VII

MODUS VIVENDI

One of the matters referred to us for inquiry is whether or not the so-called modus vivendi privileges for many years accorded to United States fishing vessels in Canadian ports, but discontinued since 1924, should be restored wholly or in part. In order that this long discussed question may be clearly understood, it is perhaps desirable to state somewhat fully the facts concerning its origin and later history. Always associated with this subject, it will be found, was the question of reciprocal port privileges, and reciprocal tariff arrangements on fish products, between the United States and Canada.

The question as to what rights should be granted or accorded to United States fishermen and fishing vessels in the territorial waters of the British Dominions in North America, first arose during the peace negotiations following the American Revolutionary War. The third article of the Treaty of Peace, 1783, dealt with this, and the fishing rights therein granted to United States fishermen and fishing vessels within the territory and territorial waters of what is now Canada and Newfoundland, provoked differences of opinion between the United States and British North America. It was later claimed by Great Britain that the stipulations of the Treaty on this point, which need not be textually quoted, were terminated by the war of 1812; but differences of opinion upon the subject were eventually composed by an agreement between Great Britain and the United States to negotiate terms of settlement upon this and other pending disagreements. This agreement resulted in the Treaty of 1818. Article 1 of this Treaty is as follows:—

> Whereas differences have arisen respecting the liberty claimed by the United States for the inhabitants thereof, to take, dry and cure Fish on Certain Coasts, Bays, Harbours and Creeks of His Britannic Majesty's Dominions in America, it is agreed between the High Contracting Parties, that the inhabitants of the said United States shall have forever in common with the Subjects of His Britannic Majesty, the liberty to take Fish of every kind on that part of the Southern Coast of Newfoundland which extends from Cape Ray to the Rameau Islands, on the Western and Northern Coast of Newfoundland, from the said Cape Ray to the Quorpon Islands, on the shores of the Magdalen Islands, and also on the Coasts, Bays, Harbours and Creeks from Mount Joly on the Southern Coast of Labrador, to and through the Straits of Belle Isle and thence Northwardly indefinitely along the Coast, without prejudice, however, to any of the exclusive Rights of the Hudson Bay Company; and that the American Fishermen shall also have liberty forever, to dry and cure Fish in any of the unsettled Bays, Harbours and Creeks of the Southern part of the Coast of Newfoundland hereabove described, and of the Coast of Labrador; but so soon as the same, or any Portion thereof, shall be settled, it shall not be lawful for the said Fishermen to dry or cure Fish at such Portion so settled, without previous agreement for such purpose with the inhabitants, Proprietors, or Possessors of the grounds.—And the United States hereby renounce forever, any Liberty heretofore enjoyed or claimed by the inhabitants thereof, to take, dry or cure fish on, or within three marine Miles of any of the Coasts, Bays, Creeks or Harbours of His Britannic Majesty's Dominions in America not included within the above-mentioned limits; provided, however, that the American Fishermen shall be admitted to enter such Bays or Harbours for the purpose of Shelter and of repairing Damages therein, of purchasing Wood, and obtaining Water, and for no other purpose whatever. But they shall be under such Restrictions as may be necessary to prevent their taking, drying or curing fish therein, or in any other manner whatever abusing the Privileges hereby reserved to them.

This provision did not, however, entirely eliminate the disagreements between the two countries, as each placed a different interpretation upon some of its important features.

With the hope of settling the fisheries question and other matters in dispute, an agreement to negotiate another treaty was entered into, and from it followed the Reciprocity Treaty of 1854, under which fish and fish products of each country were admitted free of duty into the other, and reciprocal fishing privileges

were authorized in certain territorial waters of each country. This treaty was terminated in 1866. Following its termination, and in anticipation of reaching a new agreement, Canada continued for a time to grant the privileges of the treaty to United States fishermen, by issuing licenses to their fishing vessels on payment of a fee of fifty cents per registered ton. This fee was raised to one dollar per ton in 1867, and the following year to two dollars per ton, but as the number of vessels taking such licenses fell from 365 in 1866, to 35 in 1869, the licenses were then withdrawn, and in 1870 the provisions of the Treaty of 1818 again became effective. A certain fisheries protective service had in the meantime been created and seizures of United States fishing vessels ensued with consequent irritations; however, the two countries again reached an agreement, and in 1871 negotiated the Treaty of Washington, which became effective in 1873. This Treaty practically renewed the fisheries provisions of the Reciprocity Treaty of 1854, and continued in force until 1885 when it was terminated; during its currency Article 1 of the Treaty of 1818 was suspended, but on its termination the provisions of this Article were reverted to.

In the enforcement of Article 1, differences again arose as to its proper interpretation; and with a view to removing the source of any misunderstanding between Great Britain and the United States, in 1888 the second Treaty of Washington was negotiated between the two countries, a Canadian Minister of the Crown, being one of the plenipotentiaries who negotiated the Treaty. This treaty failed of ratification by the Senate of the United States and therefore never became effective between the two countries. By the terms of this draft Treaty certain privileges were reserved and secured to United States fishing vessels in the territorial waters and ports of Canada and Newfoundland, and the same privileges were reserved and secured to Canadian and Newfoundland fishing vessels on the Atlantic coast of the United States. Article XV of that Treaty is as follows:—

Whenever the United States shall remove the duty from fish-oil, whale-oil, seal-oil, and fish of all kinds (except fish preserved in oil), being the produce of fisheries carried on by the fishermen of Canada and of Newfoundland, including Labrador, as well as from the usual and necessary casks, barrels, kegs, cans and other usual and necessary coverings containing the products above mentioned, the like products, being the produce of fisheries carried on by the fishermen of the United States, as well as the usual and necessary coverings of the same, as above described, shall be admitted free of duty into the Dominion of Canada and Newfoundland.

And upon such removal of duties, and while the aforesaid articles are allowed to be brought into the United States by British subjects, without duty being reimposed thereon, the privilege of entering the ports, bays and harbours of the aforesaid coasts of Canada and of Newfoundland shall be accorded to United States fishing vessels by annual licenses, free of charge, for the following purposes, namely:

1. The purchase of provisions, bait, ice, seines, lines and all other supplies and outfits;

2. Transhipment of catch, for transport by any means of conveyance;

3. Shipping of crews.

The like privileges shall be continued or given to fishing vessels of Canada and of Newfoundland on the Atlantic coasts of the United States.

The Treaty of Washington was negotiated in February, 1888. The British plenipotentiaries realized that complications might ensue, if,—pending its ratification by the Senate of the United States, by the Parliament of Canada and the Legislature of Newfoundland,—the provisions of the Treaty of 1818 were enforced during the approaching fishing season. They offered to make a temporary arrangement to bridge over this period, and a protocol to the Treaty was signed by the British plenipotentiaries. The protocol is in part as follows:—

Under these circumstances, and with the further object of affording evidence of their anxious desire to promote good feeling and to remove all possible subjects of controversy, the British Plenipotentiaries are ready to make the following temporary arrangement for a period not exceeding two years, in order to afford a modus vivendi pending the ratification of the treaty.

1. For a period not exceeding two years from the present date, the privilege of entering the bays and harbours of the Atlantic coasts of Canada and of Newfoundland shall be granted to United States fishing vessels by annual licenses at a fee of $1.50 per ton—for the following purposes:—

The purchase of bait, ice, seines, lines and all other supplies and outfits;

Transhipment of catch and shipping of crews.

2. If during the continuance of this arrangement the United States should remove the duties on fish, fish-oil, whale and seal-oil (and their coverings, packages, etc.) the said licenses shall be issued free of charge.

3. United States fishing vessels entering the bays and harbours of the Atlantic coasts of Canada or of Newfoundland for any of the four purposes mentioned in Article 1 of the Convention of October 20, 1818, and not remaining therein more than twenty-four hours, shall not be required to enter or clear at the Custom house, providing that they do not communicate with the shore.

4. Forfeiture to be exacted only for the offences of fishing or preparing to fish in territorial waters.

5. This arrangement to take effect as soon as the necessary measures can be completed by the colonial authorities.

It was from this Treaty that the so-called modus vivendi question arose. The Treaty itself failed of ratification by the United States Senate.

In the expectation that some arrangement would be reached, such as the unratified Treaty proposed, the Canadian Parliament by statute continued the modus vivendi license during 1890, and again by statute during 1891. In 1892 authority was conferred by statute upon the Governor in Council to renew these licenses from year to year, with the result that licenses were granted to United States fishing vessels until 1918. In that year there was entered into by the United States and Canada another reciprocal arrangement which will be later explained. This arrangement made it unnecessary to issue the customary modus vivendi licenses.

Meanwhile, a similar question was arising on the Pacific coast in connection with the halibut fisheries then developing there. In the early days of that fishery, and even down to 1918, the controversy in British Columbia was largely between United States halibut fishing interests operating out of Canadian ports, and those operating out of the United States ports. In 1897, leave was granted by the Government of Canada to halibut fishing vessels of the United States for a period of six months to land their catches in British Columbia ports for transshipment. This privilege was continued from year to year thereafter with slight modifications, until it was succeeded in 1918 by the arrangement mentioned in the last paragraph. In the meantime, under the Underwood Tariff, so called, the duties on fresh and frozen fish going to the United States from Canada were removed.

In 1914, in a memorandum addressed to the Government of Great Britain, the Government of the United States inquired if it would concede to United States fishing vessels the privilege of entering any of the Atlantic ports of Canada and Newfoundland in sailing vessels with or without auxiliary motor power, to purchase fuel, bait, ice, food, equipment, etc., to repair fishing gear, to tranship their catch, and to ship crews. The memorandum pointed out that previous treaties between the two countries authorized these privileges when the markets of the United States were open to Canadian fish products, that under the then existing customs tariff of the United States, free entry of fresh and frozen fish from these countries was permitted, and that the privileges requested might therefore be accorded.

At that time Canadian fishing vessels were not allowed to enter United States ports direct from the fishing grounds, but were obliged to return to a Canadian port to tranship their fish by a merchant ship or by rail; they were not permitted to clear from a United States port direct to the fishing grounds, but were required to clear for a foreign port. Hence, it was considered that this

interpretation of the navigation laws of the United States largely nullified the value of the new tariff rates to Canadian fishing vessels on the Atlantic coast. In view of the privileges then granted to United States fishing vessels under the modus vivendi licenses, the Canadian Government inquired if these navigation restrictions might not be removed. The United States Government, however, took the position that under its laws no such arrangement was authorized; and that the effect of such an arrangement would put Canadian vessels on a parity with their own in United States ports, while United States fishing vessels would still be required to request and procure a license to enter Canadian ports. In May 1917, the Government of Canada replied, proposing a settlement of the difficulties on both coasts, on the following basis:—

(*a*) That the Modus Vivendi privileges be extended to all the United States fishing vessels and applied to both coasts, and the fee reduced to the nominal sum of one dollar and their renewal not to be made conditional on an Order in Council, but be a part of the proposed arrangement.

(*b*) That United States fishing vessels on both coasts be allowed to sell their catches in Canadian ports for Canadian markets on payment of the duty or to sell in bond.

(*c*) That Canadian vessels be allowed to purchase bait in United States ports or waters on equal terms with United States fishing vessels.

(*d*) That Canadian fishing vessels be allowed to take their catches to United States ports and sell them there subject to duty, if any.

(*e*) That fishing vessels of either country be given clearances to the fisheries from ports in the other.

(*f*) That the United States Government prevent their lobster well smacks from fishing outside our territorial waters during the close season there.

The United States, upon consideration of these proposals, suggested the appointment of an International Commission. A Commission was ultimately set up, and its work was completed in September 1918. Following the early sittings of that Commission and upon the recommendations of the representatives of each country to their respective Governments, authority was given in each country under the special war legislation then effective in both countries, for the granting of full port privileges in either country to the vessels of the other, the sale of their catches, the purchase of bait and all other supplies, and the right of clearance for the high seas. The understanding was, we are informed, that these arrangements would stand until action could be taken on the report and recommendations of the Commission. This is the arrangement of 1918 referred to in preceding paragraphs. The Commission in due course submitted a unanimous report to the two Governments, in part as follows:—

In the light of these facts your commissioners feel constrained to recommend that the Canadian duty on fresh and fresh frozen fish not including shellfish be removed and with a view to assuring stability in the industry that the two countries enter into an agreement by which such fish will be admitted customs duty free from either country into the other, and that such arrangement remain in force for fifteen years, and thereafter until two years after the date, when either party thereto shall give notice to the other of its wish to terminate the same.

They, therefore, recommend that Article 1 of the Treaty of the 20th October, 1818, be amended so as to make available in either country to the fishing vessels of the other, the privileges covered by the instructions of the United States Secretary of Commerce to collectors of customs of that country, dated February 21, 1918, and by the Canadian Order in Council dated March 8, 1918, in substance as follows:—

1. That the fishing vessels of either country may enter, from the high seas, any port of the other, and clear from such port back to the high seas and the fishing grounds.

2. That the fishing vessels of either country may dispose of their catches and purchase bait, ice, nets, lines, coal, oil, provisions, and all other supplies and outfits in the ports of either country.

3. That the repairing of fishing implements in the ports of either country be allowed to the vessels of the other country.

4. That the fishing vessels of either country may dress, salt, and otherwise prepare their catches on board such vessels within the territorial waters of the other country.

5. That the fishing vessels of either country may ship their crews and tranship their catches in the ports of the other country.

6. That the fishermen of either country may sell their catches in the ports of the other country, subject to local tariff, if any.

With the exception of the removal of the Canadian duty on fresh and frozen fish, the recommendations of the Commission were approved by the Canadian Government by Order in Council on March 11th, 1919. This exception was apparently taken on the ground that the matter of customs duties between the two countries was not included in the matters referred to the Commission, but the Canadian Government suggested that this question should be the subject of independent negotiations. Soon afterwards, however, the Canadian Government approved of the entire recommendations of the International Commission, and authorized the commencement of negotiations for a treaty in conformity therewith. The preparation of a treaty was begun in September 1919 at Washington, and a draft treaty was completed in the following October. The treaty was not then signed because, it is understood, the illness of the President of the United States made it impossible to authorize the appointment of a representative of that country to execute the treaty.

In June 1921, the United States Government advised the Canadian Government through the usual channels that the authority under which the privileges granted in 1918 to Canadian fishing vessels in United States ports had ceased with the lapse of its war legislation, and that such privileges would be discontinued on July 15, 1921. Canada, however, continued until 1923 to accord to United States fishing vessels the privileges granted under the arrangement of 1918, notwithstanding that its war legislation under which this arrangement was made had in the meantime been repealed.

Negotiations were however continued between Canada and the United States. In 1922 the former suggested that an arrangement be made for the protection of the halibut fisheries of the Fraser River and generally on the Pacific Coast, and that negotiations for an international agreement on this particular question, and all other outstanding fishery questions, be taken up anew.

Meanwhile it would appear that there was a development of opinion on the Canadian Atlantic coast against the continuance of the modus vivendi privileges to United States vessels, unless similar privileges were granted by the United States to Canadian fishing vessels, together with a more favourable tariff on Canadian fish products. In November, 1923, it was determined by an Order of the Governor General in Council that such modus vivendi licenses would not be continued after the end of that year, and the United States Government was so notified. Since 1924, accordingly, the modus vivendi privileges have not been granted to United States fishing vessels.

Meanwhile, on the Pacific coast, privileges similar to the modus vivendi continued to be granted to United States halibut fishing vessels. The United States tariff legislation of 1922 placed a duty of two cents per pound on halibut entering the United States, which concededly was the largest market for Canadian halibut. Canadian halibut fishing vessels were thus put at a disadvantage in competing with United States halibut fishing vessels, although the latter continued to enjoy the advantage of using Canadian ports on the Pacific coast. In these circumstances Canada suggested a conference between representatives of the two Governments to consider questions relating to the fisheries of the Pacific and the Atlantic coasts.

The United States Government agreed to this suggestion, but later put forward the proposal that inasmuch as the United States Tariff Commission was conducting an investigation into the question as to whether there should be any variation of the duty upon imported halibut, the suggested conference would be more effective if held after the report of that Commission was completed. A report was made by the Tariff Commission, we are informed, in July, 1925. A conference was held at Washington in February, 1926, when this matter was again discussed between representatives of the two countries. No definite

conclusions were reached, but it was understood, we are informed, that the Canadian Government would later be communicated with thereon. The negotiations have not therefore been discontinued.

Many opinions were expressed to us in support of a return to the practice of renewing the modus vivendi privileges to United States vessels. This view was very generally expressed by shore fishermen upon the ground that it would enable them at times to sell bait to United States fishing vessels, the substantial value of which to fishermen was, however, doubted by many. Others concurred in this view but with limitations. Some urged that United States fishing vessels be not allowed to land and tranship fish; others, that they be not permitted to ship crews; others, that only bait might be purchased; while many others contended that the privileges should be granted only on the condition that the United States extend to Canadian fishing vessels similar privileges in its ports, and more favourable tariff concessions for Canadian fish entering United States markets. Some expressed the opinion that for the present the matter should be left as it is, and that sometime in the future it should become, along with other fishery matters, the subject of negotiations with the United States. In the important fishing ports of Lunenburg and Lockeport, opinion seemed against a return to the modus vivendi without reciprocal concessions of some nature.

In plain terms, the opponents of the restoration of the modus vivendi say that Canada should not aid United States fishing vessels in their production of fish, which is in competition with Canadian fish, by granting certain privileges under modus vivendi licenses, unless the United States is willing to grant the same privileges to Canadian fishermen, or a more favourable tariff on fish products. Many informally presented the view that this question should be settled in respect of the Atlantic and Pacific coasts in the same manner and at the same time; that a uniform national policy is desirable upon this point; and that on this basis alone the matter should be made the subject of negotiations with the United States.

From what has been said, it is apparent that the modus vivendi had its origin in the proposed Treaty of Washington in 1888; that it was then regarded as a temporary measure pending the ratification of the Treaty by the countries who were parties to it; that it was not a matter of fixed policy if the Treaty never became effective; and that the modus vivendi privileges have usually constituted a provision of every treaty or arrangement negotiated with the United States by or on behalf of Canada in respect to fishery matters, such provision being always reciprocal. In the draft of the treaty negotiated in October, 1919, but not yet signed, provision was made for reciprocal arrangements in the following matters, separate and apart from any reference to the question of tariff:—

(*a*) Purchasing bait, ice, nets, lines, coal, oil, provisions, and all other supplies and outfits used by fishing vessels whether the same are of a like character to those named herein or not;

(*b*) Repairing fishing implements;

(*c*) Shipping crews;

(*d*) Transhipping their catches, and where transhipped for destination within the Dominion of Canada, shipping same in bond.

(*e*) Landing and/or selling their catches in the United States, subject to the payment of customs duties thereon, if any;

(*f*) Entering and clearing for the high seas and the high seas fisheries, without payment of any tonnage dues or duties and/or other charges specifically imposed on vessels entering from and clearing for foreign ports, and

(*g*) Dressing, salting and otherwise preparing their catches on board ship in port and in the territorial waters of the United States; and on land, if previous agreement for such purpose is made with the proprietors or possessors of the ground or other property used, subject to local laws and/or regulations.

While this treaty has not been signed, we understand that negotiations to that end have not yet been abandoned.

We perhaps should observe again, to make it clear, that Canadian fishing vessels, as such, are not entitled to any privileges in the ports of the United States. They cannot enter United States ports directly from the fishing grounds and land catches of fish even on payment of duties. They must return to a Canadian port and there transfer their fish to a trading or commercial ship, or to the railway, for shipment to the United States. A Canadian fishing vessel is not granted a clearance from a United States port direct to the fishing grounds, nor can it there ship crews or purchase supplies of any kind.

Upon a review of the opinions expressed to us, and upon a consideration of the reasons given, we do not see grounds for recommending any modifications of the present policy. Further, negotiations between the two countries upon the subject are still pending, and we see no reason for intervening with any suggestion in anticipation of their results.

VIII

THE HALIFAX AWARD

By Article XVIII of the Treaty of Washington, 1871, inhabitants of the United States were permitted for the term of years mentioned in Article XXXIII of the Treaty, to take fish of every kind, except shellfish, on the sea coast and shores and in the bays, harbours and creeks of the Provinces of Quebec, Nova Scotia, New Brunswick and Prince Edward Island, without being restricted to any distance from the shore. They were also permitted to land upon the said coasts and shores, and also upon the Magdalen Islands, for the purposes of drying their nets and curing their fish. This privilege applied solely to the sea fisheries; salmon and shad fisheries and all other fisheries in rivers and in the mouths of rivers were reserved exclusively for British fishermen. Under Articles XXII and XXIII of the Treaty, Commissioners were appointed to determine the amount of any compensation which in their opinion ought to be paid by the Government of the United States to the Government of Great Britain, in return for the privileges accorded to the citizens of the United States, under Article XVIII of the Treaty. On November 23rd, 1877, the Commission awarded the sum of Five Million Five Hundred Thousand Dollars to be paid by the Government of the United States to the Government of Great Britain. This amount was not paid until the month of January, 1879. Later the British Government paid One Million Dollars of the award to the Government of Newfoundland, and Four Million Five Hundred Thousand Dollars to the Government of Canada. The amount paid to Canada went to the Treasury as Consolidated Revenue. We are informed by officers of the Department that expenditures incurred by the Government of Canada in connection with the work of the Commission, amounted to about Five Hundred Thousand Dollars, and that the amount of Four Million Dollars has always been recognized as the net amount received by Canada.

Subsequent to the payment to the Government of Canada of its proportion of the award, the claim was made on behalf of the fishermen of the Atlantic Coast that this sum should not be regarded as a part of Consolidated Revenue, but that the entire award or at least the annual interest on it, should be specifically devoted to the developing of the Atlantic Coast fisheries, and to the improving of the condition of the fishermen. In 1882, the Parliament of Canada made provision for an annual grant of One Hundred and Fifty Thousand Dollars to aid in the development of the deep sea fisheries of Canada and in

the encouragement of the building and fitting out of improved fishing vessels. Later, this legislation was amended so as to provide an annual grant of One Hundred and Sixty Thousand Dollars, and from this grant the annual fishing bounties have since been paid to certain vessels, boats and fishermen. The suggestion was made that the interest for three years upon the principal of the Canadian portion of the award, that is, for the years from 1879 to 1881 inclusive, had never been appropriated for any of the purposes mentioned in the Deep Sea Fisheries Act, or for any similar purposes, and that the interest for this period, together with interest thereon, should now be appropriated by Parliament and devoted to special uses in the interest of the Atlantic coast fisheries and fishermen.

