and invariably form an integral part of such institutions wherever

they have been established. Both in connection with Biological work on the Krusadai Island and my inspection of chank fisheries off Rāmēswaram, the idea suggested itself long ago that there is no more suitable place for the location of the Aquarium than Rāmēswaram with its large concourse of pilgrims, if it is to combine with the providing of facilities for research to students and scientists, the very desirable and highly profitable functions of public recreation and education. This is the case in all the well-known biological stations of Europe. Such a combination is mutually beneficial. The collections from the public materially swell the funds for research while the scientific staff provide the necessary technical control for running the Aquaria.

Any one who accompanies the chank divers to sea at Rāmēswaram is struck not merely by the abundance and variety of life on the chank beds and coral reefs and the facilities with which they are secured but also by the fact that so many creatures of fantastic form and alluring colours should be cast away at present and not made permanent objects of beauty for public recreation or study. The wealth and variety of the fauna and flora of the Gulf of Manār are to be found nowhere else on our coast. While the Madras Aquarium exhibits only a number of coloured fish available on the comparatively barren coast of Madras, the Rāmēswaram Aquarium could specialize in exhibiting the numerous other groups of animals such as sponges, corals, jelly fish, sea-anemones, star-fishes, etc.

The number of pilgrims to Rāmēswaram as computed from the pilgrim tax collected by the South Indian Railway Company during 1924-25 was 180,377 while the number of visitors to the Madras Marine Aquarium during that year was 87,802, i.e., less than half the estimated number of visitors to Rāmēswaram. The gate collections can therefore be estimated to amount to about Rs. 9,000. I therefore recommended the construction of an Aquarium at a cost of about Rs. 20,000 at Rāmēswaram for the following reasons:—

(1) there are unique facilities for the display of marine life such as there are nowhere else;

(2) the Marine Biological Station at Krusadai will require an Aquarium for experiments and research;

(3) it will serve to entertain and educate the large influx of visitors who visit Rāmēswaram where amenities of life are greatly wanting;

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(4) the existing fishery staff stationed there and the chank fishing conducted opposite to Ramēswaram will reduce the cost of procuring exhibits and supervising the Aquarium; and finally

(5) the net revenue will be considerable.

110. *Marine Aquarium at Vizagapatam.*—During the last visit of the Hon'ble Minister for Development to Vizagapatam, the fisher-folk of Srirāngapuram colony presented a petition praying among other things for the establishment of a Marine Aquarium. The opening of a Marine Aquarium was under contemplation ever since a fishery station was established at Vizagapatam and an Inspector of Fisheries posted there to undertake fishery research among other duties. Vizagapatam has been rapidly growing in importance owing to the development of the harbour scheme and the location of several educational institutions of the Andhra University. The Fisheries Research vessel "Lady Goschen" and the Assistant Director of Fisheries (Marine) are expected to visit this coast and conduct deep-sea fishing and research for which also a marine laboratory with an Aquarium as its adjunct is needed. Further, the salubrious nature of its climate attracts a great influx of visitors from North India and an Aquarium, if established, is expected to pay its way.

A site belonging to Vizagapatam Municipality was selected as the most suitable for the purpose. The Municipality have agreed to part with it in exchange for two Government plots in the neighbourhood. If this site is secured, it will be possible to locate the office of the Inspector of Fisheries, Vizagapatam, and his laboratory also there, the accommodation in the present building being quite inadequate even for office purposes. The question of the acquisition of the site is consequently urgent besides the phenomenal rise in the price of land. Proposals therefore to sanction the exchange asked for by the Municipality as well as for the establishment of the Aquarium were submitted to Government. In G.O. No. 1266, Mis., Dev., dated 1st September 1926, Government have deferred the scheme for establishing an Aquarium till 1928-29.

FISHERY RESEARCH.

111. The bulk of the research work done was conducted at Calicut Research Station, as in the previous year, by Mr. S. T. Moses, M.A., and Mr. M. Jayaram Nayudu, B.A. Investigations of the factors affecting the migration of the sardine and mackerel and their food, growth and life history were continued, the lines of

research being the same as in the past. The bi-weekly plankton collections were also regularly made during the year till 8th June 1926 when monsoon weather supervened. The detailed examination of hauls co-ordinated with that of the stomach contents of sardine and mackerel was attended to as also the work of recording weather conditions, state of the sea, rainfall, etc. Fish were systematically examined for the sex, state of gonads, quantity of fat, etc. Their rate of growth was studied and their scales were examined. Up to January, sardines were available for examination. During the year 1,158 sardines and 1,325 mackerels were examined. Sufficient material regarding mackerel has been gathered for the preparation of a preliminary report on lines similar to the sardine report of 1922. Besides collecting material and observing facts, the Research Assistants have not been trained to assess the value and the meaning of the facts gathered or draw accurate conclusions from observations made. I have had to undertake this work with the limited time at my disposal. During the few days that I managed to get at Calicut, I have discussed in detail the various facts and figures gathered by the Research Assistants and have formulated the general conclusions which might be safely drawn therefrom. It was, however, found that many gaps and lacunae existed in the work done, as the Research Assistants had no idea of the conclusions to which their observations led. These were pointed out to the Research Assistants and they were required to make further observations and collect additional data. The main facts, however, concerning the mackerel, its migration and life-history are unmistakable, from the work that has been carried on so far. The mackerel report will, therefore, be prepared immediately the other data that I have asked for, are obtained, both by observation as well as a study of the fish-curing yard registers for some years.

112. Special studies on copepods, medusoids and larval decapods which form some of the most important constituents of the plankton have been commenced.

The Research Assistants, so far as time permitted during my visits to the West Coast, were instructed in detail as to the methods of study to be adopted in the case of these organisms. They have also been provided with the necessary literature.

Besides the regular work that the Research Assistants have been carrying on, two important additional items of work have

been done. Considerable work devolved on them in drawing up the statistical return that has been prescribed for the fish-curing yards. They have had to look through the fish-curing yard records and determine the more important fish of the coast and obtain their vernacular names. The returns not only give the scientific names but also the local vernacular names to assist the fish-curing yard staff. Four specimens each of the sixty odd commercially important kinds of fish were collected and identified and three sets with specimens duly named have been distributed to the three Inspectors of Fisheries, to assist them in the statistical work. The statistical sheets came into use from 1st July 1925 and ever since the Research Station has been watching their receipt from the several yards and collating and tabulating the figures. Besides this the Research Assistants were entrusted with the work of examining collections of prawns that were made fortnightly by a stake net in the Palayangadi River. This piece of research was undertaken to investigate the truth of the allegations that the prawn stake nets in the Palayangadi River are destroying fish fry. Samples of fortnightly nettings were forwarded to the Research Station for analysis. The constituent prawns and fish were separated and identified. Their number and the proportion they bear to the total haul were worked out and also their measurements were accurately recorded in order to determine whether the stake net is trapping young fish or young prawns of potential value to fisheries. A total of 4,474 prawns and 275 fish specimens were so examined in the year. It was found that the young of only two fish of any importance (*Synaptura*—a common Sole, and *Platycephalus*—a kind of Goby) were netted with the prawns, the remaining fish captured were either inedible ones, such as *Tetrodon* (a Globe fish), or small and unimportant estuarine fish. The prawns were found to be *Peneopsis monoceros* and the measurements do not show any great variation throughout the season indicating that the prawns captured by the net are more or less adult specimens. The stake nets, therefore, cannot be said to cause any destruction to valuable fish fry or immature prawns. I am, therefore, recommending to the Collector of Malabar the cancellation of the prohibition of prawn stake nets in the Palayangadi River.

113. *The Marine Biological Station at Krusadai Island.*—The detailed proposals for the establishment of a Marine Biological Station at Krusadai were postponed last year for want of funds.

The Government hoped that it would be possible to allot funds for the scheme this year. I have included the scheme again in the Part II schemes of the Budget for 1927-28. Apart from the requirements of the University there is an all-important reason, from the point of view of fishery research, for the establishment of the station immediately. The chief work at the station will be the investigation of the causes which lead to the irregular periodicity of Pearl Fisheries in India whereby long gaps of barren years intervene between productive years.

The Museum Bulletin on the Fauna and the Flora of the Krusadai Island, to serve as a guide to students and workers at the station at Krusadai, is nearing completion and will, in all probability, be issued before the end of the current year.

114. *The Colair Lake prawn fishery.*—I visited the Colair Lake in connexion with the experimental prawn-curing that the Inspector of Fisheries, Vizagapatam, was conducting there. The commercially important prawn of the lake is *Peneopsis monoceros* which has always been considered a typical backwater and sea prawn. Their occurrence in such abundance in a fresh water lake during the floods in south-west monsoon is extraordinary. The reasons for their migration into fresh water in such abundance are under investigation. During the rest of the year the prawns do not occur in the lake, but only in reaches of the Uppateru subject to tidal influence sparingly. These investigations will be continued by the Inspector of Fisheries, Vizagapatam.

115. The research work of the department is desultory as observed by Government in paragraph II of G.O. No. 1491, Development, dated 22nd August 1924. There has been no consistent policy in the matter of fishery research so far. This is largely due to a want of qualified staff and well-equipped laboratories. The Government called for a programme of fishery research for ten years, and one was drafted and submitted.

OYSTER AND BIOLOGICAL SPECIMEN SUPPLY.

116. During the year under review, receipts from the sale of biological specimens have increased by nearly a thousand rupees over last year and the receipts from oyster sales dropped by Rs. 1,284.

117. *Biological specimen supply.*—The value of specimens sold rose to Rs. 3,550-9-0 from Rs. 2,579-11-0 in 1924-25, as anticipated

last year, the reason being the advertisement in the two Indian Journals (the Educational and Modern Reviews) and in "Nature" in England. Printed hand bills were also distributed to most of the institutions who purchase specimens. A list of the institutions supplied during the year is given below:—

				RS.	A.	P.
Agra ...	...	Agra College ...	...	64	12	0
Do. ...	...	St. John's College ...	...	76	2	0
Aligarh ...	...	Muslim University ...	...	45	0	0
Allahabad ...	...	Allahabad University ...	...	531	2	0
Amritsar ...	...	Khalsa College ...	...	129	8	0
Benares ...	...	Hindu University ...	...	76	8	0
Calcutta ...	...	Indian Museum ...	...	300	10	0
Do. ...	...	University ...	...	267	0	0
Fyzabad ...	...	Government Intermediate College ...	...	49	0	0
Karachi ...	...	Victoria Museum ...	...	530	0	0
Lahore ...	...	Government College ...	...	199	14	0
Lucknow ...	...	University ...	...	178	0	0
Do. ...	...	King George's Medical College ...	...	163	12	0
Nagpur ...	...	Central Museum ...	...	91	4	0
Do. ...	...	Hislop College ...	...	134	4	0
Patna ...	...	Prince of Wales's Medical College ...	...	150	0	0
Rangoon ...	...	University College ...	...	15	14	0
Bangalore ...	...	Central College ...	...	104	8	0
Do. ...	...	Sri Vani Vilas Institute ...	...	92	0	0
Chodavaram ...	...	Board High School ...	...	43	8	0
Ernakulam ...	...	The Maharaja's College ...	...	19	4	0
Madras ...	...	Women's Christian College ...	...	143	4	0
Do. ...	...	Madras Club (Turtles) ...	...	20	0	0
Pudukkōttai ...	...	State Museum ...	...	26	6	0
Tirukkōyilūr ...	...	Board High School ...	...	69	8	0
Trivandrum ...	...	The Maharaja's College of Science ...	...	12	12	0
Vizagapatam ...	...	Mrs. A.V.N. College ...	...	6	13	0
Miscellaneous.	...	Steamer freight recovered ...	...	10	0	0
Total ...				3,550	9	0

118. Among the more important institutions supplied were—

(1) *The Indian Museum, Calcutta.*—A special exhibit of 60 invertebrate specimens were mounted for the Invertebrate Gallery which was opened by His Excellency the Viceroy Lord Reading in December last.

