

## The Need for Technical Education in Our Fishing Industry

In Canada few of us realize that there are about one in seventy-three of our population earning their living by fishing, in the United States the proportion is about one in every eighty. The industry is worth to the country some thirty-nine million dollars and yet we have to cry in vain for knowledge so that we may be able to compete with all other fish producing countries in the marketing of our produce.

Why should it be more necessary to give the cultivation of the land, or rather those interested in it, every opportunity of acquiring technical knowledge and leave those associated with the collection of food from the waters in ignorance? We are told by some that the fishermen do not want technical education, and further, that it is unnecessary for the large staff associated with our various Federal and Provincial Departments to gain the knowledge one would have thought so necessary to their calling.

Can we expect the best results when fishing licenses can be obtained from a Provincial Department only so long as the applicant is on the right side of politics or in some other way is a "big man" in his district, and recommended by his M.P., irrespective of his knowledge of his trade? Again, can we expect technical efficiency and economy of management when the staff for administration of our fisheries and in particular our hatcheries, is drawn from the ranks of schoolmasters, ministers, painters, mechanics, untrained farmers' sons, stable helpers and such like? What commercial undertaking could exist ten minutes under similar conditions. It is true, many of these gentlemen acquire certain "rule of thumb" knowledge and routine, for as a rule most of them content themselves in getting out statistics and writing reports on proposed regulations and worrying over the question of their political effect in the district to which they are to be applied.

Let us not, however, criticise the conditions of the fisheries service as it is, for that is outside the question at the moment, we only want to point out the necessity for training the many persons directly interested in our fisheries, even if they say, like so many of our farmers did, that they do not need it.

Agriculture would not be as it is to-day, were it not for education in its technical branches, is there any reason therefore why owning, as we do, the greatest fishings in the world, we should not spend a proportionate amount of money on fisheries education? Does not the value of the industry justify it? Does not the personnel of the industry justify it? Does not the citizens who are unselfish enough to consider the conservation of our fisheries for the benefit of posterity demand it?

We must realize that every trade and profession, even those trades and professions connected with the production of fish in our waters, the extraction of fish from our waters, the extraction of algin, iodine, potash, etc., from our seaweeds, the production of the pearly vessels for the button trade, the extraction of oils, glycerine and other valuable commodities from our fish—all these require the assistance of some central educational institution connected with them.

Other countries have acknowledged the necessity of fishery technical schools. England, Ireland, France, Germany, Japan, all offer opportunities for learning to those anxious to acquire better knowledge of their trade or profession.

Japan, especially, has made the greatest strides in this direction, and it will be a long time before any country reaches the same point of perfection in that industry.

It is admitted that our fishing population, like our "back lot farmers," is proverbially difficult to reach; "they know it all," but on the other hand, by continual agitation these men must come to realize that Canada must progress. Their prejudice must be overcome in the same way it has undoubtedly been overcome in the case of the farmer by means of farmers' institutes and clubs. Further, we who are trustees of these great fishing waters must see to it that they are not mismanaged and neglected and should insist that the industry be put on the same basis as agriculture from the lowest rung of the ladder to the top. Is there any legitimate reason for not having a Minister of Fisheries or at least a Deputy Minister of Fisheries, giving his whole time to stimulating the industry.

Now, no better investment by the State could be made than on the introduction of fisheries technical education, for one result at any rate would be that

greater care would be taken before backing parliamentary measures affecting fisheries. I venture to think that conservation would in every instance come before personal greed with technical knowledge behind it. Much of our legislation and fishery regulations would be almost unnecessary for fishermen and others interested would see for themselves the objects of such preventive measures.

In selecting objects of such a Technical Institute or system of education, we should have before us something after the following:—

- 1.—Conservation as tending to point out the objects of protection for the benefit of future generations and even for ourselves.
- 2.—Fishing marine and inland waters.
- 3.—The creation of the profession of Fishery technology so as to fill the various government offices, etc.
- 4.—The elevation of the fishing industry and fish culture to the same level as agriculture.

Now the next question is the scope of the instruction. Under the various headings:—

- 1.—Would come elementary biology distribution of species, the influence of geology, currents, temperature, etc., on fish, the effect of pollution, obstruction and abstraction of water on fish life.
- 2.—The modes by which fishing might be made more remunerative by the adoption of newer methods, the most modern methods of pickling and preserving fish. The utilization of fish waste, etc. Navigation, study of the strain and internal combustion engine.
- 3.—Instruction in fish culture in all its branches, including the propagation of the pearly vessels. Elementary zoology, anatomy, physiology chemistry as applied to fisheries and their products.
- 4.—By the creation of a ministry responsible to Parliament with a subordinate technical staff. The establishment of fishermen's institutes or clubs on the lines of farmers' institutes. The circulation of instructive bulletins such as are done for agriculture. For example, bulletins on various fish cultural methods, pickling of fish, preserving of nets and tackle, the manufacture of foods, fertilizer, glue, oil, etc., from fish waste, from seaweeds, etc.