It is regrettable that the legislation empowering the Governor-in-Council to authorize an annual grant of $160,000 does not in specific terms state that this appropriation is for the benefit of the sea fisheries of Canada on the Atlantic coast. Since 1882 the grant has been distributed in the form of bounties to fishermen and to certain boat and vessel owners in Quebec and the Maritime Provinces. From the House of Commons Debates of 1882, when the resolution, upon which was founded the legislation of 1882, was passed, it is plain that this annual grant was regarded as the interest upon the amount of the Halifax award. We should not think it too late to amend the Deep Sea Fisheries Act so as to make it clear that the grant is applicable only to the Atlantic coast fisheries, and we think that such amendment might avoid controversy in the future.

Conceding that the annual grant paid since 1882 was intended to represent the interest upon the Halifax Award, it would seem that the interest for the three years 1879, 1880, and 1881 might with fairness be appropriated for disbursement in the interest of the fisheries and fishermen of the Atlantic coast. Apparently, at the time of the award it was contended by the Maritime Provinces and Quebec that the principal sum or the annual interest thereon, should be applied to the development of their coast fisheries. Considering the grounds upon which the award was paid, the request that the three years unpaid interest be appropriated by Parliament to be applied to useful purposes in connection with the Atlantic fisheries or fishermen appears to us to be fair and equitable, and we recommend that this amount be so appropriated and applied. We recommend, however, that it be not applied to any of the purposes mentioned in the Deep Sea Fisheries Act, that is for bounties to boats, vessels and fishermen, but that it be specially devoted to such productive uses as assistance in the construction of brine freezing plants, fish meal plants, driers, bait and cold storage plants for organized groups of fishermen, or others engaged in any phase of the industry, upon proper terms and conditions, and to such other substantial purposes as may appear desirable; the amount apportioned to Quebec and the Maritime Provinces should be in the proportions in which the Fishing Bounties were distributed in 1928.

As stated, representations were made to us that interest upon the unpaid three years' interest so-called, should enter into the calculation, and amounts varying from three million dollars to fifteen million dollars were suggested to us as the sum we should recommend for appropriation by Parliament. So far as we know it is only in recent years that any such claim has been made. We do not think that there is any substance or foundation for this claim for accumulations of interest upon the three years' unpaid interest.

IX

OBSTRUCTION TO STREAMS

In many places protests were expressed against obstructions in rivers and inland streams frequented by fish, obstructions which, it was said, often prevented the movement of fish. We were also informed that certain streams were polluted, with resultant destruction of fish life. The chief agencies of obstruction and pollution of streams are dams, sawmills, pulp mills, abandoned mill sites, sawdust piles, manufacturing plants, and refuse. Such conditions, however caused, are inimical to the inland fisheries; they should be removed, and their recurrence should be strictly prohibited. There should be a vigorous enforcement of existing regulations, and if necessary other and more stringent laws should be enacted. In certain instances this may result in some hardship to an industry or other interests, but public interests must always be considered before private interests.

In order that these offences and violations of the regulations may actively come under proper investigation and control, we recommend that the Department request all inspectors and overseers to submit a census of all known obstructions and pollutions in their respective districts, which are in any way detrimental to fish life or to the movements of fish; that a vigorous and impartial enforcement of the law be carried out; and that additional laws or regulations be enacted if deemed necessary.

X

RAPID FREEZING OR BRINE FREEZING

Frozen fish have commonly been found to be in poor condition apart from any spoilage due to decomposition before freezing took place. In extreme cases a tough, spongy, tasteless mass is what remains after thawing. Investigation has shown that this condition results from slow freezing and long storage under unfavourable conditions. If frozen fish are to have the qualities of fresh fish, which are so necessary for the appreciation of the consumer, it is now generally admitted that rapid freezing is essential.

The Biological Board, under the direction of the Department, has studied this matter over a period of years, first at the Atlantic Biological Station, St. Andrews, N.B., and more recently at the Atlantic Experimental Station, Halifax, N.S. The conclusion has been reached that fish like those of the cod family, that appear to be the most susceptible to injury by slow freezing, will, if frozen in less than an hour, be to all intents and purposes indistinguishable from unfrozen fish, even after storage for six months under ordinary cold storage conditions. The Board has been using this result as the basis for the development of economical methods of rapid freezing and has worked out engineering data in this connection.

The practical methods of applying rapid freezing to fish are based upon the following considerations: The majority of fish are comparatively thin, being about two inches in thickness or less, except at the thickest part; also the modern trend of business is to have food rid of waste parts and in a form ready for immediate use. With ordinary salt brine at zero Fahrenheit it is possible to freeze a piece of fish an inch or somewhat more in thickness in fifteen minutes, whereas even with forty degrees below zero, which requires a special brine, a piece two inches thick will need an hour for equally complete freezing; ordinary refrigerating machinery is not efficient for such very low temperatures, which

cannot be obtained with salt and ice. Consequently, it is much more economical to secure rapid freezing by reducing the thickness of the material than by resorting to exceptionally low temperatures. In freezing the fish, if both sides are in contact with the brine either directly or through good conductors of heat, freezing is four times as rapid as if only one side has such contact. Rapid freezing, to be economical, should therefore be effected by using brine at about zero Fahrenheit and by bringing it more or less directly into contact with both flat surfaces of the fish.

The simplest freezer fulfilling these conditions is a tank of brine maintained at zero by the use of salt and ice. Two types of such a freezer have been developed and in both it has been found possible to lower the temperature to more than 2 degrees below zero before freezing is commenced. They are general purpose freezers for freezing a variety of products. The sizes depend upon (1) how large are the fish to be frozen, (2) the thickness of the fish, and (3) the quantity to be handled per day. The fish can be frozen in wire baskets, in cans, or on plates. It may come into direct contact with the brine or may be protected from it by waxed paper or other material. The plate method is a new development of particular value. The plates consist of sheets of galvanized iron with a rod along one side for support in the tank. If fish are placed upon wet plates and lowered somewhat slowly into the cold brine in a more or less horizontal position, they freeze fast to the plates. In this condition they are held flat, and down in the brine; they are in such a position as to permit of making the most of the available space in the tank without interfering with the circulation of the brine.

A tank has been designed for freezing one-half a ton of fish per hour with ammonia refrigeration. Two endless conveyor chains, one on either side at the top of the tank, carry the plates or receptacles for the fish in a steady stream through the tank. The timing of this conveyor is such that the fish are thoroughly frozen by the time they have passed through the tank. When they reach the far end, an ejector automatically removes them from the tank to a position ready for packing. In this tank also, fish can be frozen in a variety of ways, using baskets, cans, or plates, and with or without protection from the brine.

There is an increasing demand on the part of the consumer for food as fully prepared as possible for cooking or eating. Fillets consisting of the flesh of the fish alone are having an increasing sale. They may readily be frozen by the plate method described above, either with or without a covering for the exposed surface. An advance on the ordinary fillets is to pack them in standard lengths into cartons. A new process has been developed by the Biological Board, which consists of cutting up the fillets and forming them into half pound blocks, five inches long, three inches wide, and nearly an inch thick. These are wrapped in waxed parchment paper, frozen rapidly, and then packed, two in each pound carton. A special freezer has been designed for this product and for any other of uniform thickness. The blocks of fish, wrapped in paper, are placed in forms, which are carried by endless belts between pairs of flattened tubes through which brine circulates. The brine may be kept cold by using salt and ice or artificial refrigeration.

The cost of brine freezing, or rapid freezing, should not be prohibitive in many fishing communities, particularly if some assistance were given. Devices for its use may be established at a relatively low expenditure. It is estimated that a small plant, capable of freezing from five to ten tons of fish a day, would require an investment of not more than $1,500. A small auxiliary cold storage building, using salt and ice, and capable of storing 50,000 pounds of brine frozen fish would require but a small outlay. These plants would take care of the production of 12 to 15 boats,—operated by 24 to 30 men. Brine frozen fish under ordinary conditions can be transported for a day without becoming

defrosted, and thus a central cold storage building of sufficient capacity could take the products of several brine freezing plants, distant not more than a day's transit, or take care of the surplus products from the smaller cold storage auxiliary plants.

From these storage places, or direct from the freezers, the brine frozen fish can be shipped out to supply market demands in far distant places. The finished product in fillets of clear meat, without skin or bones, wrapped in white, vegetable parchment paper and enclosed in sanitary packages, bears little resemblance to the whole fish bought in the old way. It is of superior quality, with the delicate flavour of fresh fish, with no fishy odour, and with no disagreeable cleaning to be done. As a result of the process, the housewife will be enabled to buy fresh fillets so rapidly frozen at very low temperature that the fresh cells do not break, the juicy textures and flavour are retained, no bacteria can breed, and all the qualities of the fresh ocean fish are present. And the fish is all ready to cook and requires no preparation. Dressed whole fish is prepared in the same way. With judicious advertising and demonstrations, we believe that this new form of package fish will soon win the favour of the Canadian consumer, and will bring about a great and advantageous change in the fresh fish industry, with benefit alike to consumer and producer.

XI

INSPECTION

(*a*) General.

Inspection of fish is authorized by the Fish Inspection Act, 1914, which applies to pickled herring, alewives, mackerel and salmon, and to the containers in which such fish are packed and marketed. By Order of the Governor in Council, the Act may be applied to other kinds of fish. All fish must be graded, packed and marked in accordance with the regulations authorized by the Act. Canned fish and canneries come under the operation of the Meat and Canned Foods Act. For pickled fish, such as herring, alewives and mackerel, the regulations prescribe the quality and size of the fish, and also how the curing, salting and packing shall be carried out. Barrels or other containers of pickled fish must be made in accordance with standards defined in the regulations, which also govern the weight contained in such barrels or containers. On the end of every container filled with pickled fish for sale, there must be stencilled the name and address of the original packer, or of the fish dealer who may have reconditioned them, and the grade and minimum weight of the contents. Non-compliance with these regulations is punishable by a fine, and in addition, the barrel and fish are degraded and are so marked. For smoked herring, the regulations prescribe the required condition of the fish, the size of the boxes to be used, and the weight of fish packed therein. They further require that the name and address of the packer be stencilled on each box, together with the minimum weight. Failure to comply with these regulations is subject to a penalty.

Standards of size and quality of dried and salted fish have recently been established as mentioned in another paragraph, and are now in force. The grading and curing in accordance with these standards is not obligatory, but if a buyer and seller agree to conform to such standards, they have the privilege of requesting an official inspector to determine whether or not the fish are in accordance with such standards.

The regulations prescribing inspection for pickled fish do not make it obligatory for inspecting officers to inspect and set an official mark on every barrel of fish before the packer disposes of it. They merely require that standards

be observed in grading, curing, salting and packing, but the fish may or may not be inspected. Stated briefly, the Fish Inspection Act provides that the maker or user of fish containers, and the packer of pickled fish, make or use standard containers, and cure pickled fish in accordance with the regulations; that an Inspector may at any time or place examine such containers, or fish, to satisfy himself that they comply with the regulations, and where they fail to do so, he is empowered to apply the penalty clauses of the Act, to degrade the fish, or to declare them unfit for consumption.

Our conclusion, based upon the statements made to us, is that the inspectors of pickled fish should be increased in number and that the regulations should be more strictly enforced. The Fishery Overseers are at present inspectors of canneries and canned fish under the Meat and Canned Foods Act. There does not appear to us to be any insurmountable difficulty in training such Overseers at the Atlantic Experimental Station, so that in addition to their other duties they may be qualified to inspect the various kinds of fish subject to inspection. In some districts at least, where fishing is not continuously carried on, we think this work might well be done by Overseers in addition to their usual duties, but this suggestion is not intended to be applicable to the larger producing or exporting centres. We would suggest that the experiment of adding fish inspection to the duties of Overseers might be made first in Prince Edward Island, where there are at present no fish inspection officers. The Fishery Overseers of that Province are capable men, who might be readily trained to perform such duties efficiently.

Throughout our inquiry, nearly all persons who appeared before us favoured the inspection of all fish, if practical or possible, and they expressed their willingness to submit to any method of inspection established. The ultimate success of inspection might be accelerated by educational work which would point out the advantages of a general system of inspection applicable to most fish, with the result that compulsory inspection would ultimately be acceptable to all those engaged in the industry. The fish merchant, too, may do much to hasten the final adoption of general inspection. The prices paid by him, should vary according as the quality of the product meets the requirements of the prescribed standards or grades.

Thorough inspection of fish can be done only by well trained men. If inspection is to operate economically it must be provided only at a few large centres. To ensure observance of standards for the market, it is essential that specially trained inspectors be stationed at the principal shipping and distributing points, such as Halifax, Yarmouth, Charlottetown, Saint John, Montreal and Toronto. There should also be an extension of inspection to canned, frozen and smoked fish. In this connection proper grades of fish and methods for inspection should be worked out by the Atlantic Experimental Station as speedily as possible in co-operation with the fishing industry, through the Advisory Committee which is representative of the trade. When these grades and methods have been sufficiently perfected, the Department should arrange to introduce inspection, and to appoint inspectors who have been well trained and who have passed a satisfactory examination at the Atlantic Experimental Station.

(*b*) Fish Plants and Retail Shops.

During our itinerary we visited a number of fish plants—that is places where fresh fish are landed and prepared for market in various forms. Representations were made to us regarding the alleged unsanitary condition of some of these establishments. We realize the difficulty of constantly maintaining fish plants in a thoroughly clean condition. But it must be remembered that the keeping of plants or premises in a reasonably hygenic state is a duty owed to the consumer and is essential if the consumption of fish is to be increased. It is obvious that fish plants, like all other food producing places, should be as clean

and attractive as possible. The more frequent use of pump and hose would not increase the overhead expenses to any noticeable extent, but it would result in cleanliness and in more hygienic surroundings. Concrete floors graded for drainage appropriate to each plant, should be another required condition. The importance to the fishing industry of having proper sanitary conditions wherever fish are being handled or held, from the fishing vessels to the retail shops, cannot be over-estimated. We recommend that the Department draw up reasonable directions as to the conditions under which fish should be handled at all stages, that such directions should be communicated to all engaged in the industry, and to all municipal authorities concerned. Such instructions are not suggested as constituting formal regulations, but are intended rather for the information of the industry, the field officers of the Department, and the municipal authorities, with a view to advancing steadily towards the desired end. We believe that all fish plants should be subject to rigorous inspection by fishery officers, and we recommend that provision be made for the requisite enactments for such inspection.

The condition of some of the retail fish stores, particularly in the smaller cities and towns, is far from satisfactory. We think we are not unfair in stating that in many instances they are ill-kept and not equipped in such a way as to encourage the consumption of fish. Municipal regulations on sanitary conditions are often enacted and enforced with respect to premises for the vending of all kinds of foods, but seldom or never with respect to retail fish stored. Many retailers seem to hold the view that fish may be handled without regard to cleanliness. This is particularly true of certain retail shops where fish are sold only on one or two days each week, and where the fish left unsold on these days is carried over without proper means for caring for it. The street hawker of fish should be subject to strict regulations, particularly as to the manner in which he conveys the fish; for too frequently it is carried uncovered in unsanitary vehicles in which it is exposed to sun or dust. The supervision of retail fish shops is, of course, beyond the jurisdiction of the Federal authorities, and is wholly a matter for municipalities. Nevertheless, we wish to record our emphatic view that, in the interest of retailer and consumer alike, all retail fish shops should be subject to municipal regulation. And we would call the attention of all municipal authorities to the necessity for prompt action in enacting and enforcing such regulations.

XII

FOREIGN MARKETS FOR FRESH FISH

The great importance of new markets for fresh fish of Canadian production is conceded. There would seem now to be an opportunity to develop a market in Great Britain and in Europe for certain varieties of fresh fish from the Maritime Provinces. Distributors of fresh fish in the Maritime Provinces who have considered the possibility of reaching these markets are of that opinion, and some of them have already made experimental shipments.

This possibility was the subject of an address by Mr. J. J. Cowie of the Department of Marine and Fisheries at the annual meeting of the Canadian Fisheries Association at Halifax, N.S., on July 7, 1925. He discussed the results of experimental shipments of fresh fish made to the United Kingdom, and the reception which it received in the markets there. Copies of this address are available to anyone interested in the matter. It has been demonstrated that fresh fish can be delivered to European markets in as good a condition as most fresh fish landed in these markets by local producers. There are, however, inherent difficulties which must be met in the development of

these markets, but they relate to organization and supervision in forwarding shipments, and in selling. Organized supervision and regulation of shipments will be necessary, to ensure uniformity in the size of the package, in the weight and quality of the fish and in the method of packing and icing; and also in distribution in order to avoid overloaded markets. Mr. Cowie and Mr. G. R. Earle of Yarmouth, N.S., represented Canada on the Imperial Economic Committee during a portion of its inquiry into the fishery resources of the Empire; in a report of their investigations and observations regarding a market for Canadian fresh fish in Great Britain, they state that the Imperial Economic Committee believed fresh fish could be landed overseas in excellent condition, and that the adoption of rapid freezing would enhance the possibility of the development of this export market. They point out that conditions are still such as were described by Mr. Cowie in the address to which we have already referred, and that during the fall and winter months there is a demand in the British market for considerable supplies of iced fresh fish, mainly haddock and cod. They suggest that, at first, moderate supplies of the best quality should be forwarded in packages to suit the established trade, and they describe the size of the box or container required by the market. They state that shippers should co-operate to the extent of having all shipments made up and forwarded under the supervision and control of a shipping committee, or of a shippers' committee in each district where two or more shippers desire to explore this overseas market. The Atlantic Experimental Station is soon to ship to England a quantity of brine-frozen fish, to ascertain by actual experiment the condition of the fish on the arrival of the shipment.

We are aware that the matter of exporting Canadian fresh fish to the markets of Europe has been considered by a number of persons, some of whom have sought Government assistance in the experimental stages. One project was to establish a weekly steamship service to European ports with the view of primarily developing fresh fish markets, utilizing existing fish distributing organizations, and of opening markets for other Canadian products. We realize that in securing and developing this new market, there are problems to be solved, considerable capital to be invested, and marketing organizations to be built up; but nevertheless we believe that such efforts will be ultimately rewarded with success. Just how this trade may be initiated and conducted to a successful stage must be left to experienced persons prepared to venture into it. Our recommendation is that the Department should aid in the experimental stages of such an undertaking, if found necessary. If those seeking aid are in a position to present practical proposals supported by sufficient capital, experience and organization, we suggest that assistance might be given in the form of subsidies for transportation facilities.

XIII

EDUCATION

(*a*) General

Until recently facilities for the general instruction of fishermen in the various phases of their industry have not been available in the Maritime Provinces. For several years the Marine Biological Station and the Atlantic Experimental Station have done very valuable scientific work. The latter Station at Halifax under the direction of Dr. A. G. Huntsman, is to be particularly commended for its persistent and patient efforts and its successful results, all of which have been of incalculable benefit to the fishing industry. The researches, investigations and discoveries of the Station are proving, and will continue to

prove, of great practical interest and profit to fishermen. We were privileged to observe some of the experiments carried on in the laboratories of this Station, and we received much valuable evidence from Dr. Huntsman and the members of his staff in their particular field of endeavour. We cannot emphasize too strongly the invaluable results of their work.

Several years ago the Department, through the Biological Board undertook to interest fishermen in improved methods. In fishing communities, illustrated lectures were given on the fisheries generally, and on special topics such as the necessary measures for the conservation of the lobster. Educational courses of a technical character were given to fishery officers. Later, a somewhat aggressive educational campaign was carried on, with a view to improving the conditions in the lobster canneries, and this campaign was followed with gratifying results.

When the Atlantic Experimental Station for Fisheries was established at Halifax by the Department, the most important part of its extensive program was considered to be educational work among the fishermen, with the object of improving their methods of curing and handling fish. It was largely pioneer work with only meagre examples for guidance, for while efforts to provide instruction for fishermen had been made in Europe and the United States, they had met with but little permanent success because of temporary or flagging interest, and other discouraging causes. The chief cause, however, seemed to be the lack of new information which would sustain the continuous interest of fishermen. The Atlantic Experimental Station therefore, considered that, in order to avoid the failures experienced elsewhere, its first step towards success must be the obtaining of new information through experimentation.

While proceeding with experiments, all of which have been abundantly successful and are now of proven practical value, the Station undertook educational work in the processing of dried fish, as the methods in use along the coast were not equally good. Bulletin No. IX, containing an account of the best methods, was prepared and published and made available for fishermen. In 1926, an instructor, experienced in the best methods of splitting, curing and handling fish, was sent along the coast east of Halifax, where improvement was said to be necessary. In 1927, further instruction was given along the whole coast with considerable interest and success.

In a widespread and general application of more scientific methods to the fishing industry, in bringing directly and personally to fishermen everywhere a knowledge of the improved methods tested in the laboratories of the Atlantic Experimental Station, practically no completely organized attempt could, of necessity, hitherto be made. The members of the Station's staff could not possibly be expected to undertake it. Their work is research; they cannot also be travelling instructors, although they have already given freely of their time and talent to bringing information far afield from the Station to the fishing communities.

All the fishermen who appeared before us emphasized the necessity for technical education and instruction, and they were unanimous in their opinion that fishermen, on the whole, are now ready willingly to receive any instruction, theoretical or practical, designed to benefit the fishing industry. We cannot, therefore, agree with the ideas sometimes expressed to us that fishermen as a class are so attached to old methods that they would refuse to accept instruction in new and improved processes to meet the consumers' standards and requirements. From the evidence submitted to us, we believe, rather, that a practical system of education would be regarded with sympathy by fishermen, and that some form of education should be devised under the Department, in co-operation with the Provincial Departments of Education on questions of details or

arrangement. What has been done for agricultural education by the Department of Agriculture is an interesting example of what might be done for fishery education.

We strongly recommend that adequate assistance be authorized for fishery education in the Maritime Provinces, the details to be arranged by the Department in conference with the Provincial Departments of Education when deemed necessary, and with other competent and interested authorities. It is not our function to outline or to suggest the full nature of these details. We realize that any educational plan cannot be undertaken lightly, and that it presents serious problems. Its success will depend on the care with which its foundations are laid, and on the organization provided for its operation. We do not suggest that the administrative burden should be placed on the Director and staff of the Atlantic Experimental Station; on the contrary we believe that they should be relieved as far as possible of problems of educational administration. At present the Station turns over to the Department the results of its experiments and discoveries. How best to bring these results directly to the fishermen is the problem which will confront those entrusted with the development of an educational plan. We suggest that the Department direct the Biological Board to undertake the formulating of an adequate plan of fishery education, in conference with the Department of Fisheries, Provincial Education Departments, the Director of the Atlantic Experimental Station, and representatives of Dalhousie University School of Fisheries, and that they be given such assistance as they may require to arrange the details of such an undertaking.