(2) *The Victoria Museum, Karachi.*—A series of select fish exhibits were supplied.

Opportunity was taken to collect oysters bearing pearls during the last pearl fishery and the pearl bearing oysters have been sold for a handsome price to various institutions.

119. Further additions to the named reference collection at Ennūr consisted of seven specimens of sea-urchins, identified by Dr. D. W. Devanesan and some groups of molluscs (bivalves) named by Mr. Winckworth of the Royal Society, London, and several South Indian barnacles worked out by me. As I had to make a prolonged stay at Tuticorin during the pearl fishery a fair collection was made of sea-anemones, star-fishes, alcyonarians, etc., brought by divers.

120. *Edible oysters.*—As noted in paragraph 154 of last year's report, the almost inexhaustible stock of oysters that were once available at Pulicat is no longer there, on account of the destruction caused by a shell fish contractor in 1922. In spite of the attempts to retain a sufficient stock of breeding oysters last season, spat fall was inadequate and there were practically no oysters of marketable size for sale during the year. Special efforts at restocking and cultching have been made this year and rather expensive cultural methods have been resorted to, for rehabilitating the denuded beds. The 1925 season lasted till 28th August and the supplies from 1st July to that date amounted to 71,025 oysters valued at Rs. 1,025-8-0. By October it was clear that Pulicat could not make any contribution to the supply during the ensuing 1926 season, as the number of oysters were extremely few and some of the once prolific beds were almost barren. A later inspection in March this year revealed the inadequate spat fall. The oyster season, in consequence, could not be commenced as usual in February, but was delayed till the 17th of March 1926. The supply made in 1926 was exclusively from Ennūr beds after the usual hygienic treatment. The supplies from 17th March to 30th June amounted to 79,650 oysters valued at Rs. 1,210-5-0. In spite of the heavy expenditure that had to be incurred in the purchase of a new boat, for cultching and restocking the beds at Pulicat and in the cultural experiments on the lines of the oyster farm of Arcachon in France, there was a small credit balance over-expenditure of Rs. 105.

121. *Sonnapur Oyster Farm.*—The proposals for conserving the oyster beds in Sonnapur have been delayed by the protracted correspondence on the subject of the fishery lease with the taluk

board. The Ganjām tank stocking scheme contemplates the acquisition of the fishery rights of this backwater. Should the scheme be sanctioned this year the Sonnapur oyster beds will come under the control of the department.

122. *Oyster grit for poultry*.—386 lb. of grit and 300 lb. of shells were supplied to poultry breeders; the value realized was Rs. 37-1-0.

123. The finances of the biological specimen and oyster section are shown below :—

—	Expenditure.	Revenue.	Difference.
	RS.	RS.	RS.
Oysters	2,167 6 3	2,272 14 0	+105 7 9
Biological specimens	4,583 6 11	3,610 9 0	-972 13 11
	6,750 13 2	5,883 7 0	-867 6 2

SOCIO-ECONOMIC WORK.

EDUCATION.

124. *Fisheries Training Institute—Staff*.—Mr. K. Sukumaran, B.A., the acting First Assistant who is a Mukkuva graduate, was deputed in July 1925 for undergoing Collegiate Teachers' Training at the Teachers' College, Saidapet. He completed the course and rejoined the Institute in April, but he has unfortunately failed in the L.T. Degree examination. During Mr. Sukumaran's absence Mr. A. G. Spadigam, the Headmaster of the Government Fisheries Higher Elementary School, Kaipamangalam, was acting for him. There were no other changes in the staff. This was the first year since the establishment of the Institute, in which all the teachers were trained men.

The natural science classes for the first and third year students of the Institute were conducted by the Research Assistants Messrs. Moses and Jayaram Nayudu. Mr. Moses compiled a Malayalam book "Janthu Sastra Kurupugal" or "Notes on Zoology." The manuscript of the book is being scrutinized with a view to its publication.

125. *Pupil teachers*.—The maximum number of pupil teachers in the Institute was forty-two. Of these twenty-seven were fishermen Hindus, six Christians, four Muhammadans and five non-fishermen Hindus including one Chaliya, one Thattan, one Thiyya, one

Ezhuthatchan and one Velan, and three women pupils. As in the previous year, there were no high caste Hindu pupils. Two students from first and second year classes and one of the three women students left the Institute on account of ill-health. One student of the first year class was sent away because he was found to have obtained admission by a false statement that he had passed the III form. Two others of the same class were discharged at the end of their probation period as their progress was unsatisfactory. Twelve students of the third year class completed their course on 25th June 1926, six of them passed fully at the final examination, while three passed partially and the remaining three failed. On an average twenty-four students including fishermen Hindus of three sub-castes, non-fishermen Hindus of various castes, Muhammadans and Christians were living in the school hostel sharing in the common mess. As in 1924-25 only students of the higher elementary or secondary grade were admitted for training. There are now five secondary students in the Institute. Six Kanarese students, all fishermen, were undergoing training in the Government Higher Elementary School, Mangalore. Two of them completed their course in March 1926.

126. *Work*.—This was the first year in which the Institute worked with a fully trained staff. It was therefore possible to render the practical training of the pupil teachers, in actual teaching, more efficient. Apart from practical teaching work in the Vellayil School, the Headmaster of the St. Antony's Higher Elementary School allowed the Institute to send students there for observation work. The Pupil Teachers' Literary Society and Games Club worked actively through the year. In previous years no good use was made of journals supplied for the benefit of pupil teachers for want of a reading room. This year the south-west corner of the verandah of the main building was enclosed to provide a separate reading room and the following journals were supplied :—

The Malayalam Manorama ...	Supplied by Government.
The Paraspara Sahayi ...	Subscribed for by the Institute Co-operative Society.
The Bashaposhini ...	
The Champion ...	
The Mitavadi ...	
The South Indian Boy Scouts ...	Obtained by the scouts.
Satiavadi ...	Freely supplied.
Gurukulam ...	

The teaching work was inspected by the District Educational Officer who has reported that "the school is doing useful work."

127. *Carpentry work*.—This was inspected by the Inspector of Industrial Schools who visited the school twice and reported that "the section is doing good work under exceptionally difficult conditions," the difficulties referred to being the smallness of the class room, the inadequacy of apparatus and the insufficient salary of the instructor. The second defect, viz., want of sufficient apparatus, has since been remedied. The carpentry class will get a spacious hall when the proposal to locate the model school in permanent sheds in the Institute compound is sanctioned. The Government in their Order No. 1003, Mis., Development, dated 14th July 1926, have declined to increase the salary of the teacher. The raising of the teacher's salary, however, is a matter for immediate consideration, since Mr. Fyfe is prepared to give him a better-paid place elsewhere. It will be difficult to replace him if he goes away. The sale of carpentry articles made by the students realized Rs. 12-6-0.

128. *Curriculum of studies*.—For the last three years, I have been scrutinizing the course of instructions given at the Institute whenever an opportunity offered during my few visits to Calicut. I was surprised to find the extremely meagre and inadequate instruction given in fishery technology and navigation. Of the subjects taught these must necessarily take the primary place as the *raison d'être* for the establishment of a Fisheries Training Institute is technological training in fishery science. No advance was possible so long as lower elementary pupil teachers were finding admission into the Institute. With admissions restricted to higher elementary men in future, great improvements are feasible. I have had the curriculum in fishery technique revised and enlarged by the headmaster. But it requires considerable additions and alteration which I have not been able so far to effect in the midst of my other exacting duties, particularly my pre-occupation with the pearl fisheries. There has been no training in the elements of navigation which forms an essential part of fishery education. An elementary course has been drawn up and is under scrutiny by the Assistant Director of Fisheries (Marine) who will undertake to give practical instruction in navigation to the advanced students of the Institute on board the fisheries research vessel, during salt transport, deep-sea fishing and research cruises.

Three boats were provided this year for practical work at sea, one for each year class. Owing to the prevailing scarcity of fish

at Calicut, the students caught fish worth Rs. 116-12-9 against fish worth Rs. 258-0-9 last year.

129. *Students' Co-operative Society*.—This Society which was started with a view to give practical training to the students in the management of a co-operative society, carried on its usual work. The last audit report received (that for 1924-25) says: "the Assistant Registrar expresses his pleasure at the good work done by the Society." In that year the Society had a share capital of Rs. 518 12-0, a deposit of Rs. 236, a reserve fund of Rs. 41-13-10, an accumulated common good fund of Rs. 12-12-6 and a net profit of Rs. 40-8-2. This common good fund was utilized for subscribing for some journals (the names of which are given above) for the students' reading room.

130. *The scout troop*.—The Institute scout troop was specially active this year due to the energetic new scout master Mr. M. Kunhi-anandan. The troop included twenty-two pupil teachers and four members of the Fisheries Training Institute staff, and has now been registered as a sea scout troop. Twenty-four members of the troop attended the Scout Jamboree at Madras in December 1925, where one of them won the first prize in the hundred yards' race for rovers. Eight of the scouts have secured the efficiency badge of "swimmer" and five that of "carpenter." An important service rendered by the scouts was the part played by them in the Health programme in Vellayil. During the Health Week, the scouts were very active in cleaning the village, and when the plague broke out they persuaded the people to get themselves inoculated. The municipal health authorities in their report of the Health Week have made special mention of the Fisheries Training Institute scouts.

A cub-pack has been organized for the small boys of the model school.

131. *Selection committee*.—Since the close of the year the Government have appointed a selection committee to regulate the admission of students to the Fisheries Training Institute. The Assistant Director of Fisheries (Coast) is the President, and the Headmaster of the Fisheries Training Institute is the only other official member on the committee. There are four other members who are all non-officials. Three of them are fishermen and one is a Muhammadan engaged in fish trade. Of the three fishermen one represents the South Kanara District. Of the two fishermen representing Malabar, one is a Moonillakar fisherman belonging to the Ponnāni Taluk and the other is a Mukkuva belonging to Calicut.

132. *Village schools.*—The number of schools at the beginning of the year was 32, of which 27 were day schools and 5 night schools. The number at the end of the year was 27 day schools and 6 night schools, a new night school having been started at Kadaluddi towards the close of the year.

The Vellayil Night School was found to be poorly attended and has been temporarily closed, and the Malpe Night School which had been temporarily closed was revived during the year. The night schools at Puthenkadapuram and Tānūr are poorly attended and if the grown-ups do not evince greater interest, the question of the retention of these night schools will have to be considered. The Madapalli Fisheries School was raised to the higher elementary standard with effect from the 1st June 1926 and standard VI was opened.

The number of pupils attending the schools is 2,294 as against 2,450 the previous year. The number of girls attending the schools is 613 against 691 last year. The decrease is not so much due to the schools having become unpopular. Attendance is now being regularly enforced, defaulters being struck off the rolls. The number of fishery trained teachers was 53 against 37 on 30th June 1925. Of the 30 other teachers 21 were trained in ordinary schools and 9 were untrained. During the year the fishermen of Polippu and Uppur put up permanent tiled buildings for the schools in those places replacing the old thatched sheds. They are now being paid a rent of Rs. 12 and Rs. 10 respectively for the new buildings. The Madapalli School was located in a stone and mud building. During the cyclone of 10th November 1925 the building collapsed. As the accident occurred at night the building was unoccupied at the time. Several pieces of furniture and school appliances were broken and damaged. As there was no other suitable building to house the school, one of the local Mogayer gentlemen was induced to construct a permanent building and hand it over to the Department. A suitable building was accordingly constructed by him within a space of about six weeks and the school was transferred to the new building after the Christmas vacation. In the interval, the school had to be closed for a short time, but was subsequently held either in the open or in the verandah of a private house. The Quilandy school is housed in a rented building. The house owner demanded an extravagant rent for it. When this was refused, he gave notice to vacate the building. Proposals for the construction of a temporary shed near the Quilandy fish-curing yard have been submitted. The

building of the Talikulam school put up by the villagers is in an incomplete state, the work being delayed for want of funds.

The Deputy Director of Agriculture visited the Sandspit Day School, and the Palghat Revenue Divisional Officer the South Nattika and Kundazhiyur schools in company with the Assistant Director of Fisheries (Coast). They were gratified with the work that was being done and made valuable suggestions for their improvement. Rao Bahadur N. Subba Rao, President of the District Educational Council, South Kanara, visited the Sandspit School along with Sir T. Vijayaraghava Achariyar in June last.

The fishermen of Kontalapad (Kurnool District) memorialized the Hon'ble Minister for Development during his visit to Sunkesula last October for free education. There are only ten adults who want a night school. The fishermen were asked to send their children to the Taluk Board Free School at Kontalapad. As regards the night school for adults the Taluk Board President has agreed to depute a teacher to conduct the classes at night, but has asked for a small remuneration of Rs. 3 per mensem for the teacher and for the provision of lights, books, etc. The question is under consideration.

The fishermen of Nandyal (Kurnool District) and Srirangapuram (Vizagapatam) also presented a petition to the Hon'ble the Minister for Development during his visit last October and July respectively to these districts, asking among other things for the establishment of a school which is now under consideration.

TEMPERANCE AND SOCIO-ECONOMIC WORK BY SAMAJAMS.

133. As a result of the spread of education among the fisherfolk of the West Coast and the keen interest taken by the departmental officers, there is appreciable improvement in temperance among the younger generation. The marked improvement in remote villages like Kottakadapuram, Palikulam, and Kundazhiyur is significant. The fishermen of Nattika, Blangad and Puthenkadapuram also have begun to copy the example of the above villages. A lady teacher, who till recently was employed in the Blangad Fishery School, organized a weekly meeting for young fisherwomen. The subjects chosen were hygiene, nursery, domestic economy and other kindred ones. These meetings were regularly attended by the girls who had left Fisheries Schools and they are taking a very active part at the weekly meetings and persuaded their friends to attend the meetings by house-to-house visits. The meetings were going on for about four months, but with the commencement of the fishing season attendance dwindled.

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The Sri Jnanodaya Samaj, a temperance association started by Mogayers with its branches at almost all fishing villages chiefly of the Mangalore Taluk, is continuing its work on a modest scale though it has lost much of its initial vigour.

The Moonillakar Hindu fishermen of Kanhangad, Balla, Hosdrug and Ajanur villages have started an association under the name of "Dewara Yuvajana Samaj," their object being the social uplift of their community. They have organized a day and night school at Kanhangad which are being well attended. The day school has now been taken over by the taluk board. The Samaj has requested the Fisheries Department to take over the management of both the day and night schools.

An association organized by the Mogayer fishermen of the South Kanara District under the name of "the South Kanara Mogaveera Mahajana Sabha" has been registered under Act 21 of 1860. The Society proposes to exercise control in all social matters affecting the community and aims at improving its social and economic status. It proposes to cut down extravagant expenses at marriages and other social functions, to preach temperance and to collect funds for the educational improvement of the community. It is understood that about Rs. 14,000 have been already collected and Rs. 7,000 spent. There is yet another organization which goes by the name of "The Mogaveera Clerks' Association" at Bombay formed by the South Kanara Mogaveera fishermen. The object of this Association is to grant scholarships to Mogaveera youths undertaking higher education. About a dozen scholarships of the total value of nearly Rs. 400 per annum is now being granted to the poor and deserving youths of the community. The funds collected by the Association so far amounts to Rs. 7,000.

The education and socio-economic work among fishermen started by Government on the West Coast in 1919 has already borne ample fruit. A great impetus to education, social and economic uplift of the fisher communities has been thereby given. There can be little doubt that the teachers selected from the youths of the community, educated and specially trained at the Institute, now broadcast in several villages along the coast are the source ultimately of the inspiration and upheaval one sees to-day among the fisherfolk of the West Coast.

134. *Social service and welfare work.*—The assistance of the officers of the Fisheries Department was invoked in connexion with

relief measures started among fishermen affected by the cyclone of November last. I paid a special visit to the West Coast immediately after the cyclone, consulted the Collector and the leading men at Tānūr and Tellicherry and helped in the formation of a Relief Committee with the Assistant Director of Fisheries (Coast) as a member and in drafting the lines of relief to be administered. Mr. T. C. Madhavan, Yard Officer, Thalayi, was detached temporarily from yard work and deputed to collect information regarding families that had lost their earning members in the sea. Mr. A. K. Krishnan, the Inspector of Fisheries, Calicut, and Mr. K. Ambadi, the Inspector of Fisheries, Ponnāni, collected information relating to their respective sections and Mr. O. Sankaranarayana Menon, the Research Assistant, Tānūr, collected information relating to Tānūr and the neighbourhood. The Cyclone Relief Committee gave money grants to relieve immediate distress and as a measure of permanent relief yarns and boats were sanctioned in addition to money grants. The distribution of yarn was left to the Fisheries Department. The yarn was stocked in fish-curing yards and the quantity sanctioned for each family was distributed by the yard officers on the authority of tickets issued by the Tahsildars of the respective taluks. Eighty-six bundles of yarn were distributed among sixty-four families in this manner. Six families were also supplied with boats by the Cyclone Relief Committee. One boat was the common property of two families while four boats were given to individual families. The purchase of boats and their allotment was done by the officers of the Fisheries Department under instructions from the Collector, who was the Chairman of the Cyclone Relief Committee.

The unusual dearth of fish after the cyclone was responsible for some distress among the labouring classes of the fishermen community, especially those that owned no boats and nets. With the outbreak of monsoon the distress in the case of some families became somewhat serious and a few leading men of Calicut led by Rev. A. T. Coldman, the Chaplain, organized relief measures for affording relief in the shape of doles to needy families and for starting welfare work at Vellayil. The assistance of the Yard Officer, Calicut North Yard, was obtained and he made a house to house inquiry. Advantage was taken of the closure of the Vellayil Day School for the vacation, to locate a dispensary temporarily in the school building and Mr. Coldman and other philanthropic gentlemen and the members of the Ladies' Club visited fishermen

quarters and persuaded many families to send cases of serious illness, such as dysentery, typhoid, pneumonia, etc., to the local Women and Children Hospital. The Relief Committee through Mr. Kelan, the Yard Officer, got the huts of 101 poor families re-thatched. Milk, sugar, barley and sago were distributed at the fish-curing yard for sick or ill-nourished children and women. Through the efforts of the Yard Officer, a rich Muhammadan fisherman is arranging to place a building at the disposal of the Relief Committee to enable it to teach subsidiary industries to fisherwomen and children so that when the sea fails to yield fish, these women and children may not have to starve. Much has been done for improving the sanitary condition of Vellayil. When the Vellayil Day School was reopened, the dispensary was transferred to the Fisheries Training Institute where two rooms on the verandah are being utilized in the evenings after school hours. I have asked the Municipal Chairman to arrange for another building as early as possible, as the dispensary cannot indefinitely be located at the Fisheries Training Institute.

CO-OPERATION.

135. In paragraph 167 of the last year's report reference was made to the difficulties of running fishermen co-operative societies efficiently. The representatives of a few fishermen co-operative societies belonging to the Ponnani Taluk waited in deputation at a meeting of the Board of Directors of the District Co-operative Bank held at Chowghat in September 1925 and pressed for the organization of a union for the supervision of fishermen co-operative societies. The idea did not appeal to the Board as the supervision fund collected from the fishermen co-operative societies would not enable the District Co-operative Bank or a local union to pay for a Union Supervisor. It was conceded that fishermen societies cannot be improved unless there was more intensive supervision than local unions or the district union can afford. The only solution was therefore to entrust the work of supervision to the Fisheries Department. With the limited staff at its disposal, the Fisheries Department could not undertake to do that close supervision which the District Bank desired. Since the close of the year proposals have been submitted for a reorganization of the subordinate executive staff of the Fisheries Department which would enable closer supervision being exercised over the

work of the fisheries co-operative societies. The Deputy Registrar of Co-operative Societies who was present at Chowghat when the deputation waited on the District Bank approved of the scheme of the revision of the establishment so far as the working of co-operative societies was concerned.

Apart from the work of supervision, it was considered that some efforts should be made to wean the fishermen from the influence of the middlemen capitalists by giving them loans on the security of boats and nets. The District Co-operative Conference held at Chowghat during the last Christmas week accordingly passed a resolution recommending to Government the grant of loans to two societies for the purchase of boats and nets to be repaid within a period of years. Orders have just been received from Government sanctioning the starting of two societies composed of fishermen and sanctioning a loan of Rs. 1,500 to each society for the purchase of boats and nets. The sanction was not received sufficiently early to enable the formation of co-operative societies before the season commenced. As usual the capitalist fishermen have advanced loans to the workmen prior to the commencement of the fishing season. I am, however, negotiating with two leading fishermen of Blangad and Puthenkadapuram to start societies for fishermen who have received no advances or small advances from capitalists.