We were told that the problems involved in such education have already been considered carefully by the Biological Board and its various committees. The Advisory Committee on Education of the Atlantic Experimental Station includes the President and certain members of the staff of Dalhousie University, the Principal of the Nova Scotia Technical college, the Principal of Truro Agricultural College, the Superintendent of Education for Nova Scotia, prominent men from the commercial branches of the fishing industry, and members of the staff of the Station. The difficulties of the problem differ from those of ordinary technical education and agricultural education. Two types of instructors have been used along the coast, first, men with knowledge of the scientific principles as well as of the procedure in curing, with much to impart, but lacking experience and skill in the actual methods; and second, men with considerable experience and skill, and able to demonstrate very effectively, but with little knowledge to impart. Each kind has proved to have both advantages and disadvantages. No broad scheme should therefore be attempted until the two kinds of advantages can be combined, either by educating the man with experience and skill, or by giving to the educated man greater skill and experience.

To achieve ultimate rather than merely ephemeral success, requires the more vigorous working up of the educational material in the various branches of fish handling and curing, and this should be encouraged and forwarded by every possible means. In the meantime, wherever there is a special desire or need for instruction in the carrying out of a definite process, such as the preparation of dried fish and boneless fish, and the pickling of herring, and when the educational material for this process has been found by test and criticism to be reliable and adequate, immediate steps should be taken to satisfy the need.

The Department distributes at frequent intervals pamphlets of instruction and information on various phases of the fishing industry. But the success of these bulletins, however valuable the ideas contained, is extremely doubtful. As a rule they are cast aside unread. They cannot take the place of personal advice, demonstration and guidance. We therefore recommend the extension and enlargement of the system of instruction by travelling instructors, already

established to some extent by the Atlantic Experimental Station, with a view to bringing to the fishing villages personnal instruction in the various phases of the fishing industry, particularly in the best modern methods for the salting, curing, smoking, pickling, canning, packing and marketing of the various fish products, as well as in the building of simple and inexpensive bait freezers, smoking houses and driers; the care and repair of engines and other accessories, nets and general fishing gear; the use of by-products; with possibly some attention to navigation. Under such a plan the establishment of demonstration stations at various important and easily-reached centres will be necessary; these local stations could be used to demonstrate to fishermen the value and practicality of the results of experiments carried out at the Atlantic Experimental Station. Up to the present time there has been a scarcity of men qualified for such duties. The courses now given at the Atlantic Experimental Station, an outline of which we give later, and at the recently organized School of Fisheries at Dalhousie University, will produce young men adequately trained and qualified for this special educational work. We believe that the Governments of the Maritime Provinces should consider the awarding of scholarships to enable young men of promise in fishing villages to take courses in fisheries education, with the understanding that, on the satisfactory completion of their course, they accept employment for a stated period as instructors in their own province. The Province of Quebec has awarded such scholarships. Practical fishermen, with ability to instruct or demonstrate could likewise be utilized for instructional purposes. The Rural Conference of the Diocese of Antigonish of the Roman Catholic Church has given a commendable example by its generous granting of twenty-five scholarships to enable young men from fishing villages to take courses at Halifax.

The short courses now provided by the Department at the Atlantic Experimental Station are resulting in a greater interest in education and in a wider dissemination of useful knowledge. But we think that great care should be taken in the selecting of students for these courses, and that only young men with practical experience and intelligence to ensure an understanding of the instruction offered should be encouraged or assisted to attend. We suggest that the Universities of the Maritime Provinces might consider the possibility of aiding any efforts in behalf of fishermen's education, by giving in fishing communities simple and practical Extension Courses on subjects allied to the fisherman's calling: universities are today becoming more and more mindful of the requirements of the industries and the industrial workers in their communities.

With the already crowded curriculum of the schools, we do not see how the suggestion of specialized instruction in the schools of fishing communities can wisely or fairly be attempted. It should be possible, however, to include simple and instructive books for supplementary reading, explaining certain phases of marine life, in order that children may receive a knowledge of the habits of fish and the necessity for the protecting of fish life. Readings on bird life and on forest conservation are now provided. These have aroused deep interest in school children, and similar instruction on fish life would be invaluable in its ultimate results. Specific days, as now allocated to the study of forest conservation, might be set aside for its discussion.

It is perhaps interesting to note that the amounts paid for chool purposes in the fishing villages and communities of the Maritime Provinces equal, and in some places exceed, the amounts paid in villages and communities engaged in other industries. This is a proof, if proof were needed, of the fisherman's interest in education and of his belief in its value. His own particular calling, however, has not been sufficiently encouraged by the technical educational methods now applied so successfully to other industries. When modern technical

educational methods similar to those in other industries are applied more extensively to the fishing industry in the Maritime Provinces there will probably be a greater inducement to young men to enter it, and to remain in it.

(*b*) Educational courses at the Atlantic Experimental Station for Fisheries.

Fishery education has been, as we have already said, a long time in coming. The reason would seem to be that scientific knowledge of the methods of the fisheries has developed but very slowly, and, without it, education could scarcely go beyond the apprenticeship stage. During the last three years, the Atlantic Experimental Station has been investigating the methods of handling fish, and already a fairly considerable body of knowledge has been built up.

In February, 1927, a course that had been given to Fishery Overseers was modified to bring in the newer knowledge of fish handling. A two weeks course was given this year to twenty-eight fishery inspectors and overseers,—nineteen from Nova Scotia, six from New Brunswick and three from Prince Edward Island,—and to eleven pickled fish inspectors, one from New Brunswick, and the remainder from Nova Scotia. As the course was to deal principally with the methods of handling fish, several people in the industry expressed a wish to attend, and consequently eleven were enrolled. The various courses and the time allotted to them were as follows:—Canning, 6 hours; Drying, 6 hours; Pickling, 6 hours; Refrigeration, 6 hours; Bacteriology, 6 hours; Physics, 12 hours; Chemistry, 12 hours; Discussions, 12 hours. Addresses were given as follows:—Conservation and Utilization, by Mr. W. Fisher, Inspector of Fisheries for N.S.; Canning, by Mr. R. H. Williams; Commonsense, Goodwill and Co-operation, by Mr. W. A. Wick, Marketing of Dried Fish, by Mr. A. H. Whitman; and Standards of Production by Mr. S. Y. Wilson.

No training was given in the actual processes, although these were described and demonstrated, and the principles thoroughly considered. The course was intended primarily for those with some experience in the fishery processes, or for those who desired to know more about the more approved methods.

The request from Canso for instruction for fishermen finally brought to completion the plans that had been maturing for teaching young men in the industry. At the sittings of the Commission, representations were made generally along the coast that instruction should be given in the curing of fish. The Rural Conference of the Diocese of Antigonish of the Roman Catholic Church informed the Atlantic Experimental Station that it had money to provide twenty-five scholarships to enable young fishermen to attend a course in fisheries. The Department and the Biological Board then decided that a course designed especially for fishermen would be offered, and that money would be available to pay the return railway fare and a sum of forty-five dollars each for twenty-five fishermen with the requisite common school education, to take a six weeks' course, including training in the methods of preparing fish for market. On January 18th the course began with an attendance of twenty.

The courses given and the hours for each were as follows:—Co-operation, 9 hours; Motor Engines, 36 hours; Natural Resources, 29 hours; Navigation, 36 hours; Preparation of Dried and Boneless Fish, 34 hours; Preparation of Pickled Fish, 34 hours; Science, 36 hours. In addition, there were nine evening lectures, including one lecture on the fisheries, illustrated with moving pictures. Attendance at these lectures was not compulsory, but the greater part of the class was present. A certificate was given to each student who satisfactorily passed an examination on the various subjects of the course. Seventeen certificates were granted, six with honours.

During the early part of the summer of 1927 educational demonstrations were given at the various lobster canning factories along the coast of the Maritime Provinces by four instructors. One of the instructors recommended that

courses of instruction of a fortnight's duration should be given at local centres to the managers of factories. The Advisory Committee on Canning of the Atlantic Experimental Station advised that a first attempt be made in Halifax, and the Biological Board offered such a course which began on March 16, 1928. Fifteen factory managers enrolled. The various courses of instruction and the hours allotted to each were:—Addresses, 2 hours; Bacteriology, 9 hours; Biology, 6 hours; By-products, 3 hours; Canning Lobster Paste, 6 hours; Canning Practice, 18 hours; Discussions, 8 hours; Equipment, 7 hours; Methods, 4 hours; Principles, 6 hours; Physics and Chemistry, 12 hours; Spoilage, 3 hours; Special attention was given to three things,—(1) The cause of and remedy for discoloration, (2) the causes of and remedy for springers, and (3) the preparation of lobster paste.

For some years past courses of a fortnight's duration have been given to officials in the Fish Cultural Service in the Maritime Pr inces. Such a course was given in February, 1928, at the Atlantic Experimental Station. These educational courses are not intended for the training of men in fish cultural operations as this training is given by the inspectors in the service, but for the providing of practical education in the scientific principles of fish cultural practice with a view to helping the men to meet the special and unforeseen situations constantly arising in their work. Nine officers attended the course from February 8th to 21st. The courses given and the hours for each were:—Anatomy and physiology, 12 hours; Discussions, 18 hours; Fish Diseases, 12 hours; Fish Foods, 12 hours; Hatchery Practice, 12 hours; Science, 12 hours.

(c) The Biological Board of Canada.

The Biological Board was originally constituted by the Department for the development of scientific knowledge related to the fisheries with a view to their conservation. Biological stations were accordingly established as bases for this work. The Board's work, which has been very considerably enlarged during the last ten years, now includes general and special investigations on the life and conditions in the various waters, and on fish culture,—also on methods of handling and curing fishery products, together with various educational undertakings. The Board acts also as the scientific adviser of the Department, and provides it with a variety of technical services of a scientific nature.

The work of the Board is essentially investigation and development, and is detached from the work of the Department and of the fishing industry. It develops the scientific basis, investigates problems, suggests means for overcoming difficulties, and advises or develops improved methods. Measures for conservation, which it formulates or proposes, and improvements in inspection and in fish culture, are turned over to the Department. The new methods which the Board may develop, or the suggestions it may make for improvement in the handling of fish are given to the fishing industry. The Board prepares educational material which is available to outside bodies such as the educational authorities of the various provinces. Fisheries educational work under the Dominion Government is, however, carried out by the Board.

With the enlargement of the scope of its activities, the organization of the Board has developed. Owing to the scientific nature of its work it is constituted chiefly of scientists from various Canadian universities. An officer of the Department is a member of the Board. Contact with the fishing industry on each coast is primarily established by a representative of the fishing industry who is appointed to the Board by the Minister.

The Board meets annually and elects a Chairman, and a Secretary-Treasurer as executive officers, also committees for the conduct of business between annual meetings. The Executive Committee includes the Chairman and the Secretary-Treasurer, and the members of the Board who are within convenient

reach of Ottawa. It serves as a central body for making decisions and determining policy in contact with the Department. Under it are two sub-executive committees, one for each coast, consisting of the members situated near that coast, with the representative of the fishing industry serving as Chairman, and the Director of the Station as Secretary. Each sub-executive committee acts in minor matters and considers local administrative questions for recommendations to the central executive committee. There are two Stations on each coast, which are related to the sub-executive committees through their director.

The Board conducts a considerable series of investigations on fish culture, not very definitely connected with the Station, but more closely related to fresh water and carried on at various points across Canada. These are under the supervision of a Research Committee on Fish Culture, which reports to the Executive Committee. Its members consist largely of the senior investigators of fish cultural problems. The Superintendent of Fish Culture in the Department is one of the members of the Committee.

The publications of the Board are dealt with by a Committee on Publications, of which the Editor is Chairman, and which reports to the Executive Committee. The Executive Committee of the Board serves as the nucleus of the Association Biological Committee of the National Research Council, which co-operates with the Board in preventing duplication of work.

The Atlantic Experimental Station is through a series of Advisory Committees in close touch with the various sections of the fishing industry and with the local educational authorities. Plans are now being formulated for making contact with the fishing industry at outside points.

The constitution of the Board provides a means for securing the voluntary service of the best scientific minds of the country for the planning and organization of the varied work. The fact that the Universities are represented on the Board serves to stimulate interest in fisheries research in the Universities, thereby providing volunteer investigators for the problems related to the fisheries. From these volunteers permanent investigators for the Board's future work may be recruited. The varied connections with the fishing industry and with the Department serve to focus attention on the most important problems in the conduct of the fisheries, and to provide regular channels for the dissemination and application of results. The organization of the Board is steadily bringing about such a co-ordination of work from the purely scientific but fundamental investigation to the final application in the industry as is essential for rapid improvement of methods.

The general organization of the Board appears well adapted for the purposes it has to serve, although as the work develops minor modifications will from time to time doubtless be necessary. In making appointments to its personnel, not only scientific but executive ability should be considered. At the present time the Central Executive Committee requires strengthening. Further appointments should be made to the research staff of the Board with a view to providing better technical service to the Department. There is particular need for a pathologist, a biological statistician, and a biological hydrographer. The pathologist is needed for the summary investigation of all troubles with the health of eggs, fry, and adults in fish cultural operations; he would also undertake, at the proposed experimental and demonstration hatchery of the Board, research work on the effects of various conditions on the vitality of the fish in its various stages. The biological statistician is required to take charge of the more regular collection of material for statistical study of the local populations of the more important food fishes with a view to formulating more adequate measures of conservation. The biological hydrographer would have charge of the collection of hydrographic data such as temperatures and salinities, from which to work out the seasonal and other changes in the water climate of the various regions, on which the distribution and abundance of the various fishes and their food is so directly dependent.

While the Atlantic Experimental Station is properly situated to serve as the centre for the experimental and educational work of the three Maritime provinces, the distances are such and the local facilities and requirements are so diverse that the Atlantic Experimental Station should be developed to a limited extent to serve for experimental work for the province of New Brunswick, particularly in connection with the sardine and herring industries. If an attempt is made to rehabilitate the oyster industry, a Station of limited scope should be established in Prince Edward Island, which would serve for investigation of the peculiar fisheries of the warm waters of the southern shallow part of the Gulf of St. Lawrence, and for experimentation in the handling of the products of these fisheries.

XIV

CO-OPERATION

Fishermen in general in the Maritime Provinces, and more particularly the shore fishermen, have not shared largely in the prosperity of the country in recent years. In other industries in Canada wages have been progressively high, but the shore fisherman's remuneration has not, on the whole, noticeably increased, nor has the purchasing power of his dollar paid for his implements of production grown greater. His toil has too often offered a maximum of hardship and a minimum of reward. His work has been carried on in places under conditions incredibly bad. Primitive methods of marketing have been followed. There has been little or no co-operation. In many parts, transportation has been difficult. There have been few technical educational facilities, such as are available to other industries. The shore fishing industry has drifted along in a happy-go-lucky, go-as-you-please manner and the individual shore fisherman has worked in his own way, often to his own disadvantage. For this condition he must himself, in fairness, accept some share of the responsibility. There has been no organization through which he could deal with large and complex problems and interests. He has not learned, like wage earners in other industries, to protect himself by organization and co-operation. He still sells, haphazardly, at a low level of prices and buys at a high level of retail cost. He has had heretofore no power whatsoever of bargaining; and having had little to say about the selling price of his product, unlike other producers he has been forced to take whatever price he could get,—a price sometimes below the actual cost of production.

Fishermen have not been organized to compel attention. They should get more of the consumer's dollar, and for his dollar the consumer should get more fish. The shore fisherman receives a smaller percentage of the dollar paid by consumers of fresh fish in large cities than is received by producers of other food commodities. *It has been established, with reasonable accuracy, that the producer now receives, on the average, from 30 to 35 per cent of the dollar paid by the consumer for food products. For example, the cattle raiser, on the average, receives 50 to 60 per cent of the amount paid by the consumer for meat, at times as high as 65 to 70 per cent of the retail price of the whole; the farmer, 35 to 50 per cent for his various products; the orange-grower, 40 per cent; the potato-grower, 35 to 40 per cent; the apple-grower 20 to 25 per cent; and even the cantaloupe-grower, who produces an extremely perishable product, 20 per cent. The evidence placed before us indicates that the shore fisherman receives, on the average for fresh fish, from 20 to 25 per cent of the consumer's dollar.

*National Distributive Conference, U.S.A. 1925. Report of the Commission on Agricultural Inquiry: report on Marketing and Distribution No. 408 U.S.A.

If the shore fishing industry is to succeed, co-operation among fishermen is absolutely and immediately essential. Co-operation is no longer an experiment In Prince Edward Island, at least two Lobster Fishermen's Co-operative Associations are in existence. In one of these,—at Tignish,—lobster fishermen received for their catch last year two cents a pound more than the average received by other lobster fishermen; supplies for fishing were bought and products were sold to advantage by the organization. In the United States, the number of co-operative business organizations doubled from 1915 to 1925. Their membership increased fourfold, and their volume of business advanced from about six hundred million dollars to two billion four hundred million. Failures among co-operative organizations have been relatively less numerous than among private business institutions. In Canada, Egg Circles, Live Stock Breeders' Associations, organizations of Fruit Growers, Wool Growers, Potato Growers, producers of dairy commodities, the Wheat Pool, and many other similar associations are all outstanding examples of successful co-operative effort. And yet today in the Maritime Provinces over forty thousand fishermen have practically no co-operative associations!

We recommend, therefore, that the establishment of co-operative organizations of fishermen be assisted by the Department as soon as possible, and that an organizer, experienced in co-operative methods, be appointed and paid by the Federal Government for the required period to initiate and complete this work. A preliminary study and survey of the entire Maritime Provinces should be made to determine the localities where such organizations are possible or feasible. We do not conceive such an undertaking to be beyond the scope of Departmental responsibility or Government aid. The fisheries are a basic industry and are reasonably entitled to assistance and encouragement. A similar venture has already been aided for agriculture, in part at least. We are far from suggesting that the Government should enter into the business of buying and selling fish products; we merely suggest, rather, that it should help fishermen through their organizations to buy and sell for themselves to better advantage. If we may judge from the success of similar undertakings in Canada, we feel that in a very short time these suggested co-operative organizations would be largely self-supporting and would require a minimum of Government assistance. We are aware that under existing Provincial Acts such associations are now possible, but in their origin and their infancy they should be given every possible aid; it is clear that the fishermen themselves cannot, unaided, inexperienced and unguided, undertake to organize them. When such a project is undertaken, however, fishermen must realize that they must give a sympathetic response to the efforts to organize them; that they must help themselves; and that on their own efforts, success or failure will ultimately depend. From the history of organized labour in cities, and in other industries, they should perhaps have learned long ago the value of co-operation. They must now lose the old idea that they are isolated producers running separate industries and competing with one another; they must replace it with the thought that each is a unit in one great corporation.

We do not conceive it to be our function to discuss details or methods of organization. These must be left to the responsible authorities. But we suggest that after careful study the Maritime Provinces be divided into zones or districts, the limits of which shall be determined by the number of fishermen and the quantity of production; that each of these zones be organized into a fishermen's co-operative association; and that the zones so organized be again included in a Provincial body, and perhaps into one association of the entire Maritime Provinces. In certain places in each of the zones or districts so formed, small brine-freezing or rapid freezing plants, with a small auxiliary cold-storage building, with salt and ice equipment, should be established; and at a

central point, within a day's transit of these small local plants, a large cold-storage building, and possibly a fish-waste plant where warranted by quantity of waste, should be provided, all with initial subsidy assistance from the Federal Government. The large, central cold storage building would take care of surplus frozen fish direct from the freezers, or would take the surplus product from the smaller local storage buildings. More extended reference to brine-freezing has been made in another paragraph. From such an organization a Marketing Sales Board to control the output of the product from the various centres to the various markets, and selling agents to control the distribution in the larger places of demand, would dominate the market, keep it on a stable basis, and, with the organized power or bargaining, could dictate reasonable prices alike for producer and consumer, and gain a reasonable profit. Such a plan would ensure a more direct contact between producer and consumer, and would eliminate some of the costs for services which now intervene. Rapidly frozen fish kept temporarily in cold storage would take the place of fresh, unfrozen fish in periods of lean catches, resulting from scarcity or storm, and would ensure a steady supply. In short, what has been done in the co-operative marketing of farm and orchard products might serve as a model of organization.

Under such a plan loans for the purchase of boats or equipment, and also insurance on fishing property and equipment might be arranged for fishermen through their associations. Group life insurance might also be possible. We believe that such organizations would solve many of the fisherman's problems and would establish his industry as a profitable and lucrative pursuit, giving to those engaged in its primary operations the independence and adequate reward which have hitherto been lacking. It would give him the security of an assured market, and a market price according to the quality of his product, a bargaining power which he has never yet possessed, and a greater share of the consumer's dollar than he has heretofore received. Hitherto he has had no machinery to enable him to get what his product was really worth. With co-operation his industry would be placed on the level of security and power to which, by similar methods, other industries have so successfully and remuneratively attained.

XV

ADMINISTRATION OF FISHERIES

(a) Minister of Fisheries

Numerous representations were made to us on the necessity for the establishment of a separate Ministry of Fisheries. It was pointed out that a separate Department of Fisheries would elevate the industry in importance, would stimulate a greater public interest in its special problems, and would permit of undivided administrative attention, thereby ensuring a more extensive and complete organization. The suggestion was also made that with the extensive fisheries of the Atlantic and Pacific coasts, and such of the inland fisheries as are under Federal control, there is a sufficiently large field for administrative work in the future to justify the creation of a separate ministry. It was contended that the Department of Marine and Fisheries has so wide a jurisdiction and such a variety of problems, that, as at present organized, it is unable to devote sufficient time to fishery matters.

Much can be said in support of this view. The fishing industry is territorially widespread on both the Atlantic and Pacific coasts, each area having difficulties that are dissimilar from those of the other. It is great in variety, in extent and in value; it holds a very large place in the economic life of the

country; and in all its phases it is beset with complex problems of administration. The industry may, therefore, justly claim to be of such importance as to require a separate Ministry. Last year, Parliament authorized the appointment of a Deputy Minister of Fisheries. We found throughout the Maritime Provinces a widespread feeling not only in support of this action, but also in support of the establishment of a separate Department of Fisheries under a Minister of Fisheries, and we recommend the creation of such a Department to the consideration of the Government of Canada.

(*b*) Departmental Organization.

We were not asked to make any general survey of the Departmental organization, but we wish to point out in what respects the Departmental Staff should in our judgment be increased and strengthened for the performing of additional services.

(1) Fisheries Intelligence Branch: There is need for a fisheries intelligence branch under the direction of a highly qualified officer. We were much impressed with the widespread demand for reliable and regular information, particularly regarding the production and market conditions of other countries; the stocks on hand from time to time; market prices and forms of marketing; recent developments in the industry in Canada and elsewhere; statistical information of all kinds; and, in general, information of any nature which might be helpful in the intelligent direction of the industry. Information of this nature accurately collected, and properly edited and circulated by a regularly issued fisheries intelligence publication, would prove of great interest and of much value. This is not a light undertaking if it is to be properly and effectively performed. We recommend the creation of a fisheries intelligence branch in which such work may be carried on.