136. In South Kanara the co-operative societies did not show much progress during the year. Some of the societies are in a moribund state and some have deteriorated. Coondapoor Kharvis, Coondapoor Mogayers, Yermal Mogayers, Polippu Mogayers, Kaipunjai Mogayers, Sri Jnanodaya Oil and Guano Factory owners, Aila Bovis, and Balla Arayajana societies have had practically no transactions during the year. The Polippu Mogayers Society has applied for voluntary liquidation and the Kaipunjai Society proposes to do so. The Yermal Mogayers Co-operative Society has had no transactions since 1923. All the outstanding loans amounting to Rs. 242 are overdue. This society, the Balla Cheerambakavu Society, and the Coondapoor Kharvis societies run by the Managers of the Kanara Saw Mills, are serving no useful purpose. Efforts to revive Sri Jnanodaya and the Oil and Guano Factory Owners co-operative societies at Mangalore failed. Steps were taken by the Co-operative Department to close these two societies which are run by Mr. B. M. Thingalaya of Mangalore. The Balla Cheerambakavu Society could not be inspected,

as the President is almost always absent from his house and seems to want to evade inspection. The Mulki Co-operative Society is in a bad way. Loans amounting to Rs. 1,123 are overdue and loans amounting to Rs. 722 are time-barred. The amounts have, however, been recovered, with the exception of Rs. 200 which the Secretary has promised to recover in two months' time. The Adakathbail Iddya and Kanhangad societies are run on beneficial lines and have good transactions. Prospects of the other societies in the South Kanara District are not very encouraging. With a view to facilitate intensive supervision the system of group examiners was introduced and 13 societies in the South Kanara District were brought under this system. The teachers of the fishery schools were appointed as group examiners and each examiner was given three or four societies. The group examiners, however, did not do anything beyond submitting stereotyped monthly reports. They did not seem to have sufficient influence to improve the condition of the societies.

137. In Malabar, the Thalayi Curers' Co-operative Society woke up and not only collected about a tenth part of its outstandings since the year closed, but has shown some lively desire to do work. The Azicode and Madapalli societies are in a satisfactory condition. Excepting Meladi, Elathur, Puthiyangadi, Chaliyam and Kadalundi, all the societies in the Calicut section have done some business. The Vellore Mogayers Society is getting its business in order and shows signs of renewed life after a period of inertia. The Meladi Curers became active during the close of the year and applied for a loan of Rs. 500 to the Central Bank, as the funds available were not sufficient as a working capital. The Women Curers' Society of Cannanore, which had applied to be wound up, subsequently decided to continue. It was used as a medium for administering relief to the curers during the recent period of distress. The Kuriyadi Society had a deposit of Rs. 1,000 in the District Bank which it withdrew and distributed among its distressed members. The Quilandi Society did the same with the funds which it had on hand. Both the societies require overhauling. If the coming fishing season proves successful, a good part of the overdue loans can be collected and the societies revived and made to function.

138. In the Ponnāni area the Valiangode and Tānūr societies have ceased to function. Of the ten remaining societies, Kundazhiyur, Pallipuram, Kaipamangalam, and Perinjanam did some

work. The fishing season south of Vadanapalli being poor the fishermen at Kaipamangalam and Perinjanam could not repay the outstanding loans of their societies. The poor transactions of the Vadanapalli and Talikulam societies are due to their inability to pay to the District Bank their dues as the members ceased to pay up their loans in instalments. Lack of unity among the members is the main cause of this state of affairs. Efforts were made to convene a meeting of the general body thrice but ended in failure owing to the apathy of the members. The Kottakadapuram villagers formed two parties headed by two leading members, the split being due to misunderstanding over communal rights. Efforts to reconcile the opposing factions have so far been unsuccessful. A similar state of affairs exists at Kundazhiyur, the best of the Ponnāni societies. Party feeling between the villagers of Manjupuramba and Thozakkavu is responsible for this split. One of the parties has applied for permission to withdraw from the Kundazhiyur Society and to have a separate society started for themselves. The President who was in the habit of keeping cash balances has been persuaded to deposit the amount in the District Bank. The Puthenkadapuram Society did practically no work. The President has been keeping a cash balance of Rs. 200 for over a year. At a meeting of the general body convened by the members and attended by the Inspector of Fisheries and the Inspector of Co-operative Societies, the present President was required to deposit the amount in the District Bank, which he has not done so far.

139. The transactions of the fishermen co-operative societies are given below :—

Particulars.	1924-25.	1925-26.
	RS.	RS.
Male members	2,632	2,673
Female members	249	280
Total number of members ...	2,881	2,953
Total number of shares ...	3,945	3,602
Paid-up share capital ...	73,576	75,392
Total number of loans disbursed	3,11,377	2,34,668
Total of loans for payment of prior debts	81,573	48,343
Total of loans for industrial purposes	51,618	64,686
Total of loans received from Central Bank	13,397	7,597

CO-OPERATION ON THE EAST COAST.

140. The Hampapuram Society of Kollegal which has the lease of the fisheries of the section of Cauvery in that taluk worked satisfactorily. The Kontalapad Fishermen Co-operative Society referred to in my last year's report was again given the lease of the Tungabhadra anicut and the first eleven miles of the canal for another year. The fishermen of Nandyal (Kurnool District) presented a memorial to the Hon'ble Minister for Development during his visit to the district last October asking, among other things, the formation of a co-operative society and the leasing of Nandyal Tank Fishery to them for a reasonable rent. The offer made by the fishermen for the fisheries of the tank being much below the average for the last five years, their offer could not be accepted. The question of starting a co-operative society is under consideration. The chief difficulty in forming a society is to find a literate man who could keep accounts.

141. The Chidambaram Fishermen Society, which decided to take on lease the Lower Coleroon anicut fishery, were offered the lease for a year on a rental of Rs. 250 as per G.O. Mis. No. 1668, Development, dated 19th November 1925, but has since declined to take the lease for want of funds. The Society has promised to take the fishery next year.

The question of forming a fishermen co-operative society at Mannargudi is under investigation. If the society is formed they propose to take on lease the Viranam Tank Fishery.

142. The Negapatam Fishermen Co-operative Society have expressed their willingness to take on lease certain sections of the Cauvery in the Shiyali Taluk, and Government have sanctioned the lease in G.O. Mis. No. 979, Development, dated 8th July 1926.

143. No further steps have been possible with regard to the lease of the Bhavani in the Gopichettipalaiyam Taluk to the Fishermen Co-operative Society of Kumarapalaiyam, as the matter is still under correspondence with the Collector.

The Assistant Director of Fisheries (Inland) reports that he is persuading members of a large colony of Sembadavars at Triplicane to form a co-operative society.

The Registrar of Co-operative Societies referred to me for opinion a scheme prepared by the Assistant Registrar for the formation of a co-operative society for the fishermen of the Colair Lake and Uppatteru, to enable the fishermen to cure prawns on a co-operative basis and to negotiate directly sales in Burma and the

Federated Malay States without the intervention of the Muhammadan middlemen of Akidu. He was furnished with data collected regarding the possibilities of prawn curing on a commercial basis and establishing trade relations with the Federated Malay States. If the proposed rearing of hilsa in the Colair Lake materializes, there will be a station in the Colair Lake and it will be possible to demonstrate to the co-operative society improved methods of prawn-curing.

144. The usual statements are appended.

STATEMENT I.—Staff of the Fisheries Department.

Post.	Incumbent.	Period.
Director	Dr. B. Sundara Raj ...	1st July 1925 to 15th May 1926.
Assistant Director (Marine).	Sir T. Vijayaraghava Achariyar.	16th May to 30th June 1926.
Assistant Director (Coast).	Captain T. G. Cribb ...	13th March to 30th June 1926.
Assistant Director (Inland).	M.R.Ry. U. Karunakara Menon Avargal.	1st July 1925 to 30th June 1926.
Superintendent of Pearl and Chank Fisheries.	M.R.Ry. C. G. Chakrapani Ayyangar Avargal.	Do.
Inspector of Pearl Banks ...	M.R.Ry. Rao Sahib J. A. Fernandez Avargal.	Do.
Additional Superintendent.	Do.	8th February to 31st March 1926.
	M.R.Ry. M. V. Sankara Variyar Avargal.	15th February to 20th April 1926.

STATEMENT II.—Summary of Expenditure and Revenue of the Fisheries Department for 1925-26.

Particulars.	Expenditure.	Revenue.	Difference.
	RS. A. P.	RS. A. P.	RS. A. P.
I. Direction	28,613 2 10	2 8 0	— 28,610 10 10
II. Superintendent, Pearl and Chank Fisheries ...	1,23,649 4 5	* 2,92,027 9 10	1,68,378 5 5
III. Assistant Director (Marine)	1,06,337 5 0	...	— 1,06,337 5 0
IV. Assistant Director (Coast)	8,340 13 10	10 3 0	— 8,330 10 10
VI. Tanur Station	15,073 12 7	15,174 7 9	100 11 2
VII. Fisheries Training Institute	16,173 11 0	221 8 8	— 15,952 2 4
VIII. Schools for Fishermen	28,418 12 4	0 12 0	— 28,418 0 4
X. Assistant Director (Inland)	1,02,128 3 7	1,11,005 2 3	8,876 14 8
XI. Pulicat Oyster Farm	2,167 6 3	2,272 14 0	105 7 9
XII. Marine Aquarium	5,401 4 0	9,392 14 0	3,991 10 0
XIII. Marine Biological Section—Zoological Supply Section, Ennur.	4,583 6 11	3,610 9 0	— 972 13 11
Research Section, Calicut	7,685 2 4	...	— 7,685 2 4
XIV. Fish-curing yards	3,76,948 12 10	3,95,269 12 10	18,321 0 0
Cannery (1st April to 31st March 1926)	22,675 3 3	17,853 5 3	— 4,821 14 0
Total	8,48,196 5 2	8,46,841 10 7	— 1,354 10 7

* Includes Rs. 3,559, being the receipts from lease of right of fishing in salt factory channels.

STATEMENT III.—Details of Expenditure.

Particulars.	Salaries.	Establishment.	Allowances.	Supplies and Services.	Contingencies.	Total.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
i. Direction	(1) 8,744 12 0	11,477 8 0	4,426 3 0	...	3,964 11 10	28,613 2 10
ii. Superintendent, Pearl and Chank Fisheries	(2) 3,669 6 0	(3) 17,441 10 0	(4) 2,147 14 0	98,270 15 0	2,119 7 5	1,23,649 4 5
iii. Assistant Director (Marine)	1,000 0 0	881 5 0	(5) 7,844 0 0	(6) 90,612 0 0	...	1,06,337 5 0
iv. Do.	(7) 2,903 0 6	1,942 3 0	(10) 252 1 0	11,436 2 5	1,446 14 4	8,340 13 10
v. Tanur Station	(8) 414 11 6	(9) 1,094 1 6	(11) 545 10 0	8,501 5 7	1,876 12 2	15,073 12 7
vi. Fisheries Training Institute	...	6,160 9 0	165 14 0	803 15 3	966 2 5	16,173 11 0
vii. Schools for Fishermen	...	23,791 0 0	6,938 5 0	79,277 14 0	3,657 15 1	28,418 12 4
viii. Assistant Director (Inland)	3,175 0 0	(12) 11,756 15 0	...	1,219 5 5	960 1 7	1,02,128 3 7
ix. Pulicat Oyster Farm	...	230 12 0	...	988 4 6	717 4 10	2,167 6 3
x. Marine Aquarium	...	1,733 7 0	...	...	2,679 8 6	5,401 4 0
xi. Marine Biological Section—Zoological Supply Section, Ennur.	...	(13) 2,852 2 0	273 7 0	1,064 3 7	393 10 4	4,583 6 11
Research Section, Calicut	(14) 6,435 7 6	(16) 7,775 14 9	43 8 0	799 1 6	407 1 4	7,685 2 4
xiv. Fish-curing yards	(15) 946 7 0	(17) 7,903 7 0	(17) 7,903 7 0	2,80,323 0 1	...	3,76,948 12 10
Cannery (for year ending 31st March 1926).	(18) 457 8 0	3,552 11 1	195 1 0	16,298 11 8	2,171 3 6	22,675 3 3
Total	21,310 13 0	1,77,125 9 10	32,804 2 0	5,95,594 15 0	21,360 13 4	8,48,196 5 2

- (1) Excludes Rs. 457-8-0 debited to Cannery.
 (2) Excludes 25 per cent of the pay of the Superintendent, Pearl and Chank Fisheries.
 (3) Includes Rs. 487-11-0 being pay of the crew of Sea Scout.
 (4) Excludes 25 per cent of the travelling allowance of Superintendent, Pearl and Chank Fisheries.
 (5) Represents passage money, travelling allowance, etc., of the English and Indian crew of the Trawler "Repatriated Home."
 (6) Represents purchase price of Trawler, cost of reconditioning and equipment and navigation to India.
 (7) Excludes 12½ per cent of the pay of the Assistant Director (Coast) debited to Tanur Station.
 (8) Represents 12½ per cent of the pay of the Assistant Director (Coast).
 (9) Excludes 50 per cent of the pay of the permanent establishment debited to "Research."
 (10) Excludes Rs. 117-6-0 being the travelling allowance of Tanur Mechanic for work in the Fish-curing yards and Fisheries Training Institute, debited to the respective sections.
 (11) Includes Rs. 1-13-0 being the travelling allowance of Tanur Mechanic.
 (12) Represents 25 per cent of the pay of the Laboratory Assistant, Ennur.
 (13) Excludes Rs. 230-12-0 being 25 per cent of the pay of Laboratory Assistant, Ennur, debited to Pulicat Oyster Farm.
 (14) Includes 50 per cent of the pay of the Tanur Establishment and 50 per cent of the pay of the Inspector of Fisheries, Vizagapatam.
 (15) Represents 25 per cent of the pay of the Superintendent, Pearl and Chank Fisheries.
 (16) Excludes 50 per cent of the pay of the Inspector of Fisheries, Vizagapatam, debited to Research but includes Rs. 7,499-9-9 for pensionary contribution in respect of permanent establishment.
 (17) Includes 25 per cent of the travelling allowance of the Superintendent, Pearl and Chank Fisheries, and Rs. 115-9-0 being travelling allowance of Tanur Mechanic.
 (18) Represents 5 per cent of the pay of the Director from 1st April 1925 to 31st March 1926.

STATEMENT IV.—Details of Supplies and Services

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	Amount. RS. A. P.		Amount. RS. A. P.
II. Superintendent, Pearl and Chank Fisheries—		X. Assistant Director (Inland)—	
A. Chank fisheries—		A. Tank stocking—	
(1) Ramnad fisheries	14,789 7 8	(1) Compensation to District Boards	62,197 11 0
(2) Tinnevely fisheries	3,841 0 2	(2) Stocking of tanks	993 13 6
(3) Beche-de-mer fisheries	466 9 11	(3) Chingleput tank stocking scheme	834 4 3
(4) Sivaganga fisheries	225 15 4	(4) Nellore tank stocking scheme	763 10 0
B. Pearl fisheries—		B. Other Works—	
Pearl fishery works	17,096 14 5	(1) Sunkesula Fish Farm	5,883 11 8
Pearl fishery running charges	42,060 5 11	(2) Ippur Fish Farm	1,434 1 9
Examination of pearl banks	2,195 14 0	(3) Powder Factory Fish Farm	753 14 3
Pamban Pearl Farm	93 11 6	(4) Chingleput Fort Moat Farm	444 7 3
C. Fisheries vessels—		(5) Vellore Fort Moat Farm	600 12 6
Lady Nicholson	7,849 9 9	(6) Mopad Fish Farm	2,659 2 10
Leverett	4,146 6 5	(7) House boat maintenance	2,292 15 0
Sutherland	2,993 10 11	(8) Nallamalais scheme	370 9 6
Pearl	1,721 9 4	(9) Investigation of new scheme	48 12 6
Sea Scout	789 11 8		
	98,270 15 0		79,277 14 0

III. Assistant Director (Marine)—

Purchase price, cost of reconditioning equipment and navigation to India of Trawler, including departmental expenses and Marine Insurance

£7,245—14—8 calculated at 13 ½ rupees per £ 96,612 0 0

XIV. Fish-curing yards—

Petty construction and repairs	15,311 15 5
Purchase of salt	29,206 3 0
Charges for conveyance of salt	20,631 12 6
Export and Import of salt	90,391 3 7
Other contingencies	16,188 2 5
Overtime fees	614 13 0
Clothing and Equipment	2,978 7 0
Opening stock of salt on hand on 1st July 1925.	1,05,000 7 2
	2,80,323 0 1

STATEMENT V.—Details of Revenue.

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	Amount. RS. A. P.		Amount. RS. A. P.
I. Direction—		X. Assistant Director (Inland)—cont.	
Miscellaneous Receipts	2 8 0	Rentals from tanks in the Nellore District	16,461 2 4
II. Superintendent, Pearl and Chank Fisheries—		Rentals from tanks and channels in other districts	8,206 14 8
(1) Revenue from all chank fisheries including Beche-de-mer fishery as per statement VI	62,734 8 9	Receipts from fish farms by sale of fish and grass and miscellaneous receipts including rent of buildings	2,926 12 11
(2) Revenue from Pearl Fishery Section as per Statement VII	2,25,734 1 1		1,11,005 2 3
(3) Revenue from lease of right of fishing in salt factory channels.	3,559 0 0	XI. Pulicat Oyster Farm—	
	2,92,027 9 10	Sale of oysters	2,235 13 0
IV. Assistant Director (Coast)—		Oyster shell grit	37 1 0
Miscellaneous receipts	10 3 0		2,272 14 0
VII. Fisheries Training Institute—		XII. Aquarium—	
Miscellaneous receipts	221 8 8	(1) Gate collections	8,532 7 0
VIII. Schools for fishermen—		(2) Sale proceeds of guides, picture post cards, etc.	284 7 0
Miscellaneous receipts	0 12 0	(3) Aquarium shop rental	576 0 0
X. Assistant Director (Inland)—			9,392 14 0
Rentals from Cauvery, Coleroon, tanks and channels	74,631 2 10	XIII. Marine Biological Section—	
Rentals from tanks in the Chingleput District	8,770 1 6	Sale of zoological specimens	3,550 9 0
		Rent recovered from the Research Assistant for occupation of Ennur Bungalow	60 0 0
			3,610 9 0

STATEMENT VI.—Profit and Loss Account of the Chank and
Beche-de-mer Fisheries for the season 1925-26.

Expenditure.	Amount.	Revenue.	Amount.
	RS. A. P.		RS. A. P.
Chank Fisheries—		By Value of Chanks	
Tinnevely	8,985 3 4	fished—	
Rāmnād	18,398 8 8	Tinnevely	16,500 2 5
Sivaganga	225 15 4	Rāmnād	40,431 1 8
Beche-de-mer fishery ...	466 9 11	Sivaganga	203 6 2
Thirteenth year's pro- portion of the total consideration paid in 1913-14 for a 15 years' lease of the Rāmnād fishery	4,000 0 0	Beche-de-mer fishery. Chank rentals rea- lized—	470 13 0
Supervision charges, viz., 50 per cent of pay and travelling allowance of the Superintendent, Pearl and Chank Fisheries	2,255 8 0	Tanjore District... ..	3,400 13 6
Net profit	28,402 11 6	South Arcot Dis- trict	955 0 0
Total	62,734 8 9	Chingleput and Nellore dis- tricts	760 0 0
		Miscellaneous re- ceipts	13 4 0
		Total	62,734 8 9

STATEMENT VII.—Profit and Loss Account of the Pearl
Fishery section for the season 1925-26.

Expenditure.	Amount.	Revenue.	Amount.
	RS. A. P.		RS. A. P.
Pearl Fisheries—		Receipts from Pearl	
Examination of Pearl		Fisheries	2,25,498 6 0
Banks	2,195 14 0	Receipts from Pāmban	
Pāmban Pearl Farm ...	93 11 6	Pearl Farm	130 6 0
Pearl fishery running charges	59,157 4 4	Miscellaneous receipts ...	105 5 1
Pay and travelling allow- ance of Additional Superintendent ...	1,013 13 0		
Pay and travelling allow- ance of temporary Pearl Fishery estab- lishment	3,827 9 0		
Pay and travelling allow- ance of permanent Pearl Fishery estab- lishment	2,732 4 0		
Pay and travelling allow- ance of crew "Lady Nicholson"	4,638 15 0		
Pay and travelling allowance of crew "Sutherland"	1,234 9 0		
Pay of crew of "Sea Scout"	487 11 0		
Running expenses of "Lady Nicholson" ...	7,849 9 9		
Running expenses of "Sutherland"	2,993 10 11		
Running expenses of "Sea Scout"	789 11 8		
Other contingencies ...	1,175 0 0		
Supervision charges, viz., 25 per cent of pay and travelling allowance of Superintendent, Pearl and Chank Fisheries	1,127 12 0		
Net profit	1,36,416 9 11*		
Total	2,25,734 1 1	Total	2,25,734 1 1

* Figures in pages 10 and 20 of the Report do not include expenditure on the whole section for the year but refer to the Pearl Fishery alone.

STATEMENT VIII.—Trading Account of the Experimental Station, Tanūr, for the year ending 30th June 1926.