(2) Statistics: Accurate and complete statistical information concerning any industry is of great importance. Conditions of supply and demand, the actual state of domestic and foreign producing and consuming markets, the scientific study of the conservation of any particular variety of fish and its regulation, market prices, and many other subjects are capable of intelligent study only when complete statistical data are available. The fishing industry cannot be intelligently conducted without reliable statistical information available to those engaged in it. We believe that the fisheries statistics of Canada compare favourably with those of other countries, and we realize the many difficulties attending the collection and compilation of statistical information because of the widely scattered location of the fishing population and the great extent of the coast line on which fishing is carried on. We have reason, however, to doubt the substantial correctness of some of the official statistics, and this makes impossible definite conclusions upon many important matters placed before us for consideration. It should be possible to devise some system of gathering statistics from fishermen, fish dealers, transportation companies, and other agencies, as well as from fishery officers, and such statistics should be immediately and critically studied in order to determine their significance and any peculiar conditions they may disclose.

(3) Research Branch: A scientist should be appointed to the staff of the Department to furnish it with constant advice on scientific matters and technical services of a scientific nature. He would serve as a connecting link between the Department and the Biological Board, and he also should establish connections with the proposed National Research Laboratory, in order to advance in that institution researches which might relate to the fishing industry.

(4) Director of Fisheries, Atlantic Division: There is also need for an officer—whose title we suggest might be Director of Fisheries, Atlantic Division

—who would have general supervision over all the various services of that section. Whether such an officer should be of the outside service and permanently resident at some point on the Atlantic Coast, or of the inside service, and resident at Ottwa, is perhaps debatable. It was suggested to us that if he were resident at Ottawa, he would perhaps have a wider knowledge of his duties and more authoritative control of all those under him. We merely recommend the appointment of such an officer. A Director of Fisheries, Atlantic Division, is primarily required to bring into the administration a very thorough knowledge of the extremely varied local conditions and needs. He must be prepared to develop the closest contact with the various sections of the coast to which the major portion of his time should be devoted.

(c) Departmental Officers.

During the course of our enquiry we came in contact with almost every Inspector and Overseer in the Maritime Provinces. On the whole, we found this branch of the service composed of capable and earnest men, with an intelligent and active interest in their official duties. We were told, and we believe, that the service is incomparably better than it was a few years ago. In former years it was unable to attract capable persons because of the small remuneration offered. Some officers are naturally more capable than others. The least capable in our judgment are those who feel that their work includes only enforcement of the laws, and other routine duties. The majority, however, while faithfully performing all these duties, study fishery problems and give freely of their counsel and friendly interest to all those engaged in the industry within their districts.

Inspectors and Overseers all come constantly in contact with the fishermen; they should therefore be trained and fitted in some degree, at least, to instruct and assist fishermen in many of their difficulties. The present appointees should be required to take a special course at the Atlantic Experimental Station; and a special examination should be set by the Biological Board, or some other qualified authority, for those who wish to qualify for the service. Several of the present inspectors have already taken the course offered at the Station. The work of the Overseers varies greatly in districts; in some districts where the area is very extensive Overseers have more than enough to do. We recommend that the Department consider a rearrangement of districts, and, in busy seasons, the appointment of part-time assistants. The salaries paid to Overseers are uniform. In some cases the salary is not ample for the services performed, and we think the Department should consider a revision of sal ies. This service is extremely important; it calls for properly trained men, with tact and executive talent, and with a genuine and intelligent interest in the fisheries and fishermen. The engaging of this type of Overseer should be the aim of the Department, and when secured he should be properly paid. We think it would be useful to bring the Inspectors and Overseers of each Province together annually, for the discussion of fishery problems and future work. Representatives of voluntary provincial organizations for the protection and conservation of fish should be invited to attend such meetings, as well as representatives of all branches of the commercial side of the industry.

Fishery Guardians are part-time officers. We were frequently told that because of age or general incompetency some of them were unsuitable for their office. The Inspectors have power to dismiss inefficient Guardians, but this power is, we think, too seldom exercised. Representations were made to us that in places no attempt was made by Guardians to enforce the laws, particularly those governing the netting of salmon and shad in rivers, and, to ensure greater independence of action, that Guardians be selected from a locality other than that in which their duties are to be performed. We do not know if this suggestion is practical, particularly in view of the small salaries paid,

and the short season during which they are employed. This Branch of the service is likewise important, and in order that a standard of competency be attained, the Department should prescribe some definite qualifications for the office. In the enforcement of regulations, Guardians or other officers should be actively supported by the Department, and any outside interference with them should not be permitted. Our experience is that everybody wishes rivers and streams protected from illegal fishing, but apparently in practice few give moral support to the officers, or desire to see violators of the law punished.

The amount granted to Overseers for purchase and upkeep of their automobiles is in our judgment not at present adequate and should be increased by at least fifty per cent. The cars are in use very early in the spring and late in the autumn when roads are in the worst possible condition. The result is that repairs are frequent and expensive, and the life of the car is abnormally brief. To this expense, the cost of gasoline must be added, and in the Maritime Provinces such cost is unusually high.

XVI

QUEBEC AND THE MAGDALEN ISLANDS

In the circumstances already stated, the Commission held a hearing at Gaspe, P.Q. Since then representations were made to us at Montreal and Ottawa respecting the fisheries of the Province of Quebec. As the Government of Quebec administers the fisheries of that Province, we feel limited to a general presentation of conditions as we found them, and of the opinions expressed to us suggestive of means for their general improvement.

We found the fishermen of the Gaspe Peninsula especially eager for instruction and education in all phases of the fishing industry there carried on, from the stage of production to that of marketing. Any steps in this direction taken by the Government of Quebec will be of great service and will meet with a sympathetic reception. A pleasing incident of our public hearing at Gaspe may very appropriately be referred to. At this meeting there appeared before us two young men, Messrs. Berube and Kavanagh, who, by means of scholarships commendably granted by the Government of Quebec, were enabled to graduate from the Fisheries School of the University of Washington at Seattle, U.S.A. Mr. Kavanagh is now a fishery officer in the Gaspe district, and Mr. Berube is manager of a corporation carrying on a general fish business in the Gaspe Peninsula. These two young men, well instructed in all branches of the fishing industry and zealous for the adoption of the best standards, will, we feel sure do much to stimulate a deeper interest in the fisheries of the Gaspe Peninsula, by the application of improved methods and scientific knowledge. Their special qualifications should be constantly utilized in promoting the welfare of the industry and those engaged in it in the Province of Quebec, and perhaps even in other Provinces.

Representations, oral and written, were made to us regarding the condition of the fishing industry on the north shore of the Gulf of St. Lawrence last year. While we cannot speak from personal observation, or from evidence directly made to us by fishermen from that district, we are strongly of the opinion that a special investigation of the industry and the conditions under which it is there carried on, should be made by the Fisheries Department of the Province of Quebec. This investigation should be made as early as possible, and by the most competent persons available. As mentioned elsewhere, it would seem that the quality of dried salt fish produced there recently, is not equal to the standard

of former years. As a result, the industry has suffered. The causes of this decline in quality should be investigated and, if possible, removed.

In marketing the fish products of the Gaspe Peninsula and the north shore of the Gulf of St. Lawrence, most of which is without railway communication and is completely isolated during many months of the year, shippers have to rely upon subsidized steamship services performed under contract by the Clarke Steamship Company. In the Gaspe Peninsula we were informed that the present subsidized service to Montreal does not afford adequate refrigeration facilities for the shippers of certain varieties of fish, particularly fresh salmon. This district is at present served by two boats, the *Northland* and the *Gaspesia*, both of which run on a regular schedule; but they do not follow the same route, and the result is that at some points the service is irregular. It may happen, for example, that one boat may call at Gaspe one day, followed by the other boat the fourth day later, with no call by either boat for the next ten days. Shippers naturally complain that with such uncertainty in the service the marketing of fresh fish is rendered extremely difficult. Again, it is complained that only the steamer *Northland* is equipped with cold storage facilities, with the result that fresh fish shipped on the other steamer, though carefully packed in ice or snow, frequently reaches the market with its quality far below the desired standard. Accordingly, there is a demand for improvement in the service performed by the Clarke Steamship Company. We recommend a reconsideration of the existing contract with the view of affording to this section of the country more adequate transportation facilities.

Railway freight and express rates are also complained of in that portion of the Gaspe Peninsula which has railway connection at Metapedia with the Canadian National Railway system. Shippers using the railway complain that they are obliged to pay a freight rate from half a cent to one cent more per pound upon fresh fish than their competitors of the Maritime Provinces, and they also complain of the lack of sufficient or adequate refrigerator cars. We mention these matters merely to draw the attention of the Department of Fisheries of the Province of Quebec to these complaints, as we have not had an opportunity to inquire into them.

Requests were made to us for harbour improvements or shelters for shore boats on the Gaspe Peninsula. Serious consideration should be given to this request of fishermen who follow their occupation along this exposed and isolated coast line. We recommend that the Department of Public Works make an early survey of this section of Quebec to ascertain the requirements of fishermen in this regard, as only very general statements were made to us.

Among the various matters we were asked to communicate to the Department of Fisheries of the Province of Quebec, for its consideration, are the following:—The creation of a Departmental organization giving special attention to the grading and inspection of fish; the establishment of a technological and biological laboratory for experiments in the preparation of canned fish and the manufacture of fish by-products; the institution of a Bureau of Information on existing fish markets, prices, additional markets, and fishery statistics; a scientific study of the oceanography of the River and Gulf of St. Lawrence from a biological point of view; a study of the migration of the different species of fish, and the effect of temperatures and currents upon them; the making of fishing charts or sea-bottom charts for the use of fishermen; and the adoption of a policy of subsidies for cold storage plants, fish canning factories, drying establishments and reduction plants.

We shall cause to be transmitted to the Minister of Fisheries of the Province of Quebec a copy of the evidence presented to us at our meetings there, together with copies of any important documents or statements filed with us.

A brief reference is necessary to one or two matters of interest peculiar to the Magdalen Islands. Representatives of the fishermen of these Islands expressed a desire for instruction in the proper methods of curing fish, particularly mackerel We recommend that during the present year, a person qualified to instruct the fishermen, especially in the curring of pickled and dried fish, be sent to the Magdalen Islands.

It was also suggested to us that the inauguration of an air mail service during the winter months would be most invaluable. Such a service has since been established, and it is unnecessary for us to say anything further concerning it.

Large numbers of fishermen leave the Magdalen Islands towards the end of the fishing season to engage in other employments, with the intention of returning as early in the spring as possible to resume their fishing occupation. It was pointed out to us that the first trip of the subsidized steamship service plying between the Islands and Pictou, N.S., is usually too late to enable the fishermen to reach their homes at the opening of the fishing season, and it was suggested that a special sailing of a suitable steamship be provided each year by the Department on a specified date in the month of April, from some port in Nova Scotia, to convey the returning fishermen to their homes. The date of this sailing, if provided, should be advertised well in advance. Considering the isolated position of the inhabitants of these Islands, and the many inconveniences and disadvantages under which they labour, we recommend that this request be acceded to. By doing so the Department will be rendering a useful service, and one which we think in all the circumstances well justified.

XVII

CONCLUSION

We have approached the study of the problems submitted to us for investigation with the hope of finding solutions where such solutions were possible, or of suggesting, at least, methods for permanent relief, rather than with the idea of providing temporary palliatives. Many of the matters submitted to us in the Terms of Reference for detailed study are in themselves sufficiently perplexing and entangled to warrant special investigation. They have already been made the subject of prolonged and exhaustive single enquiries in other countries, without final solutions being found for the problems involved. The difficulties and disabilities are so many, so varied and so intricate, that their complete and final removal will require from the Department patient and perhaps prolonged endeavour. Nevertheless, we feel that many disadvantages can be displaced; and that more complete conservation of the fisheries, more adequate returns to the fishermen, and greater prosperity for the industry in general, are not beyond reasonable expectation or possibility. A larger amount of invested capital is needed; a larger expenditure by the Federal Government, temporarily at least, is urgently required; and more co-operation among fishermen and dealers is essential. The fisheries of the Maritime Provinces are capable of great expansion; with further regulations and additional constructive plans for their advancement they will undoubtedly hold their place as one of the greatest of Canada's natural resources; and those engaged in their development, in either primary or secondary operations, will continue with adequate encouragement to form a most important and significant portion of Canada's population.

The Commission desires to express its appreciation of the assistance rendered it, at all times, by Mr. A. Johnston, Deputy Minister of Marine and

Fisheries, Mr. W. A. Found, Director of Fisheries, Mr. J. J. Cowie, Chief Inspector of Fish, and the officers of the several branches of the Department of Fisheries. The thoroughness and efficiency of the organization in connection with the arrangements for our itinerary, and the attention given to every detail by the Departmental Representative, Mr. W. J. E. Casey, contributed much to our success in keeping every appointment. We are also grateful to the Master and Officers of the C.G.S. *Acadia* for their courtesy and attention during the early part of our itinerary. Dr. A. G. Huntsman, Director of the Atlantic Experimental Station at Halifax, with the capable officials working with him, were ever ready with information and advice, while the inspectors and overseers in the several fishery districts in the Maritime Provinces and Quebec were zealous in their attention to the requests of the Commission, and facilitated the inquiry in every way. Various Departments of Government, especially the Department of Trade and Commerce, have helped us greatly with statistical information. Boards of Trade and other public bodies and fish merchants and dealers also gave assistance and information which contributed much to the record, and the interest shown by the fishermen and their readiness to place their views before us, were of much value. To all associated with the work of the Commission we desire to express our appreciation of the very valuable services rendered.

We are unable to make a unanimous report on the subject of Steam-Trawlers. Two reports are therefore submitted, report 1 by four members of the Commission, and report 2 by the Chairman of the Commission.

A. K. MACLEAN
CYRUS MACMILLAN
H. R. L. BILL
JOSEPH MOMBOURQUETTE
J. G. ROBICHAUD.

XVIII

STEAM-TRAWLERS

Report 1.

Of the evidence submitted to us during the course of our enquiry, perhaps the largest and most important portion had reference to steam-trawlers. On the part of fishermen there was a widespread feeling expressed in opposition to these vessels; protests against them were emphatic and practically unanimous, and no doubt was left in our minds as to the seriousness with which the fishermen regard the present unsatisfactory situation, alleged to be, to a large extent, the result of the operation of steam-trawlers.

Steam-trawling, or otter-trawling, is carried on by steam vessels of from 250 to 300 tons gross, which are similar in the nature and arrangement of their gear. The trawl is a large conical net or bag about 150 feet in length, which is towed along the bottom of the sea. The mouth of this huge bag is kept open laterally by boards or "doors" or short wooden walls, one on each side, resting on the sea, and so rigged that they operate like kites. As the trawl is towed along, these "doors" are pulled apart by the resistance of the water, thus opening the bag. The lower side of the mouth of the bag, which rests on the sea-bottom, is secured to a line reaching from "board" to "board." The upper side of the bag is secured to a somewhat shorter line, and, thus, as the bag is towed along, the top portion of its mouth extends considerably in advance of the lower portion. The "boards" are heavily shod and rein-

forced with iron. At ordinary towing speed their kite-like action extends the net laterally to a width of over one hundred feet, and the flow of water into the net tends to keep it open vertically. In the forward third of the bag the mesh of the net is largest; in the centre third, smaller; and in the last, or end, third, smaller still. The end of the net is open, but is closed, when fishing, by a draw-string.*

The steamer generally takes a day to reach the fishing grounds; it trawls three or four days, and then returns with its catch to its home port, the average trip taking about five days. In operation, the trawl or bag is towed slowly along the sea-bottom at a speed of three or four miles an hour, usually for a fishing period of from one to two hours. It takes up everything in its track, as one fisherman expressed it, "from a scallop to a four thousand pounds anchor." Fishing goes on day and night. At the end of each fishing period the trawl is raised over the deck by a winch, the draw-string in the end of the bag is loosed, and the fish are dumped on the deck, sorted and packed in ice in the hold, in boxes or "pens". The inedible fish and the immature fish are thrown overboard or washed into the sea through the scuppers, unless the trawler operator runs a fertilizer plant or a fish-meal plant, to which such fish are taken for manufacture. The average steam-trawler is capable of taking about 300,000 pounds of fish in one trip, but we were told that a fair average catch throughout the year is from 150,000 to 175,000 pounds.

Statistics from the National Fish Company covering nine landings at Halifax from March 9th to March 14th, 1928, give the smallest catch as approximately 135,000 pounds, and the largest catch as approximately 255,000 pounds; the average catch in that period was approximately 190,000 pounds, including inedible fish. During the same period steam-trawlers operating for the Leonard Fisheries Company had in three landings an average of approximately 128,000 pounds exclusive of inedible fish, which were culled on the banks. At present, ten steam-trawlers are operating out of Nova Scotia ports, of which six are said to be owned and registered in Canada as follows: Rayon D'Or, registered in Halifax in 1916, owned by the Maritime Fish Corporation; Loubyrne, registered in Montreal in 1924, owned by the Leonard Fisheries Company; Lemberg, Venosta, Viernoe, and Good Hope, registered in Halifax, respectively, on November 26, 1927, November 28, 1927, December 27, 1927, and November 25, 1927, and owned by the National Fish Company. The following are owned and registered in England or Newfoundland and are under time charter to Canadian companies: Bonthorpe, and Sleaford, owned and registered in England, and chartered by the Maritime Fish Corporation, Cape Angulhas, owned and registered in St. John's, Newfoundland, and chartered by the National Fish Company; and the Offa, owned and registered in England and chartered indirectly by the Leonard Fisheries Company. The steam-trawler carries a crew of from sixteen to twenty-one men. The men are paid about $35 a month, and $6 for each thousand dollars' worth of fish taken. The total monthly earnings of each man are approximately from seventy-five dollars to one hundred and twenty dollars.

Since 1910 when the trawler *Wren* was put into operation in Nova Scotia by the Maritime Fish Corporation, the increase in trawlers has been as follows:—

1910, one; 1911, one; 1912, two; 1913, five; 1914, four; 1915, four; 1916, five; 1917, six; 1918, eight; 1919, seven; 1920, six; 1921, six; 1922, seven; 1923, seven; 1924, eight; 1925, nine; 1926, eleven; 1927, ten.

Ever since steam-trawlers first began to operate from Nova Scotia ports and to dispose of their catch in Canadian markets, they have been the subject of keen controversy in the Maritime Provinces. Indeed, the steam-trawler has

* See Appendix No. 13.

always been a storm centre of discussion in every country where it has been used. Its chief opponents, everywhere, have been the shore fishermen, who for the purposes of this report may be defined as fishermen characterized not so much by the size of their boats or the distance of their fishing grounds from the shore as by their style of fishing and the nature of their business methods. They fish with line or line-trawls; they may fish far off shore where great navigating skill is necessary, and from this standard they might therefore fairly be regarded as off-shore fishermen; but from the standards just mentioned,—method of fishing and selling,—they are shore fishermen. The steam-trawler fishes directly for a company under ownership or charter. The shore fishermen usually sells his fish at a local price to a local buyer, who forwards it at his own risk and profit to other markets for resale.

The protests of the shore-fishermen against steam-trawlers are not new, nor are they wholly the result of conditions prevailing in recent months. They have been persistently and repeatedly made during practically all the years in which steam-trawlers have operated from Nova Scotia ports. A brief outline of the history of these protests may be of interest, as giving a better understanding of the question at issue. In 1905, when the Halifax Board of Trade asked for assistance from the Federal Government to bring out trawlers from Scotland to operate in Nova Scotia, assistance was promptly refused, as indicated by the following letter written on June 5th, 1905, by the Minister of Marine and Fisheries at that time, to the Chairman of the Fisheries Committee of the Halifax Board of Trade:—

"Referring to the matter of the introduction of steam-trawling in Atlantic waters of Canada, I have an official report before me, and I do not see that any encouragement could be held out to steam-trawl firms to operate in our waters. You are no doubt aware that to that destructive method of fishing has been attributed the destruction of valuable fisheries off the shores of Great Britain, and prohibitory laws have been enforced in inshore areas. Outside the three-mile limit trawling cannot be prevented, but I am not disposed to favour it in territorial waters or grant assistance to firms adopting that method of fishing."

Vigorous protests were made when foreign steam-trawlers began to fish too near to the Atlantic coast line and to interfere with the operations of the shore fishermen; and on September 9th, 1908, an Order in Council was passed providing that "the use or operation of vessels known as steam-trawlers operating beam, otter or other trawls for the purpose of catching fish is prohibited within the three-mile limit and in the bays and harbours of Canada." This was obviously an admission that steam-trawling was injuring the shore fisheries, and that it required regulation and restriction. In 1909, during the Imperial Defence Conference, the Canadian Minister of Marine and Fisheries, and the Prime Minister of Newfoundland urged upon the British Government the desirability of making an international arrangement with France and the United States for the regulating of all fisheries on the banks. But no arrangement was made. Protests against steam-trawling, however, continued to be expressed in the Maritime Provinces, and as a result, the following resolution was passed unanimously by the House of Commons on February 6, 1911:—

"That in the opinion of this House, as the mode of fishing known as steam trawling prosecuted by ships of different nationalities on the coast of Canada outside Canadian waters is destructive to fish life, it is expedient in order to conserve the deep sea fisheries, that negotiations be opened with the view of securing an international agreement prohibiting this mode of fishing in such spawning grounds for deep sea fish as the waters of the Gulf of St. Lawrence and the banks of the North Atlantic adjacent to the coasts of Canada and Newfoundland."

In the meantime, bounties had been paid one year to fishermen on the steam-trawler *Wren* operating from a Nova Scotia port, and as a result of objections from fishermen, an Order in Council was passed on February 22, 1911, excluding fishermen on steam-trawlers from sharing thereafter in the fishing

bounty. The agitation against steam-trawlers continued unabated, and on February 5, 1912, when only two steam-trawlers were operating from Nova Scotia ports, the Minister of Marine and Fisheries said in the House of Commons,—

"It is realized that if many steam trawlers are shortly placed in commission on Canadian coasts the hand trawls and long line fishermen will find it hard to compete, and anything that the Government can do to protect them, it is anxious to do."

Meanwhile in Nova Scotia, meetings of fishermen, organized in protest, were held in various places, notably in Canso. From a meeting of deep-sea fishermen at Lunenburg on February 9, 1912, a delegation was sent to Ottawa to interview the Federal Government, with a petition asking that steam-trawlers be prohibited from landing their fish in Canada and from obtaining Canadian coal and supplies. During the session of 1912, the Legislative Assembly of Nova Scotia unanimously passed the following resolution:—

"Resolved: that this House reaffirms the resolution unanimously adopted on the 5th day of April, 1909, as follows:—

"That this House deem it imperative to advise the Federal Government, and it is hereby so advised, of the impending danger to the provincial fisheries from the introduction and use in pelagic waters adjacent to the coast of the devices called otter-trawls, operated by steamers from the British Islands and from France, from which a great influx is contemplated the coming season, to the imminent peril of the said fishing grounds as threatening to deplete them by a method proved the most destructive to the food fishes and their spawn, a fact tacitly admitted by the Dominion Government in debarring said trawlers from the littoral waters.

"And further resolved that the Federal Government is hereby memoralized to set in motion the powers of diplomacy through the Imperial Government to bring about an international convention between the countries immediately concerned, for the suppression of the said manner of trawling in open sea.

"Further resolved that in view of the very great importance of this subject to the fishermen of this province, of their very strong desire that steam trawling be prohibited and of the necessity of the fullest co-operation on the part of the Canadian Government at this particular juncture, this House places on record its exception to any views intended to raise doubts as to the injurious and destructive effects of steam trawling upon our fisheries."

On March 18, 1912, the Minister of Marine and Fisheries said in the House of Commons, "If it is possible to do so, effective steps will be taken to prevent steam trawling being carried on." During the early summer of 1912, a conference was held in Washington, attended by representatives of the United States, by the Canadian Minister of Marine and Fisheries, and by the Prime Minister of Newfoundland, with a view to investigating the whole question of steam-trawlers and of making observations on the results of their operations. After considerable negotiation, it was arranged that during the season of 1912 investigations would be carried on by each country independently, the understanding being that on the completion of the work, the British Government would be asked to call a conference of representatives of countries interested in steam trawling with a view to reaching an arrangement for the entire prohibition of steam-trawling on thic side of the Atlantic. The investigations took a longer time to complete than was at first anticipated. Meanwhile the war had come. It was then decided to postpone the request for the projected international conference until after the end of the war; but the proposed conference was not held. In order meanwhile to protect further the shore fishermen, the Canadian Government in 1915 enacted a regulation under the Customs Act, whereby, the master of any steam-trawler is required before he is granted a clearance for the fishing grounds to give the customs officer a declaration that he will not fish within at least twelve miles from shore, this regulation to apply to all steam-trawlers clearing from a Canadian port on the Atlantic coast. Since that time no further restrictions have been placed on steam-trawlers operating from ports of the Maritime Provinces.

From this brief and general outline of efforts made in Canada to regulate or prohibit steam-trawlers, it is evident that ever since the beginning of their operations from Maritime Provinces ports, they have been the subject of almost continuous protest and discussion.

In other parts of the world where steam-trawlers have operated, similar objections to them have been repeatedly made. The fishermen of Gloucester, Massachusetts, have from time to time registered their protests. In Scotland, when the shore fishing industry was vanishing and the fishing villages were fast becoming depopulated, steam trawling was the subject of many prolonged Government enquiries. Laws were passed in 1885, empowering the Board of Fisheries of Scotland to prohibit the use of steam-trawlers in the territorial waters of Scotland. They were accordingly prohibited from operating in certain areas; and to ensure further protection to the shore fisheries, they were later debarred from landing fish taken in these areas. In 1908, the British Parliament passed the "Prohibited Areas Extension Act," the first section of which provides that,

"It shall not be lawful to sell or land in the United Kingdom any fish caught by the method of fishing known as steam trawling or other trawling within the areas in which such methods of fishing are prohibited."

Laws enacted subsequently with reference to steam-trawlers and the ports of Scotland were passed too late to restore the fishing population or to bring back success to the fishing villages. In Denmark, Holland, and Germany, strong objections to steam-trawling have frequently been made.

The chief objections to steam-trawlers, expressed to us by the shore fishermen may be enumerated as follows,—(1) that they destroy the spawn of cod and haddock; (2) that they destroy the feeding grounds of fish, with disastrous results; (3) that they take large quantities of immature and unmarketable fish, the result of which, with intensity of fishing, will be the inevitable depletion of the fishing grounds; (4) that they are foreign-owned and foreign-manned; (5) that they destroy the gear of fishermen without making restitution; (6) that they market an inferior product, which in the end injures the industry by discouraging the consumption of fish; (7) that they are responsible for over-production and the consequent "glutting" of the market, thereby preventing the shore fisherman from disposing of his catch, of superior quality, at a reasonable price; that because of the low prices offered, and the virtual control of the Canadian markets by the companies operating steam-trawlers, the shore fishermen are deprived of an adequate livelihood, with the resultant serious depopulation of the fishing villages in recent years; and that if steam-trawlers are allowed to continue to operate from Maritime Provinces ports, the fishing villages in these parts will soon be deserted.

Of these objections, the first three may be grouped as relating to the general conservation of the fisheries; the next two, that is 4 and 5, as relating to direct protection of the fishermen; and the last two, that is 6 and 7, as relating to the serious economic problems involved. The first two objections based on the need for general conservation, may, we think, be briefly dismissed. Fishermen are doubtless sincere in their belief that steam-trawling destroys the spawn of cod and haddock. But the results of scientific investigation and observation do not support their belief. It has been found that the spawn of cod and haddock does not rest on the bottom but floats on or near the surface, out of reach of the trawler's net; the opinion that it is destroyed by the trawler seems, therefore, to be based on a misapprehension and is not in accordance with established scientific facts. On the question as to whether or not steam trawling is destructive of the feeding grounds of fish, there is a conflict of opinion, and obviously no definite conclusion can be reached. It seems reasonable to suppose that the dragging of the net, with its iron-shod doors, over the sea-bottom must,

to a certain extent, disturb the feeding grounds for a time. But it is equally reasonable to believe that the disturbance is only temporary, and that the ground is soon restored to normal conditions. It has been suggested that such temporary disturbances may prevent stagnation of the sea-bottom, and may in the end be beneficial to the feeding grounds. While we realize that these two objections are made earnestly and seriously by the shore fishermen and others, we feel that they may be dismissed as untenable, and as having little or no bearing on the merits of their particular case against steam-trawlers.

A more important objection, under the head of general conservation, is that the steam-trawler takes large quantities of immature fish, with resultant disastrous depletion of the fishing grounds. Investigations made in other countries give considerable support to this contention. Dr. T. W. Fulton, sometime Superintendent of Scientific Investigations in Scotland, concluded, after study extending over a reasonably long period, that about thirty per cent of the fish taken by steam-trawlers under his observation were immature fish. Evidence given in 1907 to a Royal Commission appointed by the British Government to enquire into the operations of steam-trawlers, showed that in January, March, April and May of that year approximately ten million, nine hundred thousand pounds of immature fish were landed at Grimsby. Statistics of nine landings at Halifax, N.S. from March 5 to March 14, 1928, by steam-trawlers operating for the National Fish Company, show that 245,803 pounds of "inedible fish" were landed and sent to the fish meal plant. The largest quantity of such fish in one landing was 85,000 pounds, and the smallest, 2,800 pounds. The quantity of immature fish, if any, included in this "inedible fish", was not stated.

Men who had fished on steam-trawlers told us that they had seen great quantities of immature fish washed dead through the scuppers after each fishing period. There seems to be little doubt that immature fish are taken by steam-trawlers in fairly large quantities. As a result of this, and of intensity of fishing, it is a reasonable conjecture that there will ultimately be a very serious depletion of the fisheries in the North Atlantic areas. It is said that from these causes the quantity of fish taken from the North Sea has greatly diminished in recent years. The landings of fish at ports in Great Britain kept up to a fairly average level until recent times. They now show a progressive decline. The supply to-day comes, however, not from the old fishing grounds but from new spaces. The area of the fishing grounds has been greatly widened each year, until from the North Sea, where they fished in former years in an area of 152,000 square miles, the steam-trawlers now fish from the White Sea on the north to the African coast on the south, and east to Iceland, in an area of over 700,000 square miles. The fisheries of the North Sea proper have greatly decreased; and in bringing about the marked diminution, the steam-trawler is regarded as one of the greatest contributory causes.

Under the second general heading of direct protection of the fishermen, two objections to steam-trawlers were expressed to us,—that the steam-trawlers are foreign-owned and foreign-manned, and that they destroy fishermen's gear without making restitution. With reference to the first of these protests, six of the ten trawlers now operating from ports in the Maritime Provinces are said to be owned in Canada; and the majority of the crews are said to be naturalized British citizens. This objection may therefore be considered as relatively unimportant. But the contention that steam-trawlers destroy the fishermen's gear was supported by well substantiated statements by many fishermen who themselves had suffered loss. At Lunenburg, N.S., the Captains' Association was represented before us by counsel who stated that the damage to gear of some of the Lunenburg fishing fleet by steam-trawlers amounted in recent years to at least

five thousand dollars. We were told by several fishermen that it is sometimes the practice of steam-trawlers to set their fishing course where other fishing vessels have taken up their position, and that they destroy, particularly during their night fishing operations, the gear that lies in the track of their trawl. In Great Britain, there have been many prosecutions of operators of steam-trawlers for such destruction of the gear of other fishermen and many convictions have resulted. There, however, the aggrieved fisherman may place his case, for equitable adjustment, before a general court specially established for this purpose. The Canadian shore fisherman has no such privilege; he has to depend on his own efforts to protect his rights and his property, and his efforts are usually futile. France, it is said, maintains a light cruiser or patrol-boat to enforce discipline among French steam-trawlers operating on the banks; and we were told that the Canadian hospital ship on these fishing grounds endeavours to provide protection for Canadian fishermen's gear. But the statements made to us by many fishermen indicate that the protection is far from adequate.

These five objections, pertaining to conservation of the fisheries, and to direct protection of the fishermen, constitute a problem the difficulties and intricacies of which are apparently not generally understood or wholly appreciated. With the possible exception of that relating to foreign-owned vessels, they are beyond the power of the Government of Canada alone to deal with, even if they were all valid or well founded. Beyond her territorial waters, Canada has no jurisdiction. The high seas are free to all nations as fishing grounds, and no country alone can prevent the steam-trawlers of other countries from operating there with their own methods and in their own way. The two important questions above, which call for consideration, are the taking of immature fish and the destruction of fishermen's gear. They are questions that can be disposed of solely by international negotiations and arrangements. We, therefore, recommend that an effort be made by the Government of Canada to bring about an international conference or negotiations among the nations from which steam-trawlers now operate on the fishing banks of the North Atlantic, with a view to making international arrangements or agreements for the regulating of all fishing vessels on the banks, particularly for the protection of fishermen's gear and for the more complete conservation of the fisheries in those areas. The desirability of such negotiations has frequently in the past been discussed and advocated, but no practical or definite plan has yet been formulated.

The final two objections, which we classify as constituting the serious economic problem involved in the entire discussion, are, in our judgment, the most important part of the whole difficulty, and are within the power of the Government of Canada to deal. While they are almost inseparably connected, the first is, in our opinion, relatively of less importance. It is alleged that the fish marketed from the steam-trawlers is an inferior product, which in the end injures the industry. Many of the statements made to us in support of this contention were, on the whole, impressive. It was pointed out that the fish landed by the steam-trawler is caught from one to six days before landing, while the fish landed by the shore fishermen is only a few hours from the water. We were told that the trawl takes into its great maw sharp stones and other flotsam and jetsam which bruise the fish, that when the huge net is raised out of the water into the air, the fish at the bottom of the bag are crushed by the great weight above, and that, therefore, only the upper portion of the catch can be classed as high-grade fish. We have had no opportunity ourselves of observing the actual conditions. But fish dealers who appeared before us in Montreal and Toronto stated that they preferred shore-caught fish to fish taken by steam-trawlers, and some of them declared that they would not purchase the latter if they could always obtain the former. At present, there is no branding of fish to indicate to the consumer the method by which it was caught; the consumer cannot dis-

criminate. Even if fish caught by steam-trawlers is on the whole inferior to that caught by shore fishermen, we are inclined to doubt if that fact greatly affects the consumption of fish, or if the industry is thereby injured. This objection therefore seems to us to have but a small bearing on the serious economic difficulties of the shore fishermen.

The final objection forms, in our opinion, the heart of the whole problem. It embraces over-production, the glutting of the market, low prices, a restricted market for shore fishermen, and the consequent depopulating of the fishing villages. It is an objection to which all the others are, in our judgment, secondary. Without reference to elaborate statistics of any kind, it is obvious that the shore fishermen of Nova Scotia are not paid enough for their products to give them the necessities of life. The phrase, "glutting" of the market, as used by fishermen, means rather the control of the market. A "glutted" market should mean lower prices to the consumer. But the consumer's prices of fish do not change materially, even when the product is abundant. According to the fishermen's statements, when there are large catches of fish, the companies operating steam-trawlers do not buy from the shore fishermen, or they buy at their own price, as a rule far below a reasonable return. They then make the surplus unsold fish into fillets, smoked or frozen, which are kept in storage for disposal when the supply begins to decline and the demand increases. In other words, they are said to control the market and the output to the market. The shore fishermen have received as low as 60 cents a hundred pounds for cod; and the usual price paid until within the last few months has been from one cent to one and three-quarter cents a pound for cod and haddock, depending upon the classification as "steak" or "market". Recently the price has reached two and a half to three cents a pound, but this is far in advance of the average price over a period of years. We were told by shore fishermen that the average cost of production is three-quarters of a cent a pound. As the fisherman has to sell, as a rule, in the cheapest market and buy in the dearest, and as the cost of the necessities of life in fishing villages, and of implements of production, have increased rather than declined, he feels that it is hopeless longer to remain in the industry at home, and he seeks similar employment elsewhere. As a result, the population of the counties in Nova Scotia, where fishing is carried on, has considerably declined in recent years. The following table shows the gradual decrease from over twenty-eight thousand in 1890 to about sixteen thousand in 1927, or a decrease of over forty per cent.

NUMBER OF FISHERMEN, NOVA SCOTIA, BY COUNTIES, 1890, 1897, 1911-12, AND 1917-27 INCLUSIVE

Counties	1890	1897	1911-12	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
Richmond	3,052	2,685	1,972	1,753	1,916	2,173	1,328	1,766	1,838	1,471	1,289	1,435	1,375	1,374
Cape Breton	1,4 5	1,316	957	1,373	1,226	1,132	751	919	885	811	789	874	843	825
Victoria	3,034	1,365	914	1,024	1,05	1,137	1,525	1,389	1,367	1,319	1,136	1,128	1,069	1,028
Inverness	2,480	1,831	985	1, 40	1,385	1,340	1,057	98	1,397	900	945	942	868	800
Cumberland	206	282	395	274	07	16	162	160	222	230	231	286	295	312
Colchester	125	279	84	198	176	222	101	94	70	103	92	72	74	70
Pictou	146	165	417	404	293	305	380	319	363	371	339	326	335	340
Antigonish	516	303	262	242	289	243	331	357	362	410	410	390	381	492
Guysboro	2,706	2,750	2,108	1,949	2,241	1,909	1,673	1,782	1,792	1,621	1,503	1,561	1,522	1,539
Halifax	3,528	3,415	2,397	2,156	2,099	2,606	1,732	1,928	2,058	1,734	1,760	1,718	1,621	1,706
Hants	141	77	90	110	73	85	66	60	56	49	46	43	51	55
Lunenburg	3,947	3,715	3,561	3,049	3,243	3,163	3,161	2,841	2,927	2,559	2,118	2,427	2,724	2,675
Queens	794	576	679	485	377	681	528	714	642	441	608	643	639	611
Shelburne	1,972	2,908	2,052	2,826	2,729	2,758	2,588	2,677	2,187	1,694	1,521	1,402	1,480	1,329
Yarmouth	1,995	1,806	1,651	1,724	1,543	1,560	1,553	1,475	1,380	1,137	1,097	1,088	1,108	1,076
Digby	1,090	1,104	1,827	2,004	2,067	2,001	1,777	1,415	1,502	1,466	1,478	1,488	1,460	1,460
Annapolis	397	409	745	560	537	427	314	323	308	304	326	326	367	330
Kings	140	137	265	115	142	145	138	142	139	122	117	117	103	105
Totals	28,224	25,373	21,661	21,767	21,598	22,083	18,965	19,292	19,495	16,742	15,805	16,266	16,315	16,127

We were told that the number of boats employed in many places had greatly decreased in number. While the figures given to us in specific localities cannot always be accepted as accurate, there is abundant proof of decline in boats, small vessels, equipment and population. There is ample evidence, too, that young men are not entering the shore fishing industry in large numbers. This is doubtless because of its lack of promise of an adequate livelihood rather than because of its lack of inducement as a calling; although hazardous, in itself it should be an attractive pursuit which offers independence in labour, and which, under more favourable conditions, should yield a fairly large return for the labour and capital invested, compared with other industries. A remedy must therefore be speedily found, and the remedy should be prompt and drastic. In default of a remedy, it is not improbable that the fishing villages of the Maritime Provinces may soon be even more seriously depopulated.

The problem seems to be largely one of choice between the steam-trawler and the shore-fisherman. One or the other must remain, and one of the other must go. There would seem to us to be no other alternative. It must not be forgotten that the shore fishermen are proprietors of the inshore sea, proprietors not in virtue of actual possession, but in having made it their own from the earliest days of Canadian coast settlement or colonization. They are almost wholly the descendants of Canadian pioneers, and they follow their fathers' and their ancestors' calling. They have built up, along the coast, communities most valuable to the nation and worth every effort to preserve. And in so doing they have been assisted generously but justly by public funds in the construction of wharves and harbours and general aids to navigation, which might help them in their labour and make their calling easier and happier. Healthy and contented fishing villages are vitally necessary on the Atlantic coast of Canada, but they can only survive with the independence that goes with security of markets. It is perhaps needless to emphasize the prime importance of having around the coast a body of men of the type of the fishermen of the Maritime Provinces, and more especially of Nova Scotia, and of fostering them by every possible means. The maintenance of such communities would seem to be necessary, even if the fisheries of the Maritime Provinces had lost their economic value,—which is far from being a fact, as their value in 1926 was approximately twenty million dollars. To-day the population of these villages is not only seriously declining, but it is viewing its future with dissatisfaction and discontent. The young men are not replacing the older generation, and the situation must be regarded from a national viewpoint with grave anxiety and apprehension. Under the economic disabilities of the past few years, it is perhaps surprising that the decline has not been even greater. It will be impossible to recreate such communities if they are allowed to die out. When once destroyed, they can never be supplied. They are not yet dead; they are waiting their chance to succeed; it is not too late to revive them; and the present would seem to be an opportune time to take decisive action.

It is alleged that the steam-trawler, with its vast mass production, has forced the shore fishermen out of his customary rights and has deprived him of a market, other than at an unremunerative price. The Canadian market for fresh fish was established and developed by various means. The Government of Canada greatly assisted its development in 1908 by paying a portion of the express rates in the transportation of fresh fish from the Maritime Provinces to other parts of Canada. Later, refrigerator cars and more rapid transit helped to enlarge this market. The "meatless days" of the war years, and the operating of special "fish-trains", also increased the consumption of fish. When the so-called Fordney Tariff was levied in the United States, it was necessary to seek a home market to take the place of the market at which the new tariff barriers were erected. All these agencies aided in creating and developing a

home market for fresh fish. But this entire home market, as pointed out in Paragraph III, Section 7 of the main report takes to-day only ninety million pounds of fresh fish in all forms from the Maritime Provinces. The companies operating steam-trawlers state that of the seventy-six million pounds handled by them last year, thirty-six million pounds were purchased from shore fishermen. The following table, furnished by these companies, indicates the relative production in pounds:—

	1923-24	1924-25	1925-26	1926-27
Trawler landings	20,[illegible]586	24,026,104	34,036,495	40,292,911
Purchased from shore fishermen	29,7[illegible]596	32,775,658	31,399,518	36,365,021

From this table it appears that the quantity of fish purchased from the shore fishermen increased in four years only slightly over six million pounds, or 22 per cent, while the quantity purchased from steam-trawlers or procured by steam-trawlers increased over nineteen million pounds or approximately 94 per cent. The total quantity of fresh fish shipped by the companies operating steam-trawlers increased over twenty-six million pounds or 52 per cent. The shore fisherman did not profit to a relatively great extent from this increased consumption of fresh fish. That under present conditions the shore fisherman's fears for the future are not unfounded, is indicated by a consideration of the present market supply and demand in Canada. As already stated in Paragraph III, Section 7, of the main report, the total consumption of fresh fish from the Maritime Provinces in Canadian markets is ninety million pounds. The average catch each trip by a steam-trawler is, at a conservative estimate, not less than 150,000 pounds, probably 175,000. Statistics from the National Fish Company, already quoted, show that in ten days, from March 5th, to March 14th, 1928, over a million and a half pounds of fish were landed by their trawlers. The average number of trips a month by a steam-trawler is five or six. Based on the lower estimate of five, and the lower estimate of 150,000 pounds of fish landed each trip, a steam-trawler would land at least 750,000 pounds a month, or nine million pounds a year. The ten steam-trawlers now operating from Nova Scotia ports would land much more than ninety million pounds, which is the total consumption of fresh fish in Canada from the Maritime Provinces. If steam-trawlers are used to full capacity, there is, therefore, little promise of markets for the shore fishermen, under present conditions, for as consumption increases, steam-trawlers will doubtless increase. The shore fisherman, deprived in a large measure of his home market, is compelled, at greatly increased labour, to dry or salt his fish and ship it to a foreign market. But the demand for dried fish is decreasing, and that market, once profitable, now holds out but little encouragement. Thus, over-production is said to be depriving the shore fisherman of a livelihood and to be forcing him to leave his country. The captain of a steam-trawler told us that from a catch of four hundred thousand pounds, of edible fish, he had seen ninety per cent sent to the fish meal plant, because of an over-stocked market, and a lack of demand. Efforts must be made to retain in their calling the fishermen of the fishing villages of the Maritime Provinces. In addition to encouraging an increased immigration to Canada, it is obvious that every assistance should be given to keeping the population of the fishing communities in their own country by providing adequate care for their industry.

We believe that one of the remedies for the present situation is the total prohibition of steam-trawlers from operating from Canadian ports, landing

their catch in Canadian ports, or obtaining in Canadian ports coal or supplies. And we recommend that such legislation be enacted as to make such prohibition effective on and after June 1st, 1929.