Particulars.	Amount. RS. A. P.	Particulars.	Amount. RS. A. P.
To opening stock—		By sales—	
Cured fish ...	614 6 11	Oil and guano, etc. ...	5,806 2 4
Fish-meal ...	582 12 4	Cured fish ...	6,637 3 9
Oil and guano ...	293 15 0	Closing stock—	12,443 6 1
Service stamps ...	...	Cured fish ...	452 10 6
		Fish-meal ...	399 9 4
Purchases—		Oil and guano... ..	1,150 15 0
Nets ...	65 6 1	Service stamps ...	...
Service stamps... ..	495 10 0		2,003 2 10
			60 15 6
Manufacturing cost transferred from Manufacturing account	7,352 12 1		
Gross Profit transferred to Profit and Loss account	5,078 3 0		
			14,507 8 5

STATEMENT IX.—Profit and Loss Account of the Experimental Station, Tanūr, for the year ending 30th June 1926.

Particulars.	Amount. RS. A. P.	Particulars.	Amount. RS. A. P.
To experiments (excludes Rs. 35 addition to buildings furniture Rs. 21-10-0). Coconut garden maintenance ...	113 15 7	By Gross profit transferred from Trading account	5,078 3 0
Repairs (excludes Rs. 40-0-0 for flooring)	194 6 6	Rent recovered in cash	56 12 0
Railway freight (less Rs. 7-12-0 refund excluded)	332 1 0	Rent in Tanūr establishment pay bills by short drawal	83 6 0
Packing materials	746 8 11	Rent in fish-curing yard establishment pay bills by short drawal	7 8 0
Petty cooly and miscellaneous charges	1,323 14 2	Rent outstandings	33 8 0
Advertisement	378 11 0		181 2 0
Rates and taxes	186 8 9	Miscellaneous receipts	466 13 1
Salary 25 per cent of the establish- ment	40 0 0	Prawn fish receipts (Kollair Lake) ...	19 0 3
Travelling allowance	547 0 9		
Interest on capital (3 1/2 per cent) ...	252 1 0		
Depreciation on buildings and sheds at 10 per cent	262 11 9		
Depreciation plant and machinery at 10 per cent	465 10 0		
	386 2 3		
	851 12 3		
Direction charges (12 1/2 per cent) of Assistant Director (Coast's) salary.	414 11 6		
	5,644 7 2		
Net profit transferred to Balance Sheet	100 11 2		
	5,745 2 4		

STATEMENT X.—Profit and Loss Account of the fish-curing yards for the year ending 30th June 1926.

Expenditure.	Amount.	Revenue.	Amount.
	RS. A. P.		RS. A. P.
To opening stock of salt on hand on 1st July 1925—151,352 maunds at Re. 0-11-12 a maund.	1,05,000 7 2	By receipts from sale of salt issued and other miscellaneous items.	2,88,474 13 10(c)
Pay of establishment ...	(b) 80,276 5 0		
Pensionary contribution in respect of permanent establishment.	7,499 9 9	Value of 161,581 maunds of salt in stock at the yards on 1st July 1926 (calculated at Re. 0-10-69 a maund).	1,06,794 15 0
Travelling allowances ...	(d) 7,722 2 0		
Overtime fees ...	614 13 0		
Contingencies—			
Petty construction and repairs.	(a) 15,311 15 5		
Purchase of salt ...	29,206 3 0		
Charges for conveyance of salt.	20,631 12 6		
Export and import of salt.	90,391 3 7		
Other contingencies ...	16,188 2 5		
Clothing and equipment ...	2,978 7 0		
Supervision charges—25 per cent of the pay and travelling allowance of the Superintendent, Pearl and Chank Fisheries.	1,127 12 0		
	3,76,948 12 10		
Net profit ...	18,321 0 0*		
	3,95,269 12 10		3,95,269 12 10

* The profit really was Rs. 35,181, but a sum of Rs. 16,860-0-0 being the value of credit note issued for the transport of salt by rail last year was adjusted only this year.

(a) Excludes Rs. 780 being advances made to curers at Cannanore for constructing sheds.

(b) Excludes Rs. 780 being 50 per cent of pay of the Inspector of Fisheries, Vizagapatam, debited to Research.

(c) Excludes Rs. 1,844 cess collections during the year.

(d) Includes Rs. 115-9-0 of Tanur Mechanic travelling allowance to be debited to fish-curing yards.

STATEMENT XI.—Statement showing the Operations of the Fish-curing yards of the Madras Presidency during the year ending 30th June 1926.

Division.	Districts.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Expenditure.				(13)
										Buildings.		Establishment.	Contingencies.	
										New Works.	Repairs.			
										(9)	(10)	(11)	(12)	
East Coast.														
	Ganjam, Vizagapatam and East Godavari districts ...	44,170	105,876 31	12,432 37	15,541 2 6	9'87	63,470 19	...	2,482 13 7	11,754 13 0	4,404 8 4	18,642 2 11		
	Nellore and Chingleput districts	9,131	71,341 1	10,372 12	12,965 6 0	10'32	40,523 4	...	1,616 2 8	4,651 11 0	6,112 3 11	12,380 1 7		
	Tanjore, Tinnevely and Ramnad districts ...	13,743	81,084 33	16,108 22	20,135 11 0	16'46	56,413 5	...	491 2 3	6,372 11 0	4,832 15 3	11,656 12 6		
	Total, East Coast ...	67,044	258,302 25	38,913 31	48,642 3 6	12'22	160,406 28	...	4,590 2 6	22,779 3 0	15,349 11 6	42,749 1 0		
West Coast.	Malabar and South Kanara districts	113,883	1,150,492 13	187,375 33	24,219 12 6	13'17	669,597 9	880 0 0	11,753 8 0	45,272 5 0	13,327 14 9	71,233 11 9		
	Grand Total, East and West Coasts	180,927	1,408,794 38	226,289 24	2,82,862 0 0	12'70	830,003 37	880 0 0	16,343 10 6	68,551 8 0	28,677 10 3	1,13,952 12 9		

STATEMENT XII.—Government Fisheries Cannery, Chaliyam—Trading Account for the year ending
31st March 1926.

	Amount. RS. A. P.	Amount. RS. A. P.	Amount. RS. A. P.
To opening stock— At Chaliyam and other places	...	...	...
To selling expenses—	...	54,569 0 0	...
Packing materials	693 4 1	...	...
Rail freight	284 6 9	...	...
Petty coolie	42 11 6	...	...
Postage and telegrams	2,110 14 0	...	...
Advertisement	1,635 6 3	...	...
Salaries to salesman, etc.	1,702 5 1	...	...
Travelling expenses	195 1 0	...	...
Commission and discount	107 2 8	...	...
Trade discount	827 3 11	...	...
	7,598 7 3	...	...
	62,167 7 3	...	...
By sales of canned fish	...	16,066 7 0	...
Less returns	...	214 13 0	...
By closing stock— At Chaliyam and other places	...	...	...
By balance transferred to profit and loss account	...	...	...
	...	...	15,851 10 0
	...	...	43,700 11 1
	...	...	2,615 2 2
	...	...	62,167 7 3

STATEMENT XIII.—Government Fisheries Cannery, Chaliyam—Profit and Loss Account for the year ending
31st March 1926.

	Amount. RS. A. P.	Amount. RS. A. P.	Amount. RS. A. P.
To balance transferred from trading account	...	2,615 2 2	...
To expenses—	...	...	...
Establishment	1,738 10 0	...	...
Printing and stationery	17 10 0	...	...
Repairs	250 0 0	...	...
Miscellaneous expenses	142 14 4	...	...
Share of direction expenses	457 8 0	...	...
Audit fee	500 0 0	...	...
Contribution for leave and pension	111 12 0	...	...
Interest on temporary accommoda- tion	317 1 0	...	...
Tools written off	42 15 3	...	...
	3,578 6 7	...	...
To depreciation—	...	...	...
On buildings	558 0 0	...	...
On furniture	72 0 6	...	...
	630 0 6	...	...
	6,823 9 3	...	...
By value of labels restored	...	...	949 5 5
By house rent	...	...	165 2 10
By Europe stores—Excess duty refunded	...	...	160 8 0
By miscellaneous receipts	...	...	726 11 0
By net loss carried to balance sheet	...	...	4,821 14 0

STATEMENT XIV.—Statement of Establishment, Temporary and Permanent, employed in the Pearl Fishery duties.

Name.	Permanent appointment.	Designation.	Pay.	Remarks.
<i>Appointments sanctioned in G.O. Mis. No. 1677, Development, dated 20th November 1925.</i>				
<i>Superintendent's Office.</i>				
M.R.Ry. M. V. Sankara Variyar Avargal, B.A.	Superintendent, Local Self-Government Department.	Additional Superintendent.	360	
V. K. Chellam Ayyar ..	Accountant ..	Treasurer ..	75	
Stanislaus Corera ..	Chank Clerk ..	Assistant Treasurer.	50	Sanctioned in G.O. No. 419, dated 23rd March 1926, taken effect from 17th March 1926.
Subrahmanya Ayyar ..	Head Shroff, Nanguneri.	Shroff ..	40	
K. Sultan Baig ..	Stores Clerk ..	Head Clerk ..	60	Sanctioned in G.O. No. 419, dated 23rd March 1926, taken effect from 17th March 1926.
M. Venkachalam ..	Outsider ..	Clerk ..	35	
V. Subbayya ..	Do. ..	Do. ..	35	
Muttuswami Nayudu ..	Do. ..	Peon ..	12	Services closed from 11th March 1926.
Viswasam ..	Do. ..	Do. ..	12	Appointed on and from 8th March 1926.
Shanmukham ..	Do. ..	Do. ..	12	
Mayandi ..	Do. ..	Tom-tomer ..	15	
<i>Kottu Establishment.</i>				
A. V. Sarma ..	C.F.O. ..	Kottu Manager.	75	
Michael Ayyathurai ..	Outsider ..	Clerk ..	35	
Alwar Nayudu ..	Do. ..	Peon ..	12	
Anthony Muthu Pillai.	Do. ..	Do. ..	12	
Sadagopala Pillai ..	Do. ..	Do. ..	12	
<i>Beach Master's Establishment.</i>				
M.R.Ry. A. S. Pubalarayar.	Outsider ..	Beach Master ..	150	Sanctioned in G.O. No. 419, dated 23rd March 1926, taken effect from 17th March 1926.
A. S. P. Rayar ..	Do. ..	Assistant Beach Master.	50	
Ramachandra Nayudu.	Do. ..	Clerk ..	35	

STATEMENT XIV.—Statement of Establishment, Temporary and Permanent, employed in the Pearl Fishery duties—cont.