Statements in support of steam trawlers were made to us, largely by persons interested in the operation of these vessels. It was suggested that steam trawling is a scientific method of catching fish, that modern methods in any industry have always met with opposition, and that the trend of employment from one industry to another is a common trend,—hence the decline in the population of the fishing communities in the Maritime Provinces. Analogies were made with farm tractors which took the place of horses, harvesting machinery which replaced the sickle and the scythe, textile factories which succeeded the spinning-jenny and the loom. We were not impressed with the soundness of these analogies; they are, however, so misleading that we feel disposed briefly to refer to them. Labour saving farm machinery is of advantage to the individual, who is entitled to introduce on his own property any method devised to benefit himself, so long as it does not injure his neighbours or his community; but a machine, the operation of which, while bringing benefit to the individual, would result in sending his neighbours to another land, and in making a depopulated or discontented community, would not long be tolerated. In the analogy of the textile factory, there is obviously confusion between the method of producing a raw material and the method of fabricating a raw material. The spinning-jenny has gone; but the wool growers, the producers of the raw material, still have strong and prosperous co-operative associations.

Steam-trawling, in its operations, is not analogous to any other industry. In other industries, so-called improved methods are usually of advantage to the whole communities where they operate; and they provide, as a rule, employment in another form for labourers left unemployed because of the introduction of the improvement. But steam-trawling does not produce employment to absorb the shore fishermen displaced from labour and deprived thereby of an adequate livelihood. The crews of the ten steam-trawlers operating from the Maritime Provinces number only about two hundred men. It is the function of industry in any country to produce men as well as goods, to make livelihoods as well as profits. We venture to say that, in our judgment, the only practical and reliable test than can be applied to any industry, particularly an industry which makes free use of a natural resource, is not merely its profits, or its power to supply a market, or even its value to the consumer, but rather its total effect in the general prosperity and contentment of the population of the country where its operations are carried on, and among the workmen on whose realm it encroaches. Judged by these tests, steam-trawlers operating from Canadian ports seem to us to have no claim to privilege or tolerance, particularly in the present circumstances in the Maritime Provinces. A change of employment is possible in countries of large population and of vast and diverse industries. It is not possible to-day to fishermen in the Maritime Provinces, where few industries exist. Either the shore fisherman must be kept contented in his calling, with a secure market and a reasonable reward for his labour, or he must leave his country; many have already left it and are now leaving it. Again, a change from the fishing industry is more difficult than from other industries. The fisherman is born and bred to the sea, with an inherent aptitude for the sea and ships and boats. The very nature of his training largely unfits him for happiness or success in any other calling.

We were told that a large amount of capital had been invested by the companies operating steam-trawlers and that, therefore, they should not be interfered with. The prohibiting of steam-trawlers need not necessarily interfere with the trading operations of the companies now operating them. It will merely necessitate, as already stated, larger purchases from the shore fishermen.

The companies operating steam-trawlers shipped last year over seventy-six million pounds of fresh fish in varied forms to the Canadian markets. Of that quantity, they purchased over thirty-six million pounds from shore fishermen, while over forty million pounds were taken by steam-trawlers. If steam-trawlers are prohibited, an equivalent amount of the catch formerly taken by them must be taken by shore fishermen. It will mean merely a change in the source of supply.

The following table, from statistics for 1926, gives the relative amounts invested by companies operating steam-trawlers, and by fishermen and dealers and others engaged in the industry; also the relative number of men employed, and the approximate amounts invested in wharves and other necessities of the shore fisheries. We do not feel called on to comment further on this information:

Total amount invested in steam trawlers		$ 990,000 00
Invested in steam fishing vessels	$ 159,500	
" sailing and gasoline vessels	6,451,422	
" sail and tow boats	615,936	
" gasoline boats	5,328,186	
" carrying smacks and scows	516,783	
" Vessels, trawls and hand lines	420,695	
Total		13,495,522 00
Invested in fishing piers and wharves	$ 377,820	
" freezers and ice houses	448,401	
" small fish and smoke houses	1,026,824	
Total		2,453,045 00
Invested in nets, traps and weirs		5,412,149 00
" crab traps, oyster plants, and lobster traps		1,971,658 00
Total of		$24,022,374 00
Men employed on steam trawlers		249
" vessels	7,660	
" boats	40,122	
" carrying smacks	737	
		48,519

It was stated to us that if steam-trawlers are prohibited from landing their catch in Canadian ports, the shore fishermen are at present incapable of supplying the market for fresh fish, and that the market will be lost beyond recovery before they are sufficiently equipped to supply it. We were also told, that in certain months of the year, the shore fishermen will find it impossible to meet the demand for fish, and that the consumer will therefore suffer. Such predictions are extremely problematical and speculative; yet we venture to hazard the opinion that they will not be fulfilled. An industry cannot fairly consider only the interests of the consumer and be unmindful of the welfare of the persons engaged in it. The supply of food commodities is seldom constant or regular. A food product is frequently unobtainable, but its market is seldom lost. So tangled are all the factors concerned, that it is not possible to get accurate statistics of production by the two methods of fishing, or of actual consumption. But we are convinced that there is to-day much unused capacity in the shore fishing industry, as a natural result of the economic disadvantages under which it has a long time laboured. We must, therefore, distinguish between actual strength and potential strength, and take into consideration the latent power of the fishermen. The steam-trawler has, we believe, displaced labour capable of supplying the demand. That production by shore fishermen can, at times, be vastly increased is evident from the following table showing the quantities of fresh cod and haddock shipped from the Maritime Provinces from 1900 to 1907, the year before the first steam-trawler operated from a Maritime Province port. It indicates that the production increased in eight years from seven million pounds to over twenty-two million pounds.

Year	Cod	Haddock
	Fresh or Green	Fresh and Smoked
	Lbs.	Lbs.
1900	Nil	7,500,625
1901	Nil	8,691,069
1902	Nil	7,751,883
1903	504,500	10,060,283
1904	1,238,985	9,875,700
1905	1,876,000	14,216,384
1906	2,170,695	18,246,866
1907–08	6,895,900	15,259,535

At present the fisherman who cannot sell his fish at a reasonable price is compelled to salt it or dry it, and to sell it in a foreign market, while his home market for fresh fish is closed to him because of the production by steam-trawlers. Last year the production of dried fish in the Maritime Provinces amounted to over one hundred million pounds. A large proportion of this fish could be diverted to fresh fish markets. With the introduction of brine-freezing, referred to in Paragraph X of the main report, and with co-operation referred to in Paragraph XIV, it should be possible for the shore fishermen to supply all demands in periods of lean catches resulting from scarcity or storm. Even in winter months the production of fish by shore fishermen is not inconsiderable. With the introduction of more motor power, fishing vessels will land their catches more frequently. It is possible that it will be necessary for the shore fishermen to improve their methods of fishing, by the introduction of more modern gear, such as the small Danish seine or trawl. The fishermen who appeared before us expressed emphatic confidence in their ability to supply the demand, and we feel that with adequate encouragement they will not fail to keep the market supplied.

The following table gives in pounds the catch in western Nova Scotia by shore fishermen during the winter months of 1927.—

LUNENBURG COUNTY

1927	January	Cod	166,000	Haddock	250,000
	February	"	75,000	"	145,000
	March	"	240,000	"	206,000

QUEENS COUNTY

1927	January	Cod	146,100	Haddock	97,400
	February	"	90,800	"	5,000
	March	"	38,000	"	11,800

SHELBURNE COUNTY

1927	January	Cod	338,300	Haddock	245,000
	February	"	272,000	"	166,000
	March	"	164,000	"	62,000

DIGBY COUNTY

1927	January	Cod	77,900	Haddock	177,200
	February	"	3,900	"	11,400

The year 1927 was the first year in which winter fishing was carried on from Lunenburg. The catch in Shelburne and Queens County in that year was much smaller than the average, as the fishermen had reduced their fleet and curtailed their catch because of over-production in the previous year.

With a mounting density of population and a much larger consumption of fish, it is possible that in some future time steam-trawlers may be required in

Canada to meet the demands of a large fish consuming population. But that time seems to us to be very far distant. And meanwhile, steam-trawlers should in our judgment, without fear of the consequence, be prohibited from landing their fish and from obtaining supplies at Canadian ports, in order that the fishing population of the Maritime Provinces may be protected and retained.

During the course of our enquiry we heard from many reliable and restrained persons in almost every centre we visited, detailed descriptions of conditions in many districts along the coast of the Maritime Provinces. We were given vivid word-pictures of fishing villages in which ageing men alone were left to man the fishing boats, with little hope of adequate livelihood in the future years of their physical incapacity, and no hope of pension such as is possible to workers in other industries; of fishing communities from which the young men had emigrated in large numbers to another land, or were hoping to emigrate when they could gather sufficient means; of neglected boats with hulls ripe and rotten on the beach; of discarded gear once valuable and useful, but now falling to decay; of abandoned fishing vessels, left hopefully equipped as they came in from the sea, to wait for a better season which never came; of wharves and breakwaters once staunch and busy, but now dilapidated and deserted; of once prosperous localities slowly but surely becoming the graveyards of a dead industry; of fisher-folk despondent and disheartened, struggling on against economic disabilities, eager to labour in one of the most hazardous of pursuits but unable to sell their products for a reasonable reward, always hoping for better luck, and clinging grimly and patiently to their calling,—a tribute at once to their character and their courage; and of school-children psychologically distrustful of a future in their own country and planning to migrate at maturity to another land to make a living. Apart from the statements made to us, we have taken every means and every opportunity to inform ourselves on the actual conditions, and we are convinced that these word-pictures were not overdrawn. Our own independent observation has left on our minds an impression of the seriousness of the situation deeper perhaps than that left by the emphatic and, at times, indignant protests of fishermen smarting under their obvious disabilities. But we believe that with necessary regulations and encouragement these conditions are remediable, and that they can give place to conditions of adequate livelihood and contentment. But immediate action is necessary to bring about this result, if the fishing communities of the Maritime Provinces are to be retained, by ensuring to the fishing population adequate remuneration for its labour.

CYRUS MACMILLAN,
H. R. L. BILL
JOSEPH MOMBOURQUETTE,
J. G. ROBICHAUD.

XVIII

STEAM-TRAWLERS

Report 2

One of the most difficult matters referred to the Commission for inquiry, and one which occasioned a deep and widespread interest among fishermen of certain parts and of certain branches of the fishing industry, was whether or not further restrictions should be imposed upon the operation of steam-trawlers fishing out of Canadian ports.

Representations were made to the Commission suggesting restrictions or regulations to be made applicable to trawlers fishing out of Canadian ports in addition to those now in force; many others were made to the effect that traw-

lers should be entirely prohibited from fishing out of Canadian ports. They are not permitted now to fish in territorial waters. My colleagues are recommending the prohibition of the use of the trawler as a Canadian fishing vessel, out of Canadian ports, and with that I am unable to agree. I am therefore obliged to submit separately my report upon this matter.

Various objections were urged against the use of the trawler for fishing purposes. It was said that it destroyed the spawn of cod and haddock; that it destroyed the feeding grounds of these fishes; that it was depleting the stock of fish in the sea; that it destroyed large quantities of immature fish; that it has decreased the supply of cod and haddock on the shore fishing grounds; that it produced an inferior fish for food supply; that periodically it caused overproduction and a decline in market prices, and, that it frequently damaged or destroyed the fishing gear of fishermen on the fishing grounds. Another class of objection was, that some of the trawlers in use were chartered from abroad, and should be regarded as foreign trawlers, and should not be permitted to fish from Canadian ports, as Canadian fishing vessels.

Additional restrictions or regulations suggested in respect of the operations of trawlers were, that they be not permitted to fish during the spawning season; that the trawler should pay a license fee; that a tariff should be imposed on all trawler-caught fish entering Canada; that a duty of 1 cent per pound should be imposed on trawler fish unless a one-half interest in the trawler was owned in Canada; that trawler fish should be identified in the market by a mark; that trawlers be permitted to fish only in winter months; that they report back to port on the fourth day after each sailing; and that they be prohibited from fishing in the Northumberland Straits and certain other waters.

It is correct to say that more persons appearing before the Commission spoke against the continued use of the trawler than did others to the contrary, particularly considering that many fishermen spoke in a representative capacity. That, however, is not conclusive of public opinion, or even of those engaged in the fishing industry; that opinion is difficult of ascertainment. The statements made to the Commission must be carefully weighed and accorded their proper value by the usual tests; and being largely statements of opinion, their weight cannot be determined by a count of numbers. If the reasons advanced for the prohibition of the trawler are of doubtful foundation in fact, then it may fairly be said that existing public policy respecting the use of trawlers should not be lightly reversed, after its acceptance for fifteen years. To do so, upon fears that perhaps are foundationless, upon expectations that may fail of realization, or upon opinions which may not be well founded, is not sufficient; nor would it be calculated to effect a permanent settlement of this highly controversial matter. A decision to prohibit the use of the trawler for fishing purposes by Canadians, should be beyond reasonable doubt, before it is reached. Before trawler fishing, now no longer in its infancy, is terminated, the reasons for so doing should be manifestly strong. If the prohibition of the trawler is a mistaken policy, it may cause injury to those whom it is expected to benefit, as well as to others, and to retrieve the consequence of such a mistake may be most difficult.

It is difficult to determine the value that should be attached to the representations made to the Commission, concerning the prohibition of the trawler. Many statements suggesting prohibition of the trawler were made, but not always unqualifiedly made. Frequently they were associated with alternative suggestions in the way of further regulation of the trawler. For example, a series of recommendations was presented to the Commission, on behalf of the fishermen of a large fishing centre, Riverport, N.S., and one was "prohibition or curtailment of beam or otter trawling and that a duty be enforced on all fish landed from beam trawlers other than Canadian registry." It was explained

that this was not intended to mean the prohibition of Canadian trawlers. Frequently the prohibition of the trawler was suggested, unaccompanied by any reasons whatever; and often on obviously fallacious grounds, which left the suggestion without weight. Opinion upon the subject varied in localities. In Prince Edward Island, the only representation made to the Commission was, that trawler fishing in the Straits of Northumberland should be prohibited; the prohibition of trawler fishing in international waters was not suggested. None of those appearing before the Commission from the Magdalen Islands suggested the prohibition of trawler fishing. In New Brunswick, little criticism was directed against the trawler, and little was said in its favour. One person thought trawlers were necessary at certain seasons of the year; another, that a fleet of deep-sea trawlers should be operated from the port of St. John; and another, that a tariff should be imposed on fish landed by trawlers. A few persons stated that the use of trawlers should be prohibited but without giving any weighty reasons for their opinions. Coming then to Nova Scotia, the situation was found to be quite different; and the whole controversy concerning the use of trawlers, in reality, relates to and is confined to that province. There, in certain localities particularly, a strong sentiment was found among fishermen in favour of the prohibition of the trawler; in other parts there did not appear to be any substantial body of opinion against its use. The opinion that the elimination of the trawler would not be prudent or practical was frequently expressed, while others suggested the application of further restrictions upon trawler fishing. In the large fishing district of Lunenburg County, only one person, I think, appeared before the Commission unqualifiedly suggesting the prohibition of the trawler; this person spoke on behalf of others as well. It was quite apparent in this great fishing centre that there was no substantial opinion in favour of the prohibition of the trawler. This was in distinct contrast with former years. In 1912, when trawlers were coming into use in Nova Scotia, a large public meeting was convened at Lunenburg for the express purpose of considering this question; in a resolution passed by this meeting it was declared that the fishing industry would be extinguished if trawler fishing was permitted to continue. When the Commission was at Lunenburg, a dragger trawler was under construction, to engage in fishing from that port; it is probably now in use. One could not refrain from hearing the opinion frequently expressed, that many others would follow. The main objection heard at Lunenburg against the trawler was that at times it damaged the fishing gear of vessels on the fishing banks; and it was urged that regulation by international agreement was necessary to prevent or minimize this. Lockeport is one of the largest fresh fish producing ports in Nova Scotia, other than ports from which trawlers operate. It is one of the few places in Nova Scotia where shore fishing is carried on throughout the year by boats and vessels, except when prevented by unfavourable weather conditions, chiefly during winter months. The Commission was addressed at Lockeport by Mr. Winthrop Bell, who was selected by a meeting of Lockeport fishermen, to present their considered views. He said that trawler fishing should be confined to Canadian-built and owned bottoms, but did not suggest the prohibtion of the trawler. It is only fair to say that opinions supporting the prohibition of trawlers were also given to the Commission at Lockeport. The master of the largest vessel fishing out of Lockeport stated that trawlers were probably needed and that fresh fish market requirements could not be supplied by boats or vessels alone. He said, however, that there were too many trawlers engaged in fishing; that they should be registered and owned in Canada; and that they should pay taxes in Canada, and if so, he added, the fishermen of Lockeport would take their chances with trawlers. A fish merchant carrying on an extensive fresh fish business at Lockeport, stated that trawlers should not be permitted to operate from Nova Scotia ports unless they were constructed and owned in Canada. He also stated that it would not be wise

to prohibit trawlers. All this is not indicative of a definite preponderance of considered opinion in favour of the prohibition of trawlers. The great number of suggestions made in the way of further regulation of the trawler, even by those speaking in support of its prohibition, was expressive of honest doubt as to the proper means of solving what they considered a perplexing problem.

The trawler now generally in use throughout the world is know as the "otter" trawler and not the "beam" trawler. The otter trawl consists of a large cone-shaped net with a mouth ranging from forty to ninety feet according to the size of the trawler. The mouth of the net is kept open when trawling by an otter board affixed to the wings at each side of the mouth of the net, and to these boards the wire towing-warps are attached. For present purposes this sufficiently describes the method of fishing employed by trawlers.

About 1900, the first trawler was operated from a Nova Scotia port, followed by another in 1909. Neither continued long in fishing there. Each year since 1911 one or more trawlers have fished out of Nova Scotia ports, and until recently during the winter months only. The number said to be in operation during parts of each year since 1911 was as follows: two in 1911; two in 1912; four in 1913; six in 1914; four in 1915; four in 1916; seven in 1917; five in 1918; six in 1919, eight in 1920; five in 1921; five in 1922; seven in 1923; eight in 1924; ten in 1925; eleven in 1926, and ten in 1927. In 1927, four of the number mentioned were operated by the National Fish Company of Halifax, N.S., two being owned by that company and of Canadian registry, the remaining two being owned by Nova Scotia companies, the share capital of which was held there, and chartered to the National Fish Company. These trawlers were registered in Great Britain until recently, when they were transferred to Canadian registry. A fifth trawler, owned and registered in Newfoundland, was also under charter to the National Fish Company. In 1927, the Maritime Fish Corporation operated three trawlers, one of which it owned, the other two being under charter from British owners. The Leonard Fisheries, Ltd., in 1927, owned and operated one trawler; another, the "Offa", of British registry, was operated in its interest under an agreement, the terms of which may be briefly stated. The trawler "Offa" was engaged in fishing from Nova Scotia ports under an agreement between the Leonard Fisheries, Ltd., and one Martin Olsen representing the owners, for the period from October 1st, 1927, to April 15th, 1928, the fish being purchased by the former in stipulated quantities and at agreed prices.

Fish caught by trawlers chartered to Canadian companies from British owners, have been admitted free of duty into Canada. Section 9 of the Customs Tariff Act, 1907, states: "that fish caught by fishermen in Canadian fishing vessels shall be admitted into Canada free of duty", and it is complained that chartered trawlers are not "Canadian fishing vessels", within the spirit of the Customs Tariff Act. The Department of Justice in 1920 gave the opinion that "Canadian fishing vessels" should be construed to include a British registered steam trawler under charter to a Canadian corporation. In pursuance of this opinion, trawlers of British registry chartered to Canadians, have been treated as Canadian fishing vessels, and therefore entitled to land their fish free of duty.

The principal grounds of complaint against the use of the trawler for fishing purposes may now be considered. The first to be mentioned is, that trawler fishing will deplete the stock of cod and haddock on the fishing grounds, because it destroys the spawn of these fish. This ground honestly influences a great number of persons against the use of the trawler. It is mentioned, not because it is of weight, but because this opinion seems to be widely held, notwithstanding the conclusive scientific evidence to the contrary. Professor J. N. Gowanloch, of Dalhousie University, stated to the Commission that the spawn of cod and haddock floats near the surface and therefore could not be dragged from the bottom by the trawler. Dr. A. G. Huntsman of the Biological Board supported

this opinion. A Royal Commission was appointed in Great Britain in 1883, to enquire into the complaints of fishermen against the use of the beam trawler. During a period of eight months, observations were carried on by scientific men on behalf of that Commission, upon the effect of the use of the beam trawl-net. In 1885 the Commission reported, finding that the beam trawl did not destroy cod or haddock spawn. In 1912, the Congress of the United States directed an enquiry by the Commissioner of Fisheries into the methods of fishing, by beam or otter trawler. The enquiry was made under the direction of a Committee, some of whom were scientific men. Observations were made on fishing vessels by some members of the Committee, and also by a number of others selected for the purpose and covering quite a period of time. They reached the conclusion that otter trawls did not destroy the spawn of the commercially important demersal fishes, such as cod and haddock, all of which have pelagic or floating eggs.

It is beyond controversy, that the spawn of cod and haddock and most commercial fishes, float in the sea near the surface, and are not subject to destruction by the trawler method of fishing, except when the spawning fish is taken, and this would occur under any other method of taking fish. This contention, as a ground for the prohibition or curtailment of trawler fishing is, therefore, without foundation.

Another ground urged against the use of the trawler is that it destroys quantities of immature fish, which if permitted to live would not only increase in size and thereby add to the volume of fish in the sea, but by procreation would further increase the stock of fish. On this point the British Commission reported that the evidence given by fishermen and trawlers was very conflicting. The fishermen asserted the quantity of immature fish taken in the trawl to be very large, and far in excess of anything observed by Professor McIntosh, Scientific Adviser to that Commission, who, after lengthy observations, expressed the opinion that while at times numbers of immature fish may be brought up by the trawl net, these generally speaking were not of the more valuable kinds of food fishes; and that there was no evidence of any unnecessary or wasteful destruction of immature food fishes by the beam trawl. The Committee assisting the Commissioner of Fisheries of the United States in the enquiry there, was of the opinion, that while the trawler was more destructive to young fish than trawl line fishing, yet a large proportion of such fish would die or be destroyed by natural causes before reaching a large or medium size, and that the effect of the destruction of young fish taken by trawlers upon the total supply of fish, would be less than the statistical data before them would indicate.

On the evidence available to the Commission, it is impossible to state what proportion of fish taken by trawlers are immature. To gather this information with any degree of accuracy would require observations covering a substantial period of time. Mr. E. Kelly, a Special Inspector of fresh fish landed from trawlers at Canso, N.S., has furnished some evidence as to the proportion of small fish landed by trawlers. Three trawlers fishing out of Canso from November 7th, 1927, to February 29th, 1928, landed 3,009,280 pounds of fish, of which quantity there was 177,685 pounds of small fish, all of which were marketable. The Commission caused examination to be made by two departmental fishery officers, of the landings of fish by several trawlers at Halifax, during the month of March last. These fishery officers reported to the Commission upon the proportion of immature fish found in twelve landings by different trawlers. In one landing the small edible fish was 2.86 per cent; in another, .78 per cent; in another, .66 per cent; in another, 1.11 per cent; in another, .53 per cent; in another, 1.21 per cent; in another, .51 per cent; in another, .61 per cent, while in two cases there were no small fish at all. The small edible fish were marketed as scrod. The trawlers referred to were operated by the Leonard Fisheries, Ltd., and the National Fish Company, Ltd. From this report, it will be

seen that the proportion of immature fish landed was comparatively small. This however may not be conclusive, because at other seasons of the year a much greater proportion of small fish might be taken, and it is also possible that some were thrown overboard at sea by some of the trawlers.

The effect of the taking of immature fish by trawlers, upon the stock of fish in the sea, is impossible to state, and any consideration of the probabilities would be purely speculative. Immature fish are continuously being preyed upon by other fish, such as the dogfish and many others; they are caught by trawl line fishermen; any attempt to estimate the quantity thus destroyed would again be mere speculation. The evidence available to the Commission does not establish any alarming or wasteful destruction of immature fish by the trawler, or that the supply of fish is thereby diminishing. A prohibition of the use of the trawler upon this ground would not seem justifiable, particularly, if only Canadian trawlers are to be prohibited.

Another ground of complaint against the further use of the trawler, was, that it destroyed the marine animal and vegetable growths which are found on the bottom of the fishing grounds, and upon which fishes feed. Should there be any established basis for this view, it would constitute a strong case against the use of trawlers. Although the cod and haddock spawn on some of the fishing banks, they resort to them primarily for food, and it would follow that if the bottom growth were destroyed, the productiveness of the fishing banks would in time, be seriously impaired. It is necessary, therefore, to enquire, if there is evidence anywhere to be found in support of this contention.

The evidence presented to the Commission on this point was not the result of special investigation or study, but was of inference only. It was not conceived to be the duty of the Commission to carry on any scientific investigation upon this point, and it is not probable that this was expected of it. In the circumstances, one cannot do more than look to other sources for light upon the point, such as the result of investigations into the same subject matter in other countries. The report of the United States Commissioner of Fisheries, already mentioned, discusses this point quite exhaustively, and I feel justified in quoting, briefly, from it. That report upon this point, in part states:—

"Much of the data submitted by the observers are too vague for quantitative consideration, but one man definitely states the quantities in bushels in his monthly analysis of the results of his observation on each bank. From his returns it is deduced that the average quantity of scallops, clams, shells, sponges, starfishes, and bottom material generally, varied with the month and the locality, from a small fraction of a bushel to 4.7 bushels per haul, the latter being the average of 26 hauls made in South Channel in August, 1913.

"A simple computation shows that this maximum represents a film 0.00021 inch in thickness spread over the area swept by the trawl, or, to state the case in another way, a little pile of material 1 foot square and 9 inches high on each acre traversed. This means either that a small proportion of the existing bottom material was captured by the net, which is probable, or that there was very little material to take. In either case the result to the fishery is trivial and negligible, as the whole quantity, shells and all, if eaten by the marketable haddock and cod alone taken in the same hauls would constitute a morsel of but about 2½ cubic inches for each—a very small meal indeed—and leave nothing for the many other fishes taken at the same time.

"But, the evidence shows, this material was not destroyed but thrown overboard when the decks were cleared after each haul, the uninjured organisms in large part to carry on their lives as before, and the dead shells to lie again on the bottom and serve as places for attachment for other growths. Any crushed scallops, mussels, etc., undoubtedly would be eaten by fishes or by animals on which the fishes feed, for no dead organic matter is permitted to lie long unutilized on the floor of the sea. Fragments of sponges would each begin to grow into a new sponge and mutilated starfishes would soon reproduce the injured or lost parts, if they did not fall prey to the fishes in the meantime. The modicum of captured and liberated material would therefore be little, if any diverted from the function which it would have discharged if it had remained unmolested on the bottom. It is claimed, however, that but part of the damage wrought to the bottom by the trawls is represented by the material brought up in the nets, greater quantities of the bottom organisms being torn loose, crushed and mutilated. To the extent that this may be true, the preceding remarks

on the utilization of the detached and injured organisms also apply. It is, of course, impossible to observe the action of trawls operated in depths as great as are found in the bank fisheries, but by an examination of the catch, the method of operating the apparatus, and comparison with the known effects of similar appliances, conclusions of some value may be deduced."

A finding of the report was, that other trawlers did not seriously disturb the bottom over which they fished, or materially denude it of the organisms which directly or indirectly serve as food for commercial fishes.

Upon the question of injury to the feeding grounds of fish by trawlers, the British Commission of 1885, already referred to, stated:—

"Complaints were occasionally made to us that the head irons and ground rope of the trawl tear up the bottom of the sea and cause great injury to the invertebrates and the bottom fauna inhabiting the banks where the fish feed. This assertion was not supported by any more definite facts than the occasional presence of these creatures in the trawl net. In the absence of any satisfactory evidence either for or against the view thus presented us, we have to rely on the observations of Professor McIntosh, which lead us to believe that the injury done is insignificant."

Professor McIntosh, scientific adviser to the British Commission, was of the opinion that a certain amount of damage was inflicted by the trawl on the invertebrate inhabitants of the fishing grounds, but the nature of the fauna and their surroundings were such that any injury occurred rather in the net and on the deck of the vessel than on the sea bed, and he stated that no evidence had been obtained that fish would not frequent a bank that had been trawled over. He said it was probable where this had occurred, that it was due to other causes.

The contention that the trawler materially injures or destroys the food of fishes on the fishing grounds, is not supported by any evidence given to the Commission, or by any elsewhere available. In any event, to prohibit Canadian trawlers alone would not substantially prevent the injury, if injury there be.

Again, in general terms, it was contended that the trawler was depleting the stock of cod and haddock on the fishing grounds. If this be correct, the result should in some degree be reflected in the quantities of fish annually taken on the fishing grounds frequented by trawlers. There is nothing to indicate that the effect of trawler fishing, up to the present time, has been to diminish the stock of cod and haddock. There always have been variations in the annual catch of these fish on the North Atlantic fishing grounds, as elsewhere. There are good and bad fishing years in the sea, as there are good and bad harvests on the land. Scientific investigations have not yet been made with sufficient care, to define the exact causes of variations in the abundance of fish on the various fishing grounds.

Statistics indicate that the combined catches of trawlers and fishing vessels from Canada, United States, Newfoundland, France and Portugal, on the fishing grounds of the North Atlantic, are not diminishing. In 1925 the combined catch by fishermen of the countries mentioned, was greater than in any one other year for which statistics are available. In 1927, the Lunenburg bank fleet of 84 vessels caught 239,375 quintals of fish, and while this was considerably short of the preceding year with 89 vessels, nevertheless it was greater than any other year in the history of that fishing fleet, prior to 1918.

In respect of the cod and haddock shore fisheries, we also find variations in the annual catch, particularly in certain localities. The decline in the abundance of shore fish such as cod and haddock, in certain sections of the coast, was attributed by some to trawlers. In some years, and sometimes for a period of years, the cod or haddock will disappear from fishing grounds where for a considerable period they were found with regularity and in substantial abundance. All the physical and biological factors influencing the distribution, movements and relative abundance of shore fish are not yet scientifically determined, but it is known that they are influenced by ocean

currents and temperatures. Fishery statistics do not indicate that the shore fisheries of the Maritime Provinces are diminishing in supply, though of course, variations in abundance are shown. In 1925, 1926 and 1927, the yield of the shore fisheries was greater than in preceding years. A decline in the catch of shore fish in some parts is quite perceptible and in others it is more pronounced; but this may be due to causes other than a decline in the stock of fish, such as a shortage of bait supply, dogfish movements, or a decline in the number of fishermen. The variations in catch generally, or in certain parts was as noticeable before trawler fishing commenced, as after. I cannot say that there is any visible depletion of the cod and haddock in shore fishing areas, because of trawler fishing, or that any periodic decline in the supply is due to that cause. Continuous fishing by trawlers in narrow waters or restricted areas might very sensibly diminish the quantity of fish, or even exhaust such waters. There is said to be a decline in the quantities of fish taken in the North Sea and contiguous waters; but the prevailing view is that this is because of overfishing. In view of the proscribed areas for trawler fishing, it cannot confidently be said that fishing on the outer banks by Nova Scotia trawlers has caused a decline in the quantity of cod and haddock on or near the shores of the Maritime Provinces.

Representations were made to the Commission that the shore haddock fishery of eastern Nova Scotia had definitely declined in recent years; the operation of the trawler on the offshore banks was said to be the cause of this. Evidence was given that trawlers not infrequently take quite considerable quantities of undersized haddock, which, even if returned at once to the water, were largely in such a condition as to preclude survival. Of the fish of commercial importance taken by the trawler, the haddock, on account of its habits, would be the one most likely to be adversely affected. Notwithstanding the much larger number of United States trawlers operating on the offshore banks in the waters known sometimes as the Gulf of Maine, the haddock has been taken in the Bay of Fundy in recent years, in greater quantities than was usual for a long preceding period. It is impossible to say that any decline in the shore haddock fishery, in certain areas, can be definitely attributed to the operation of trawlers; and there is no statistical support for the claim that the haddock shows signs of overfishing in the waters frequented by trawlers.

The haddock fishery is for the most part an international one. The offshore fishing grounds from Cap Cod to Newfoundland is the natural home of the haddock on this side of the Atlantic. If there is any depletion of the haddock fishery it is a matter of international concern, and the prevention of depletion is to be effected only by international regulation. Accordingly, I recommend that this question be made the subject of international investigation, in order to ascertain what regulatory measures should be applied to avoid the possible depletion of the haddock fishery. I further recommend, that in the meantime the Biological Board extend the scope of the investigations it has been conducting into the life history of the haddock.

It was suggested at many places that trawler fishing should be restricted to certain winter months. It is to be doubted if this would in any appreciable degree meet the general objections to trawler fishing, and whether or not it is practical has not been shown. It was also suggested that the trawler fishing should be prohibited during the spawning season of ground fish. The cod and haddock, or any other fish, is not unfit for human food on this account, though not in as good a condition as at other periods. A prejudice prevails in some places against the [illegible] of some spawning fish, but not against all spawning fish. I am informed this [illegible] is frequently due to the belief that the creamy substance sometimes found between the air bladder or sounds, and the bone, chiefly

in haddock, is characteristic of all spawning cod or haddock. I am informed by competent authority that this condition is of parasitical origin and may occur at any season, and is not characteristic of spawning fish.

It was stated to the Commission that the decline in the number of shore fishermen was attributable to the trawler, and that its effect was to force this class of fishermen to abandon their occupation, or to pursue it without proper reward. While it is regrettably true that there has been a decline in the total number of men engaged in the shore fisheries, it is difficult to say to what extent this is attributable to the trawler, if at all, without a very careful and detailed canvass of the affected parts and the ascertainment of the exact cause. That of course cannot be inferred from fishery statistics; they do not pretend to impart such information. The trawlers of Nova Scotia do not, I think, salt and dry any fish, and their fish is not in competition with shore caught dried fish; therefore the trawler could not adversely affect this branch of the industry any more that it would the lobster fishery. If any have abandoned the dried fish branch of the industry, with the intention of marketing their fish fresh, then they were not displaced by the trawler; they may feel the effect of the competition of trawler fish in the fresh fish markets, but this is another question to be considered. The trawler owner claims, that he made possible the present extensive fresh fish markets for the shore fishermen, but this is also another question. According to fishery statistics there has been a gradual decrease in the number of shore fishermen as well as deep-sea fishermen, in the Maritime Provinces, but such statistics are not necessarily proof of the fact for which they are frequently used. For example, the Commission was informed that in 1927, it was necessary to procure 500 fishermen from Newfoundland to man in part the Lunenburg bank fleet. This would seem to indicate that a corresponding number of Nova Scotia fishermen were not available for this fishery. This could not have been attributable to the trawler. The catch of cod and haddock for fresh fish markets by shore fishermen, is greater than at any time in the past. While no statistics are available on the point, it is extremely likely that more men are now engaged in that branch of fishing than ever before, particularly in Nova Scotia. The decline in the number of fishermen from 1890 to 1911-12 in Nova Scotia, was from 28,244 to 21,661, this was greater than the decline from 1911-12 to 1927, which was 21,661 to 16,127; and it was during this latter period that the trawler came into regular use. Since 1924, the number engaged has been maintained fairly well, and it is said that 1928 will likely show an increase over last year. In 1923 there was a marked decrease in the number of men engaged in the fisheries. This was largely due to the effect of a change in the United States tariff on fresh and frozen fish. The decline in the number of fishermen in Shelburne County was quite marked in 1923, as compared with 1922; in 1922 the number was 2,187 and in 1923 it was 1,694. In Yarmouth County the number was 1,380 in 1922 and 1,137 in 1923; in Queens County it was 642 in 1922 and 441 in 1923. The total decline in the number of fishermen in the whole Province of Nova Scotia in 1923, as compared with 1922, was 2,753, or one-half of the total decline which took place between 1911-12 and 1927, and the cause in part at least, is quite clear. In the fifteen year period 1897 to 1912, before trawlers were operating in a substantial way, the decline in the number of boat fishermen receiving the bounty was 3,218; for the next fifteen year period 1912 to 1927, the decline was 1,989. The total number of boat fishermen receiving bounty in 1897 was 12,542, in 1912 it was 9,324, in 1927 it was 7,335. The statistics do not shed any light whatever upon the alleged decline in the number of cod and haddock fishermen for fresh fish markets, and it is to this particular branch of the industry that the trawler is said to be harmful. There were many causes contributing to the decline in the total number of shore fishermen. It should always be kept in mind that fishing with

many is only a secondary occupation, and frequently when fishing was abandoned, it was because the principal occupation or employment was for some reason abandoned. There has been a decline in the number employed in the fisheries as in other occupations, due to general economic conditions, to a shifting of population from fishing sections to the cities or towns, and to migration elsewhere. The decline may have been due in some degree to a deliberate abandonment of fishing and the choice of another occupation. But whatever the decline or its causes may be, it is regrettable. It seems difficult however to assert with confidence that the trawler has been the cause of a decline in the number employed in the fresh fish branch of the industry; the contrary is likely the fact. It may frankly be admitted that altogether trawler fishing produces general economic and social changes. It may be true that in some parts the number engaged in the fresh fish industry has decreased; in other parts it may have increased.

Changes from the dried fish to the fresh fish industry, from frozen fish to iced fresh fish, changes in forms of marketing, and demands of consumers, together with other fundamental economic changes affecting the whole country, cause dislocation in industry for a time. In the conflict between the forces of tradition and those of change, many are embarrassed For example, the Commision was frequently informed that shore fishermen, still engaged in the dried fish business had suffered even in the passing away of the country merchant, who carried fishing supplies and bought and sold local fish. In addition to the problems arising from changes in the methods of industry or business, there is always the economic one, of competition. An objection often urged against the use of the trawler was, that owing to its capacity for large and regular production, there was always the menace of overloaded markets. When analyzed, all the various objections to the trawler appear to have their origin in the economic factor of competition; this has been always the real cause of complaint against every innovation in methods and appliances for the production of fish or other products. It is considerations of general economic conditions that usually bring about enquiries into matters of this kind, and not usually the ascribed reasons.

It is to be constantly remembered that opposition to the trawler relates to its use as a producer of cod and haddock for fresh fish markets. The operators of trawlers, whose business primarily is producing, buying and marketing fresh fish, assert that the present fresh fish markets in Canada and elsewhere for Maritime Provinces fish, were largely developed by them; that these markets can only be held with the assistance of the trawler; and if it is prohibited these markets would be substantially lost for all producers. That view is put forward upon the ground that the holding of these markets depends upon a sufficient and regular supply of fish, which they say is only possible by using the trawler to augment the catch of boat and vessel fishermen. If boat and vessel fishermen alone cannot substantially retain the present markets of Quebec, Ontario, Western Canada, and the United States, or even portions of these markets, then the matter of over production or competition is not of the same importance. If that contention has foundation, then fresh fish could only be marketed within the Maritime Provinces, with perhaps irregular or seasonal shipments to other markets; the volume of production would necessarily fall. If production did not fall, there would be a return to the practice of salting and drying the larger portion of the production, for another class of markets. This view must be considered.

If Canadian trawlers were prohibited from fishing, there is some ground for the opinion that boat and vessel fishermen of the Maritime Provinces would be unable to meet the requirements of present markets. Wholesale dealers in Montreal and Toronto are of that opinion. Their opinion is based upon the principle that a regular supply of fish is always necessary to retain any market;

that if by reason of lack of ample facilities for production, adverse weather conditions, or any other cause, a regular supply failed to reach the market, competition would be invited from outside; repeated occurrences of this failure would encourage the competition, and the markets would gradually fall to those who could with unfailing regularity supply the demand. It is said fish products are not different in this respect from other products; regularity of supply being always a condition necessary to the retention of markets. The Commission was told in Montreal by two wholesale dealers, that during a period of twenty days in the month of February last, no fresh cod or haddock was procurable anywhere in Canada, except those caught by trawlers. During a period of three weeks of the past winter, only about 7,000 lbs. of cod and haddock were landed at Lockeport, where conditions for winter shore fishing are more favourable than elsewhere on the Nova Scotia coast. The Commission was informed at Lunenburg that a trawler was there under construction, and the reason given by the owners was, that the trawler was necessary to insure a regular supply of fresh fish at all seasons of the year. The shore winter fishing area on the Nova Scotia coast is very limited in extent; and if stormy weather makes fishing impossible at one point, similar conditions are likely to prevail over the remainder of the area. Were it not for trawlers, during portions of the past winter months, dealers in Montreal and Toronto would have been obliged to purchase their supplies in the United States. It was to meet such contingencies that the trawler was introduced. If the requisite supply of fish were always forthcoming with regularity from boats and vessels, it is not probable that capital would be unnecessarily invested in trawlers. The cost of production of fish by trawlers is said to be greater than that by boats and vessels. To say that the production of fresh fish by boats and vessels could be increased so as to supply with regularity the present market requirements, has not been satisfactorily demonstrated. It is a prediction that might not be fulfilled unless vessels and boats adopted methods of catching fish other than those now employed. One may safely say that there is doubt as to the capacity of boat and vessel fishermen, as at present equipped, to produce with regularity throughout the year the supply necessary to hold the fresh fish markets of Quebec and Ontario, and graver doubts still as to their capacity for some years to meet the requirements of all fresh fish markets supplied today from the Maritime Provinces. If the market demands continue to expand in the same proportion as in recent years the situation would be more doubtful still. Upon the ground of probability alone, the experience of the past would make it seem uncertain that these markets could be held without the aid of the trawler.

The fishing coast of the Maritime Provinces has most varied conditions, which must not be overlooked in a consideration of the fresh fish industry and the use of trawlers. In the southwestern counties of Nova Scotia, in the region of Cape Sable and in sections of the Bay of Fundy, fish can be caught comparatively near the shore and practically throughout the entire year; except when prevented by unfavourable weather conditions. At present there are no trawlers operating from the ports of southwestern Nova Scotia or the Bay of Fundy. In the Gulf of St. Lawrence, the ports are blocked with ice for months, so that fishing of any kind is impossible during that period. Between these two regions, along the coast of eastern Nova Scotia, the harbours are practically always open, but for several months during the winter season inshore fishing fails, and fish are only to be found on certain of the outer banks. On this eastern section of the Nova Scotia coast, the trawler has come into use, primarily to provide a steady supply of fish throughout the year; it probably was first introduced only for winter fishing. The trawler would appear necessary if the fresh fish markets are to be in part supplied from this section of the coast. Therefore, in the whole of the Maritime Provinces, it is only on the coastline west of Halifax that winter shore fishing is carried on, and even within that area it is carried on

only in a few places in any substantial way. Whatever may be the full reasons, the fact remains that in the fresh fish industry the three companies that operate trawlers have their principal plants in eastern Nova Scotia. In spite of unfavourable fishing and weather conditions during parts of the year, they have provided regular supplies of fish for distant markets. Lacking trawlers, or equally efficient means of providing a steady supply of fish, eastern Nova Scotia must fall behind in production compared with other fishing sections of that province, and of the New England States. That is some justification for the use of trawlers, at least in eastern Nova Scotia. It is extremely doubtful if the shore fishermen of this section who claim to suffer from the operations of the trawlers, would win a fruitful victory by the prohibition of the trawler. The competition will not be eliminated, and though it may come from other parts it will be equally effective; existing marketing organizations of some value to the fishermen of this section of the coast may be lost, and they cannot easily be replaced. The shore fisherman may improve his position by more continuous operations, but whether by small trawlers, seines or other suitable equipment cannot be stated. In the meanwhile, the prohibition of the trawler may prove a great loss to him because it may weaken or destroy the strongest buying and marketing organizations now available to him. Even west of Halifax, some seem to think that the trawler is necessary to the regular conduct of the fresh fish business. Apparently that is the view at Lunenburg. At Lockeport, the use of the trawler or something equally effective seems to be regarded always as a possibility of the future; possibly that was why no shipper there would go so far as to suggest that the trawler should be prohibited, only that it should be Canadian owned. It may later be found that, in western Nova Scotia as well as in eastern Nova Scotia, the trawler or some other efficient means is a necessary factor to secure regularity in production—particularly in the winter season,—which regularity is a necessary factor if the present fresh fish markets are to be retained.

The companies using trawlers are buyers as well as producers of fish. In 1926 the trawlers produced about 40,000,000 lbs. of fresh fish out of a total production of about 90,000,000 lbs. in the Maritime Provinces; boat and vessel fishermen produced in the same period about 50,000,000 lbs. of which 36,000,000 lbs., or 72 per cent, was purchased and marketed by the companies operating trawlers. Of the total production by trawlers, boats and vessels, 45,000,000 lbs. was marketed west of Ontario and in the United States, largely it is said by companies relying partially on trawlers for their supply. When we consider the limitation of the winter fishing areas of the Maritime Provinces coast; the number of shore fishermen excluded from continuous fishing by winter conditions; the occasional non-productive periods in the more favorable areas owing to weather conditions; the greater consumption of fish in the winter months; the seasonal character of the cod and haddock fisheries and their temporary cessation because of other fisheries, such as the lobster, which is permissible only at fixed periods, the matter of regularity in production and marketing becomes one of very substantial importance. It is not clear to me that the present market requirements can be supplied, without the present combination of methods of production; nor am I satisfied that for a considerable time the total supply required can be produced by boat and vessel fishermen alone. I perceive many difficulties attending efforts to build up storage reserves in the favourable fishing season for the full annual requirements, though conceivably this may gradually come to pass. For these reasons, and others that I have mentioned, I cannot concur in the recommendation made by my colleagues concerning the prohibition of trawlers, and I must therefore very respectfully dissent from them upon this point.