Name.	Permanent appointment.	Designation.	Pay.	Remarks.
<i>Appointments sanctioned in G.O. Mis. No. 1677, Development, dated 20th November 1925—cont.</i>				
<i>Beach Master's Establishment—cont.</i>				
Kitherian Fernando ...	Outsider ...	Searcher ...	15	
Sanyasi Tevan ...	Do. ...	Do. ...	15	
Sangu Tevar ...	Do. ...	Do. ...	15	
Andiyappa Tevan ...	Do. ...	Do. ...	15	Worked from 10th to 29th March 1925.
Razak Sheriff Arumugam.	Do. ...	Do. ...	15	Worked from 1st to 4th March 1926 5th to 14th March 1926 vacant. 15th to 29th March 1926.
Ramanujam Pillai ...	Do. ...	Do. ...	15	
<i>Afloat Establishment.</i>				
M.R.Ry. Rao Sahib J. A. Fernandez Avargal.	Superintendent, P. & C.	Inspector of Pearl Banks.	450	
M.R.Ry. A. Somayaji.	C.F.S. ...	Assistant Inspector of Pearl Banks.	150	
Mr. Wilson ...	Outsider ...	Bag-Examiner.	150	
„ M. Kanta Raj ...	Do. ...	Do. ...	150	
„ Hartley ...	Do. ...	Do. ...	150	Services closed from 7th March 1926.
„ Rosair ...	Do. ...	Do. ...	150	
M.R.Ry. T. S. Velu Mudaliyar.	H.C., Madras Office.	Do. ...	120	
Mr. K. R. Samuel	Survey Assistant.	Do. ...	125	
Machade ...	Outsider ...	Clerk ...	35	
C. A. Joseph ...	Do. ...	Do. ...	35	
A. S. Krishnan ...	Do. ...	Do. ...	35	
J. F. Rayan ...	Do. ...	Do. ...	35	Closed from 16th March 1926 and transferred as Assistant Beach Master.
<i>Police Establishment.</i>				
M.R.Ry. Appadurai Pillai Avargal.	Inspector ...	Inspector of Police.	175	
M.R.Ry. Sessa Ayyar.	Sub-Inspector...	Sub-Inspector of Police.	60	
Sheriff ...	I.D.S.I. ...	I.D.S.I. ...	108	
Four Head Constables.	Head Constables.	Head Constables.	123	
Seventy Constables	Constables ...	Constables ...	1,426	

STATEMENT XIV.—Statement of Establishment, Temporary and Permanent, employed in the Pearl Fishery duties—*cont.*

Name.	Permanent appointment.	Designation.	Pay.	Remarks.
<i>Appointments sanctioned in G.O. Mis. No. 1677, Development, dated 20th November 1925—cont.</i>				
<i>Medical Establishment.</i>			RS.	
Mr. Cheriyan	Assistant Surgeon.	Civil Assistant Surgeon.	450	First appointment
„ E. Tirumalai Ayyangar.	Sub-Assistant Surgeon.	Sub-Assistant Surgeon.	105	
Somasundaram	Outsider	Compounder	30	
Shanmukham Nayudu.	Ward attendant.	Ward attendant.	15	Died of cholera in the camp.
M. Narayana Pillai	Do.	Do.	15	
Muttuswami Nayudu	Outsider	Cook	12	
Coonga	Do.	Peon	12	
<i>Sanitary Establishment.</i>				
M.R.Ry. Venkateswaralu Nayudu.	Sanitary Inspector.	Sanitary Inspector.	75	
Govindaswami Nayudu.	Outsider	Peon	12	
Abdul Gaffur Sahib	Peon	Interpreter	25	
<i>Industries Department.</i>				
P. K. Sitarama Ayyar	Maistri, Industries Department.	Maistri in charge pumps.	44	

STATEMENT XV.—Fish landed on the West Coast (South Kanara and Malabar).
(Weights in maunds.)

	Sharks and Dog Fish.	Hammerheads.	Saw Fish.	Plough Fish.	Rays.	Cat Fish.	Ch. Dorab.	Oil Sardine.	Cl. Fimbriata.	Cl. Lile.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1925.										
July ...	1,311	54	28	95	215	2,386	2	1,323	100	39
August ...	3,027	44	39	60	244	1,631	3	10,033	402	371
September ...	10,807	252	192	451	705	10,818	2,650	21,307	12,381	4,145
October ...	5,045	466	148	780	1,958	5,208	5,666	289,240	6,456	256
November ...	11,652	473	155	733	1,288	3,579	292	561,023	9,587	11,881
December ...	4,696	344	426	552	2,411	12,490	234	186,755	6,606	1,287
1926.										
January ...	6,971	389	233	936	2,484	17,784	419	66,812	2,489	1,072
February ...	4,553	161	116	407	1,713	2,480	111	35,384	957	567
March ...	3,950	525	226	259	420	1,966	63	3,153	1,158	1,358
April ...	2,492	188	130	291	292	2,866	16	3,839	1,971	1,130
May ...	2,240	212	98	389	654	2,848	...	12,543	185	980
June ...	674	37	23	48	472	1,377	...	1,037	6	...
Total ...	57,418	3,145	1,814	5,001	12,856	65,433	9,456	1,192,449	42,298	23,086

	Pellona and Opisthoterus.	Engraulis.	White Bait.	White Mullet.	Gar Fish.	Serranus.	Therapon.	Pristipoma.	Silverbellies.	Spotted Dory.	Polynemus.	Sciaenidae.
(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	
1925.												
July ...	247	1,289	113	10	41	17	968	40	17,971	12	...	1,561
August ...	594	1,266	75	25	22	...	1,154	2	47,869	...	...	826
September ...	327	3,141	1,279	11	2	28	123	9	38,751	...	71	6,911
October ...	787	1,729	50	58	1	11	1,719	58	6,618	...	70	16,258
November ...	25	260	...	7	...	...	...	...	451	...	3	1,430
December ...	36	90	18	29	12	13	17	30	293	13	16	3,305
1926.												
January ...	66	266	80	...	51	57	82	139	654	64	74	1,504
February ...	29	230	155	...	28	14	42	85	382	41	55	815
March ...	13	101	24	...	18	10	23	45	3,510	21	35	632
April ...	36	9	...	1	1	2	...	1	4,944	...	...	291
May ...	21	47	...	...	...	...	...	...	5,049	19	...	484
June ...	152	424	16	...	...	...	...	12	5,705	1	2	804
Total ...	2,333	8,852	1,810	141	176	152	4,128	421	132,197	171	326	34,821

STATEMENT XV.—Fish landed on the West Coast (South Kanara and Malabar)—cont.
(Weights in maunds.)

	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
	Sword Fish.	Ribbon Fish.	Carangidae.	Caranx Crumenophthal-mus.	Chorinemus.	Lactarius.	Pomfret.	Mackerel.	Bonito.	Tunny.
1925.										
July ...	20	8,194	1,077	22		433	119	2,630		...
August ...		690	698	13	523	389	402	15,714		815
September ...		679	1,060	336	966	1,178	2,763	76,911		177
October ...		13,196	237	4	626	1,619	1,308	235,102		7
November ...		46	179		854	99	439	1,796,208		...
December ...	3	9	2,653	15	1,031	22	92	218,970		5
1926.										
January ...	238	66	264	51	569	211	407	311,423	20	39
February ...	17	30	52	36	459	342	293	57,640	10	42
March ...	24	16	26	30	245	82	74	15,093	9	7
April ...		1	24		17	1,105	8	6,706		...
May ...					97	97	29	5,641		9
June ...	1	57			1	52		103		...
Total ...	303	22,984	6,288	507	5,389	14,169	5,934	2,741,541	40	860.1

	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
	Small Seer.	Large Seer.	Barracuda.	Gr. Mullet.	Young Gr. Mullet.	Parrot Fish.	Sole	Crabs.	Prawns.	Cuttle Fish.	Miscellaneous.
1925.											
July ...	10		1	12	126		109	84	32,916		17,997
August ...	116	1,120	10	4	58	36	3,896	26	4,571	1	20,168
September ...	3,446	4,357	51	12	37	28	59,341	3	1,284		26,319
October ...	2,765	1,231	473	60	68	43	38,644	9	585	33	49,947
November ...	1,231	2,776	2	4	6	14	745		820		14,663
December ...	590	769		26		54	95	87	2,957	8	26,782
1926.											
January ...	770	765		71		149	536	215	5,163	83	20,822
February ...	184	1,148	73			23	105	57	3,319	45	918,91
March ...	48	220	29			4	135	111	7,784	14	19,539
April ...	4	81				1	22	8	5,200	3	16,574
May ...	10	69		1		8			14,353		21,103
June ...				2	41	3	163	24	9,571		21,146
Total ...	9,174	12,539	639	192	337	384	104,260	29	88,532	187	678,692

Grand Annual Total : 4,883,481 maunds.

STATEMENT XVI.—Fish landed on the West Coast (South Kanara and Malabar).

(Value in rupees.)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
		Sharks and Dog Fish.	Hammerheads.	Saw Fish.	Plough Fish.	Rays.	Cat Fish.	Ch. Dorab.	Oil Sardine.	Cl. Fimbriata.	Cl. Lile.	Pellona and Opishop-terus.	Engraulis.	White Bait.	White Mullet.	Gar Fish.	Serranus.	Therapon.	Pristipoma.	Silverbellies.	Spotted Dory.	Polynemus.
1925.																						
July	...	3,786	142	88	145	584	6,751	12	5,336	322	65	376	1,786	233	10	101	175	1,079	88	37,482	81	...
August	...	9,829	112	70	77	791	6,220	6	18,641	728	523	1,285	1,976	105	33	97	210	1,320	6	97,502	...	...
September	...	39,750	786	558	1,841	2,571	38,774	7,245	28,051	11,999	4,711	604	3,018	2,200	27	2	150	211	14	65,775	...	170
October	...	17,403	2,303	342	4,418	7,132	20,639	5,539	2,89,342	6,378	245	736	1,592	62	132	6	109	1,364	69	8,501	...	420
November	...	18,986	2,115	384	2,935	4,176	16,962	1,525	3,84,716	3,064	6,054	16	145	...	8	...	...	...	...	791	...	11
December	...	18,551	1,042	1,364	1,782	6,138	61,154	503	2,00,243	5,849	728	23	44	12	88	8	7	10	23	119	...	11
1926.																						
January	...	24,276	1,022	759	2,399	4,734	72,378	1,886	72,343	2,902	848	65	241	80	...	51	57	79	143	749	64	74
February	...	14,851	642	504	791	3,080	10,041	515	41,369	1,291	709	41	322	304	...	36	22	61	129	519	55	97
March	...	15,117	2,093	717	793	1,501	7,890	207	6,373	1,896	1,992	27	204	54	...	36	22	45	86	8,356	102	90
April	...	9,223	632	418	693	1,123	10,879	45	5,313	5,266	2,230	75	29	...	3	2	9	...	1	13,026	...	...
May	...	9,342	784	340	840	2,435	11,150	...	26,088	570	2,033	34	71	...	...	...	...	...	...	13,065	25	...
June	...	3,272	123	87	148	2,115	5,251	...	2,736	15	...	154	605	30	...	...	...	...	18	15,496	2	5
Total	...	1,85,086	11,795	5,631	16,922	36,380	2,68,089	17,483	10,80,551	40,280	20,138	3,436	10,033	3,140	301	339	551	4,166	577	2,61,381	337	878

STATEMENT XVI.—Fish landed on the West Coast (South Kanara and Malabar)—*cont.*

(Value in rupees.)

	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)
	Sciænidæ.	Sword Fish.	Ribbon Fish.	Carangidæ.	Caranx Crumenophthalmus.	Chorinemus.	Lactarius.	Pomfret.	Mackerel.	Bonito.	Tunny.	Small Seer.	Large Seer.	Barracuda.	Gr. Mulllet.	Young Gr. Mulllet.	Parrot Fish.	Sole.	Crabs.	Prawns.	Cuttle Fish.	Miscellaneous.
1925.																						
July	4,355	6	50,173	2,138	28	...	874	436	5,587	...	...	77	...	9	25	1,063	...	373	135	72,453	...	43,708
August	2,000	...	1,115	2,355	43	3,550	936	2,158	50,776	...	440	863	12,136	15	4	185	153	4,378	44	14,313	3	41,976
September	12,533	...	888	3,683	654	2,989	2,808	15,178	1,63,427	...	824	18,553	30,041	150	19	58	161	68,772	3	846	104	43,694
October	25,231	...	25,805	679	5	3,434	21,149	6,276	4,05,203	6	18	13,910	6,452	485	210	213	217	32,525	15	1,017	...	69,565
November	1,806	...	104	177	...	3,325	119	1,245	15,28,221	...	...	4,209	10,938	3	4	30	79	655	...	1,190	...	15,079
December	3,873	12	5	2,732	37	4,216	23	316	3,12,428	...	5	2,488	4,840	...	69	...	391	49	48	5,577	5	34,321
1926.																						
January	1,940	319	76	366	75	3,198	282	1,323	5,38,815	31	43	4,471	3,470	...	131	...	380	519	216	13,498	87	24,883
February	1,229	63	51	120	72	2,496	428	1,181	1,11,155	22	79	1,132	7,190	140	...	...	73	713	76	8,093	72	23,220
March	1,289	91	33	71	97	1,290	1,426	275	34,310	23	14	149	1,479	62	...	...	34	271	135	21,697	32	34,450
April	556	...	1	48	...	77	2,204	32	21,255	...	...	28	567	...	...	2	160	9	13	16,753	19	34,053
May	812	...	...	30	...	617	1,847	123	21,940	...	9	60	503	...	13	...	49	...	48	44,289	...	44,736
June	1,559	2	79	...	...	7	168	...	530	...	...	...	...	...	59	236	9	252	...	30,451	...	26,140
Total	57,233	493	78,330	12,399	1,021	25,199	32,264	28,543	31,93,647	82	5,432	45,940	77,616	864	534	1,787	1,706	1,08,516	733	2,30,177	322	4,35,825

Grand Annual Total : Rs. 63,06,161.

Order—No. 1682, Development, dated 26th November 1926.

Recorded.

2. The Government have read with interest the report on the administration of the Fisheries Department for the year ending 30th June 1926. The most important event of the year was the conduct of the pearl fishery of Tuticorin, the results of which proved very satisfactory. The year also witnessed the purchase of a steam trawler for experiments in deep-sea fishing and the revival of the post of Assistant Director (Marine) for the conduct of these experiments.

Though it is not their intention to judge of the utility of the Fisheries Department solely with reference to the financial results of its working, the Government congratulate the Director of Fisheries on the unexampled financial prosperity of his department during the year under review. It affords satisfactory evidence of the economy and efficiency with which the Department performed its duties in the year.

3. The Government have recently decided to continue the cannery at Chaliyam till 31st March 1927 and entrust the management of its experimental and manufacturing side to Sir Frederick Nicholson, the manufacture to be commenced as soon as possible after his return from England; in the meantime, the Government have sanctioned the deputation of the Superintendent of the Cannery to Bombay to negotiate the sale of stock at reduced prices with a view to developing markets within India.

4. Owing to the unfavourable season on the West Coast, the working of the Tanur Station could not materially improve though it is satisfactory to note that on the whole the station worked at a profit of about Rs. 100 as against a net loss of over Rs. 3,700 sustained by it in the previous year.

Research was continued in the methods of avoiding saline excrescences in semi-dried prawns, manufacture of paint oil, medicinal oil and sterilization of fish for sale in the interior markets. A noteworthy feature of the year in connexion with the sardine operations was the high percentage of oil obtained, namely, 11·4 per cent. The unfavourable character of the season was reflected in the reduction of the number of private oil and guano factories, of which only 463 were working during the year under review against 515 in 1924-25; but the factories that worked during the year produced a larger quantity of guano, oil and manure and the value of the output amounted to Rs. 16,70,000 against Rs. 9,41,000 in the previous year. The Government

consider that the technique of refining oil and improving the guano has not yet been fully demonstrated. The improved methods of curing fish are not availed of by all curers. The manufacture of fish-meal is still a sealed book to many, though it is simple and does not involve the use of costly machinery. The station has yet to demonstrate this on a large scale to the guano factory owners, and also to attempt the manufacture of various by-products, such as, manufacture of marine glue, extraction of iodine and potash from sea-weed, gelatine from fish bones, pearl essence from scales, etc. Refrigeration on modern lines has still to be studied. There is also the manufacture of Turkey red oil and medicinal oil to be undertaken in earnest. Apart from these new lines of activity the station must continue to keep in continuous touch with the changes in the methods and processes of manufacture even in well-established lines so that new methods and processes may be introduced and the trade enabled to keep pace with the times. Experiment is as essential and just as continuous as manufacture and steady work in perfecting processes in discovered directions is as necessary as continuous experimenting with new processes for increasing output, improving the quality and enhancing the general reputation of the trade.

5. The pearl fishery was conducted between 17th February and 27th March 1926 and was the biggest from the point of view of revenue that has been held during the past century. The operations cost Government Rs. 89,317 and yielded a net profit of Rs. 1,36,417. The fishery had to be closed suddenly on account of an outbreak of cholera in the camp. A small fishery is now being held and another fishery is contemplated in February 1927.

The operations of the chank fishery showed an improvement as compared with 1924-25 despite the fact that the best chank diving season coincided with the pearl fishery season during the year under review. The net receipts were Rs. 28,403 as compared with Rs. 20,164 in 1924-25. The Government are glad to note the testimony borne by the Director to the energetic measures taken by the Superintendent, Pearl and Chank Fisheries, which were responsible for the satisfactory results of the year.

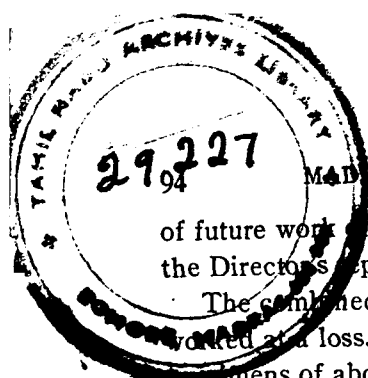
6. The activities of the inland piscicultural section which is engaged in improving the fish food resources of inland waters by improving the quality and quantity of fish and introducing and acclimatizing exotic ones resulted in a profit of Rs. 8,877 during the year. Fishery rentals improved partly owing to good season and partly owing to the activities of the section in combating combinations and securing fair rentals. The question raised in paragraph

76 of his report in regard to the removal of the prohibition of fishing within 100 yards of the anicuts is engaging the attention of Government. Proposals are also under consideration for introducing legislation to take power to prohibit fishing in public waters except under licence and to prohibit destruction of immature fish in waters where such a prohibition is considered necessary.

The Government regret to note the slow progress made in equipping the new fish farms in Mopad and Chingleput Fort Moat. On the whole, the five farms mentioned in paragraph 79 of the Report worked satisfactorily during the year. The fishes bred at these stations were distributed to waters in the neighbourhood controlled by the Department.

7. There was a net increase of only one fish-curing yard, the total number of which was 107 at the end of the year. There was an increase in the operations on the East Coast except in the Northern Circars, in the South Kanara District and in the Ponnāni Taluk in Malabar. The total weight of fish brought to the yards was 1,408,794 maunds and the salt issued was 226,289 maunds and the revenue collected amounted to Rs. 2,82,862. The yards worked on the whole at a profit of Rs. 18,321. The question of reducing the issue price of salt has been engaging the attention of Government who on a consideration of all the circumstances of the case were inclined to think that the only way of effecting reduction was by ensuring a reduction in the cost of transport of salt to the yards on the West Coast which depend for their supplies on factories at Tuticorin and elsewhere on the East Coast. With the steam trawler that has now been obtained it is expected there will be considerable savings, but it has not been used as yet for salt transport work; in the meantime the Government propose to take up the consideration of the question whether on the profits as disclosed in the year's working it is feasible to reduce the issue price without entailing any loss on the working of the yards.

8. The Aquarium continued to be popular and attracted a large number of visitors. It brought in a net revenue of Rs. 3,951. Proposals for the opening of a biological station at the Krusadai Island and for the establishment of an Aquarium at Rameswaram are under the consideration of the Government. The main biological research centre continued to be at Calicut where investigations of factors affecting the emigration of sardine and mackerel and their food-growth and life-history were examined on the usual lines. Special studies of the most important constituents of plankton have been commenced. Statistics relating to landing were also collected. The Government have received the programme



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of future work of the Department referred to in paragraph 115 of the Director's report.

The combined biological specimens supply and oyster station worked at a loss. There was an increase in receipts from sale of specimens of about Rs. 1,000, while there was a drop in the sale of oysters of nearly Rs. 1,300 as compared with 1924-25. In view of the scarcity of oysters available, the Director has proposed that the oyster beds in the Sonapur waters in the Ganjam District should be conserved. The proposal will receive attention.

9. The socio-economic activities of the Department are concentrated on the West Coast, where it is endeavouring to introduce elementary education for the children of the fisherfolk, organize and spread the co-operative movement for inculcation of thrift and business habits among the fishermen and to promote temperance and other work of social amelioration for the social and economic advancement of the community. Education is spreading satisfactorily, but the co-operative movement is making little headway. No doubt the number of societies shows an increase of four with a corresponding increase in the number of members in the societies, but there has been a fall in the number and amount of loans disbursed and also in the number of shares held by the members. The spread of the movement is no doubt be set with considerable difficulties, but with the spread of education and intensive propaganda it should be possible to make the movement a success. The Government share with the Director the hope that with the contemplated re-adjustment of the staff of the Fisheries Department on the West Coast it may be possible to bring to the movement that close supervision, control and guidance which will make it more useful, popular and efficient.

(By order of the Government, Ministry of Development.)

V. PANDRANG ROW,
Secretary to Government.

To the Director of Fisheries.

„ the Local Self-Government Department.

„ all Collectors.

„ the Board of Revenue.

„ the Collector of Salt Revenue.

„ the Law (Education) Department.

„ the Registrar of Co-operative Societies.

„ the Finance Department.

„ the Public Department.

„ the Public Works and Labour Department.

„ the Accountant-General.

„ the Director-General of Commercial Intelligence (with C.L.).

„ the Government of India, Commerce Department (with C.L.).

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