Anomalous conditions will prevail if Canadian trawlers are prohibited from operating on the fishing banks, which foreign trawlers may do. Canadian

trawlers will be prevented from taking, in international waters, fish intended for foreign dried fish markets; they will be prevented from there taking fish intended solely for United States or other foreign markets; all of this the trawlers of other countries may do.

Complaints were made to the Commission, particularly at Lunenburg, N.S., concerning the damage done to line trawls and fishing gear by Canadian and foreign trawlers. Such damage occurs in international waters. This being the case, regulations to effectively alleviate or end these complaints must be the subject of international action. In the North Sea, where fishermen of many nations are engaged in fishing, it was found necessary to regulate the manner and methods of fishing, and to police the fishing areas. To achieve this end a convention between Great Britain, Germany, Belgium, Denmark, France and Holland was entered into, in 1882. It is said that this convention has in a large degree accomplished its purpose. For the same reason, as well as others to be later mentioned, I would recommend that the Government of Canada take the proper steps to secure, if possible, an international conference representative of the countries whose citizens fish on the North Atlantic fishing grounds, with a view to the enactment of international regulations governing the operation of trawlers in these waters, and the punishment of offences against such regulations. It is not necessary to suggest in detail what such regulations should comprise. In the meantime, I would recommend that regulations be enacted requiring Canadian trawlers to be lettered and numbered in a conspicuous way, in order to assist in their prompt identification; the letter and number should be registered.

The known and dependable facts do not indicate that the trawler is destructive of the feeding grounds of the cod and haddock, or that it is exhausting or depleting the large fishing areas of the North Atlantic. However, considering the manner in which these fisheries are likely to be carried on in the future, tending gradually to intensiveness of fishing, questions may soon arise for consideration by the countries interested in the conservation of the fish supply to be found in these waters. The old idea, still too generally accepted, that the resources of the sea are almost inexhaustible, is no longer held by anyone informed on the subject. There is nothing at present known which would indicate any early depletion from any causes whatever, but that feeling or conclusion is perhaps not based on any well founded data. Little is known of the life history and migration of the cod and haddock, and much scientific work remains to be done in this direction. It is important also to determine whether certain fishing grounds can withstand unregulated fishing by trawlers; how trawlers may be regulated or controlled; and what areas if any should be closed to trawler fishing. In any event, it is desirable that these and other questions should be scientifically investigated and studied at an early date. This can best be accomplished by international effort. For this reason I would suggest that appropriate steps be taken by the Government of Canada to bring about, if possible, the creation of some international body to carry on work of this nature.

It is desirable for several reasons that trawlers, fishing out of and landing their catch in Canadian ports should be subject to regulation. To regulate them effectively it is necessary that they be of Canadian registry, and I so recommend. I might recommend that Canadian ownership be also required, but that could be so easily evaded, that no useful or practical results would follow.

Wholesale and retail dealers of fresh fish in the large consuming centres, appear willing to pay at the coast such a price for fish as would yield a remunerative return to fishermen and shippers, which, neither of them seems to be receiving at present. The wholesalers and retailers cannot be expected to resist purchasing their supplies below the desirable level of prices, if and when

offered to them. Nova Scotia shippers are responsible for market quotations which depress the market price below a remunerative level. The severe and unrestrained competition between shippers, is the cause of market disturbances which react adversely upon fishermen as well as on themselves. They strike t one another sometimes by elevating prices to fishermen in certain localities beyond the point warranted by general market conditions; and again, by cutting prices at the points of large consumption below the cost to themselves.

Some degree of co-operation among shippers would seem necessary in their own interest and in that of the fishermen. There would not seem to be any economic objection to co-operative efforts in this direction, and if attempted in the proper spirit, the difficulties would not seem insurmountable. The two methods of production of fresh fish referred to seem necessary, and if so, the more essential is it for shippers to co-operate in some form of marketing association, or something of that nature. While those operating trawlers may have their rights to assert, they have their duties to perform as well. It is their duty as much as that of others, to assist in the promotion of the welfare of all sections of society. The number of trawlers in use should not exceed that number which will produce from time to time, the market requirements in excess of boat and vessel production. The interest of trawler owners and general public interests would be best served by such a policy, and no sacrifice would be required in its adoption. It is difficult to do this by any form of licensing; this would involve discrimination by the licensing authorities and would be difficult of administration. This can best be done by the trawler users themselves.

The foregoing was prepared before I had seen in detail the report of my colleagues, and on the assumption that their recommendation involved merely the prohibition of trawlers fishing from Canadian ports, as Canadian fishing vessels. However, the recommendation of the report is that all trawlers of any registry be prohibited from landing fish in Canadian ports, or from using any Canadian port as a base of supply for fishing operations. This recommendation seems to go beyond the spirit of the terms of reference and beyond any request made to the Commission. I do not propose here to discuss the full effect of this recommendation.

A. K. MACLEAN.

APPENDIX No. 1

FRANCIS A. ANGLIN,
Deputy Governor General.

CANADA

(Great Seal)

W. STUART EDWARDS,
Deputy Minister of Justice
Canada.

GEORGE THE FIFTH, by the Grace of God of Great Britain, Ireland and the British Dominions beyond the Seas KING, Defender of the Faith, Emperor of India. TO ALL TO WHOM these presents shall come, or whom the same may in anywise concern,

GREETING:

WHEREAS pursuant to the provisions of Part I of the Inquiries Act, Revised Statutes of Canada, 1906, Chapter 104, His Excellency the Governor General in Council by Order P.C. 1955 of the 7th day of October, 1927, copy of which is hereto annexed, has authorized the appointment of the Commissioners therein and hereinafter named to investigate and report upon, concerning, and for all and singular the matters and purposes therein mentioned or described.

NOW KNOW YE, that by and with the advice of Our Privy Council for Canada, We do by these Presents nominate, constitute and appoint the Honourable ALEXANDER KENNETH MACLEAN, President of the Exchequer Court of Canada; HENRY RYDER LOCKE BILL, *Esquire*, of Lockeport, in the Province of Nova Scotia; The Honourable JOSEPH GEORGE MONBOURQUETTE, of L'Ardoise, in the Province of Nova Scotia; Professor CYRUS MACMILLAN, Master of Arts, Doctor of Philosophy, of Montreal, in the Province of Quebec; and JOHN GEORGE ROBICHAUD, Esquire, of Shippigan, in the Province of New Brunswick, to be Our Commissioners to investigate and report upon, concerning, and for all and singular the matters and purposes upon, as to and for which you are by the aforesaid Order in Council authorized to investigate and report.

TO HAVE, HOLD, EXERCISE AND ENJOY the said office, place and trust unto the said ALEXANDER KENNETH MACLEAN, HENRY RYDER LOCKE BILL, JOSEPH GEORGE MONBOURQUETTE, Professor CYRUS MACMILLAN and JOHN GEORGE ROBICHAUD, together with the rights, powers, privileges and emoluments unto the said office, place and trust of right and by-law appertaining, during pleasure.

AND WE DO FURTHER constitute and appoint you the said the Honourable Alexander Kenneth MacLean to be Chairman of the said Commission.

AND WE DO HEREBY, under the authority of the Revised Statute respecting Inquiries concerning Public Matters, confer upon Our said Commissioners, the power of summoning before them any witnesses and of requiring them to give evidence on oath, or on solemn affirmation if they are persons entitled to affirm in civil matters, and orally or in writing, and to produce such documents and things as Our said Commissioners shall deem requisite to the full investigation of the matters into which they are hereby appointed to examine.

And We Do Hereby require and direct Our said Commisioners to report to Our Governor General in Council the result of their investigation together with the evidence taken before them and any opinion they may see fit to express thereon.

In Testimony Whereof, We have caused these Our Letters to be made Patent and the Great Seal of Canada to be hereunto affixed, Witness:—

Our Right Trusty and Well-beloved Counsellor the Right Honourable Francis Alexander Anglin, Chief Justice of Canada, and Deputy of Our Right Trusty and Well-beloved Cousin Freeman Viscount Willingdon, Knight Grand Commander of Our Most Exalted Order of the Star of India Knight Grand Cross of Our Most Distinguished Order of Saint Michael and Saint George, Knight Grand Commander of Our Most Eminent Order of the Indian Empire, Knight Grand Cross of Our Most Excellent Order of the British Empire, Governor General and Commander-in-Chief of Our Dominion of Canada.

At our Government House, in Our City of Ottawa, this seventh day of October, in the year of Our Lord one thousand nine hundred and twenty-sever and in the eighteenth year of Our Reign.

By Command,

G. R. SHIBLEY,
Acting Under-Secretary of State.

APPENDIX No. III

LOBSTER CANNED AND IN THE SHELL

Year	Nova Scotia		New Brunswick		Prince Edward Island		Quebec		Total	
	1 lb. cans	Cwt. in shell	1 lb. cans	Cwt. in shell	1 lb. cans	Cwt. in shell	1 lb. cans	Cwt. in shell	1 lb. cans	Cwt. in shell
1897	5,214,266	229,682	2,413,404	22,055	2,405,682		1,036,202	94	11,139,554	251,821
1898	5,210,294	326,313	2,113,222	21,776	2,379,020	73	1,067,058	201	10,770,594	348,364
1899	4,837,402	134,462	2,177,106	19,965	2,421,144	46	1,059,658	125	10,495,310	154,588
1900	5,263,780	169,196	2,038,692	19,729	2,223,712	125	1,022,196	80	10,548,250	189,140
1901	5,003,023	146,485	1,842,340	17,667	2,386,070	32	825,171	70	10,156,604	164,195
1902	[illegible],637,504	120,902	1,965,296	20,853	2,039,903	224	708,018	55	9,350,121	142,034
1903	[illegible],153,712	88,586	2,136,672	17,545	2,325,400	400	978,454	108	10,664,278	106,639
1904	5,357,454	92,513	2,055,130	16,882	2,401,100	1,533	848,634	120	10,762,288	111,048
1905	4,917,148	134,871	2,249,440	18,520	2,182,624	376	1,148,412	185	10,497,624	153,994
1906	4,595,816	87,956	2,425,860	12,888	2,[illegible],288	4[illegible]	798,800	85	10,104,764	101,370
1907	4,270,326	84,279	2,731,012	12,401	2,5[illegible],488	720	819,723	90	10,660,570	97,490
1908	4,399,610	87,321	2,716,968	10,317	2,075,444	320	696,476	205	10,911,498	98,373
1909-10	3,794,422	81,960	2,079,666	15,689	2,255,888	1,830	941,620	1,048	9,071,600	103,947
1910-11	3,960,336	95,871	1,676,736	14,7[illegible]	2,180,784	320	970,704	1,055	8,788,540	110,0[illegible]
1911-12	4,631,904	98,659	1,807,872	11,171	2,481,264	633	1,080,080	560	10,007,156	110,823
1912-13	4,043,952	71,816	1,358,640	13,418	2,604,304		966,672	145	9,005,768	85,379
1913-14	4,197,552	84,063	1,220,128	16,716	1,783,632		791,280	100	7,962,792	100,879
1914-15	3,665,760	75,683	1,394,160	10,966	2,119,584	25	542,880	150	7,723,344	86,824
1915-16	3,774,336	107,366	1,479,552	11,692	2,032,344	187	564,000	84	7,822,368	119,239
1916-17	4,055,328	72,040	2,088,806	11,665	2,668,566	96	669,300	864	9,492,048	84,968
1917	3,764,448	64,096	2 090,352	19,603	2,976,000	112	575,864	758	9,407,664	84,569
1918	2,541,264	49,435	819,264	9,472	1,290,240	19	524,208	325	3,174,976	59,251
1919	2,962,272	65,593	923,568	19,522	1,531,728	20	762,862	194	6,180,430	85,340
1920	3,804,144	55,217	1,177,536	13,514	1,925,456		921,216	269	7,838,372	69,000
1921	3,324,240	93,115	1,073,088	23,664	1,495,440	1,437	712,368	621	6,605,136	118,857
1922	3,098,496	45,504	1,251,696	17,701	2,026,560	3,104	778,160	1,180	7,134,612	67,499
1923	3,070,608	46,161	1,252,704	21,277	2,103,888	9,740	822,672	2,721	7,249,872	79,899
1924	1,959,888	34,550	1,130,304	26,802	1,287,672	6,970	524,400	1,025	4,901,964	69,034
1925	2,579,760	63,690	1,307,328	12,741	1,637,808	16,272	572,960	1,313	6,079,856	87,816
1926	2,701,296	71,688	1,153,968	15,861	1,419,216	3,152	660,432	847	5,928,912	91,549

APPENDIX No. V

QUANTITY and value of Catch of Salmon in the Maritime Provinces and Quebec for the years 1917 to 1926.

—	Nova Scotia	New Brunswick	Prince Edward Island	Quebec	Totals
	cwts.	cwts.	cwts.	cwts.	cwts.
1917	10,285	15,083	65	13,532	39,865
1918	8,506	17,452	30	11,130	37,121
1919	4,533	9,608	22	5,807	20,030
1920	3,301	11,477	.....	4,927	19,705
1921	6,284	20,383	.....	7,805	34,472
1922	8,577	16,859	19	12,200	37,601
1923	11,217	20,682	34	14,765	46,698
1924	19,127	33,503	62	15,080	58,832
1925	8,422	30,073	90	20,714	59,299
1926	13,428	25,131	104	15,536	54,259

APPENDIX No. VI

STATEMENT showing the number of boats operated, the fathoms of net fished, from 1907 to 1926 in salmon drifting in Miramichi Bay

Year	Boats	Total fathoms fished	Catch Cwts.
1907	4	2,400	
1908	6	3,900	
1909	10	6,000	
1910	15	7,000	
1911	17	7,606	
1912	20	12,000	
1913	20	12,000	
1914	20	12,000	
1915	25	15,000	
1916	35	20,000	
1917	45	25,000	
1918	45	25,000	
1919	45	25,000	
1920	48	27,000	
1921	48	27,000	
1922	49	27,800	3,857
1923	50	30,000	4,458
1924	50	30,000	6,137
1925	52	35,000	3,534
1926	52	35,000	2,817

STATEMENT showing the number of set net stands licensed in Miramichi Bay and River from 1922 to 1927, and the catch for the years 1922 to 1926

NUMBER OF SET STANDS IN BAY AND RIVER

—	Stands	Catch Cwts.,
1922	220	3,522
1923	215	3,940
1924	213	6,195
1925	266	4,430
1926	288	3,102
1927	181	

APPENDIX No. VII

An estimate of the annual catch of fishing vessels sailing from ports in Lunenburg County, N.S. for the years 1896 to 1927, both inclusive

Year	Lunenburg	Riverport	Mahone Bay	La Have	Total No.
	Quintals	Quintals	Quintals	Quintals	Quintals
1896	200,000	.....	15,000	67,630	282,630
1897	115,400	.....	22,670	75,210	213,280
1898	121,530	.....	20,600	59,000	201,130
1899	110,600	.....	18,600	61,500	190,700
1900	151,000	.....	30,480	85,300	266,780
1901	123,630	.....	23,900	77,000	224,530
1902	139,230	.....	32,000	95,000	266,230
1903	116,000	.....	32,600	70,600	220,200
1904	69,250	.....	16,230	46,000	131,480
1905	87,430	.....	11,830	50,200	149,460
1906	66,420	16,470	15,470	29,300	127,640
1907	42,610	.....	10,120	18,850	71,580
1908	72,780	17,130	11,530	15,100	106,540
1909	88,380	27,600	19,800	34,750	170,530
1910	114,000	32,200	17,900	22,000	186,100
1911	125,430	30,800	14,700	36,250	207,180
1912	134,600	42,840	17,750	36,930	232,120
1913	115,000	12,570	12,050	26,400	166,020
1914	117,120	31,750	11,000	36,790	196,660
1915	93,510	11,720	7,700	36,550	149,480
1916	125,650	28,710	12,400	49,120	215,880
1917	132,730	25,000	9,150	41,200	208,080
1918	145,000	36,900	8,800	56,390	247,090
1919	160,000	34,800	4,500	38,170	237,470
1920	200,350	38,510	11,700	51,270	301,830
1921	184,300	35,140	20,950	62,000	302,390
1922	168,460	40,000	12,080	44,760	271,000
1923	218,270	63,900	21,200	75,920	379,290
1924	170,680	30,100	9,220	59,820	275,820
1925	191,090	47,000	7,550	24,800	271,040
1926	224,360	60,100	9,250	62,700	356,410
1927	.....	.....	.....	.....	239,378

APPENDIX No. VIII

STATEMENT of the number of vessels fishing out of Lunenburg County, Nova Scotia, from 1806 to 1927, both inclusive

Year	Lunenburg	La Have	Riverport	Mahone Bay	Total
1806	64	36	.....	11	111
1807	60	35	.....	13	108
1808	73	30	.....	14	117
1809	74	42	.....	15	131
1900	80	45	.....	17	142
1901	77	47	.....	15	139
1902	78	46	.....	18	142
1903	76	45	.....	20	141
1904	77	46	.....	19	142
1905	73	38	20	18	149
1906	56	30	19	19	124
1907	54	27	12	12	105
1908	55	27	14	18	114
1909	70	16	12	12	100
1910	70	21	11	15	117
1911	90	21	20	13	144
1912	93	18	16	11	138
1913	89	25	13	8	135
1914	90	32	14	12	148
1915	88	36	17	17	158
1916	95	30	9	7	141
1917	87	27	19	8	141
1918	92	30	21	6	149
1919	90	27	20	6	143
1920	88	32	19	10	149
1921	72	25	21	7	125
1922	80	29	24	7	140
1923	70	21	16	3	110
1924	58	14	12	3	87
1925	54	23	12	2	91
1926	47	20	10	3	80
1927	66	9	7	2	84

APPENDIX No. IX

AN ESTIMATE OF THE LANDINGS EACH TRIP OF FISHING VESSELS SAILING OUT OF LUNENBURG COUNTY, N.S., AND THE AVERAGE PRICE PAID PER QUINTAL EACH TRIP FOR THE YEARS 1911 TO 1927, BOTH INCLUSIVE

Year	Early Spring	Average price	Spring	Average price	First trip handline	Average price	Summer	Average price	Total	Average price
		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.
1911	6,000	7 00	57,000	6 75	12,000	5 90	144,000	6 50	219,000	6 55
1912	3,000		Incomplete	4 00	Incomplete	5 00	114,000	6 20	211,000	5 70
1913	2,300	6 70	57,000	6 70	17,000	6 50	130,000	6 00	206,000	6 25
1914	7,600	7 50	27,200	7 50	20,500	7 25	80,000	7 00	135,000	7 15
1915	20,100	6 38	57,300	6 40	23,300	6 00	109,500	5 50	210,200	5 75
1916	10,375	7 10	47,700	7 10	17,350	7 25	118,000	7 90	193,000	7 50
1917	18,550	10 00	38,700	10 00	16,850	10 00	159,500	10 00	233,500	10 00
1918	28,290	11 00	38,400	12 75	24,100	13 00	148,000	15 00	238,000	13 96
1919	26,400	14 0	47,200	12 00	25,600	12 00	193,000	12 00	293,000	12 18
1920	29,600	12 50	56,000	9 25	16,000	9 25	184,200	7 50	285,800	8 93
1921	3,300	6 80	59,500	6 80	4,700	6 75	199,400	6 75	267,000	6 76
1922	45,600	7 75	75,750	7 75	16,800	7 25	179,250	6 50	316,400	7 02
1923	21,400	5 75	25,600	5 75	6,800	5 80	124,000	7 00	187,800	6 58
1924	29,000	8 09	41,200	7 30	6,000	8 90	98,000	10 60	174,200	9 26
1925	40,300	7 00	45,275	7 00	15,350	7 40	160,000	8 00	260,900	7 64
1926	49,600	5 50	61,400	5 50	16,400	5 25	220,000	5 00	347,400	5 17
1927	30,000	6 35	50,500	6 00	7,700	6 25	145,000	6 75	233,200	6 45

APPENDIX No. X

AN ESTIMATE of the average price paid per quintal, from 1896 to 1927 (both inclusive) for dried cod fish caught and landed by fishing vessels sailing from Lunenburg County, Nova Scotia.

1896	$ 2 75	1912	$ 5 35
1897	2 40	1913	6 50
1898	3 40	1914	6 50
1899	3 50	1915	6 25
1900	3 30	1916	7 37
1901	3 50	1917	9 80
1902	3 30	1918	13 62½
1903	4 35	1919	12 65
1904	4 90	1920	8 10
1905	6 00	1921	6 40
1906	4 90	1922	6 3
1907	4 90	1923	6 100
1908	3 30	1924	8 02
1909	4 50	1925	7 50
1910	5 60	1926	7 50
1911	6 30	1927	6 25

APPENDIX No. XI

AN ESTIMATE of the average amount received by shareman on fishing vessels sailing from Lunenburg County, Nova Scotia, for each year from 1896 to 1927, both inclusive.

1896	$ 80 00	1912	$ 265 00
1897	127 00	1913	290 00
1898	120 00	1914	205 00
1899	216 00	1915	191 00
1900	190 00	1916	649 00
1901	140 00	1917	840 00
1902	188 00	1918	1,234 00
1903	165 00	1919	1,200 00
1904	194 00	1920	485 00
1905	200 00	1921	446 00
1906	205 00	1922	408 00
1907	250 00	1923	574 00
1908	150 00	1924	701 00
1909	230 00	1925	932 00
1910	300 00	1926	567 00
1911	490 00	1927	518 00

APPENDIX No. XII

AN ESTIMATE of the cost of outfitting fishing vessels sailing from Lunenburg County, Nova Scotia, from 1896 to 1927, both inclusive.

1896	$ 976 00	1912	$2,002 00
1897	831 00	1913	1,076 00
1898	866 00	1914	1,814 00
1899	834 00	1915	1,658 00
1900	905 00	1916	2,370 00
1900	995 00	1917	3,020 00
1901	1,024 00	1918	4,432 00
1902	1,055 00	1919	5,850 00
1903	970 00	1920	5,200 00
1904	1,130 00	1921	3,902 00
1905	1,115 00	1922	3,876 00
1906	1,428 00	1923	2,851 00
1907	1,550 00	1924	3,021 00
1908	1,115 00	1925	3,926 00
1909	1,370 00	1926	4,052 00
1910	1,580 00	1927	3,656 00
1911	1,770 00		

NOTE.—"This estimate includes the cost of salt, provisions, lines and ship chandlery but does not include anchors, dories or bai