Now it may be said that we are doing something in direction of technical education, look at our Fisheries Museum. It is true many of us have never heard of it, and those few who have discovered its location have failed to find anything of educational value to fisheries in it.

A large whale skeleton has recently been bought at a cost of some \$200 or \$300, also sea lions and similar mammals, there is also a collection of birds and birds' eggs and displayed in corners are a few plaster casts of fish not by any means all belonging to this country. It is possible the money could be better spent in education amongst fishermen. The collection, if the Victoria Museum authorities consider it worth while, might be induced to take it under their charge when Parliament moves into its new building. The appropriation for this Fisheries Museum amounts to \$8,000.

Then there is another source of money which might well be diverted into educational channels, that of the fishing bounties, which apparently do nobody any good and cost the country some \$160,000 annually.

Doubtless, under a searching business eye other investments of a like nature for which the country is not getting adequate returns may be discovered. We will all admit that there is no better nor sounder investment than education, so no minister need fear expenditure in that direction.

Finally we are at a period in our country's development when the future must be considered more carefully than in the past, so far as our natural resources are concerned, we must not let our raw materials drift into the hands of foreigners just because we are too indolent to acquire the necessary knowledge to development of them ourselves, we have already several examples in our fishing industry of this already. What do we do with our fish waste of some 260,000 tons annually, when industries are calling for high grade oils for the drug, soap and other trades, for glycerine for explosives, feed for our cattle and pigs and fertilizers for our soils, all obtain-

able from this waste; have we got beyond just talking about it? Before we have finished talking some foreigner will "jump" the whole trade by private contract for the benefit of his own country. What do we do, again, with our vast sources of seaweed? Do we make any attempt to meet the crying need for algin, potash, iodine, etc.? I think not—most of us do not realize that such commodities are obtainable from fish waste and seaweed. How many of us, and even fishermen, realize that our shirt buttons are produced from the humble fresh water clam? These and many like questions seem ridiculous in a country like Canada, but want of knowledge can only be discovered by question, and ignorance is the fundamental basis of all this neglect. Let us hope that now we have a business man who has had the privilege of rising from the ranks in his trade in private life, at the head of our Fisheries Administration, we may get business methods and efficiency inculcated into his Department, and further, let us hope we will inquire carefully into the expenditures in his administration and see if he and the country are getting their value.

Mr. Ballantyne, if he proves to be the business man in office the country expects him to be, will want to know how the appropriation of \$400,000 is expended on hatcheries and whether the latter "deliver the goods," the \$60,000 on the Dogfish Reduction works—are they run at the profit they should? Then we have an appropriation entitled Fisheries Intelligence, which absorbs some \$5,000. Again our fisheries patrol service appropriates some \$90,000, and if the truth be told, some patrolmen operating these vessels complain that they are very extravagantly run, and in one or more cases the vessels are far too large, in fact are nothing else but small gun boats, and cannot do the work efficiently.

At any rate there is an appropriation of between a million and a half and two million dollars set aside to protect and, let us hope, promote fisheries—do we get value for it under our present system without specialized education.

We finally ask the careful consideration of the new Minister, the urgent necessity of some central institute of fisheries technology, from which technical knowledge should radiate to the fishing districts of Canada.

We ask that experimental work be inaugurated; we have agricultural farms, why not experimental fish cultural stations and laboratories. We have two Marine Biological Stations, why have we not station on our inland waters to study practical problems arising in Central Canada?—Canadian Fisherman.

### ANNUAL PRODUCTION OF CEREALS.

Thirty billion dollars' worth of the six chief cereals used for food—wheat, rye, barley, oats, corn and rice—is annually produced by the farmers of the world, according to the Year Book just issued here by the International Institute of Agriculture.

"We find," says the author of the book, "that the ascertainable yield of wheat throughout the world exceeds 1,000,000,000 quintals (one quintal being 3.67 bushels) and represents at present value more than £2,000,000,000. The yield of maize is nearly as large as of wheat and is worth £1,000,000,000. The yield of potatoes is over 1,500,000,000 quintals and of beet sugar more than 500,000,000 quintals. Every year the world has at its disposal a total of 150,000,000 quintals of wine, 10,000,000 quintals of coffee, more than 8,000,000 of leaf tobacco, and nearly 1,000,000 quintals of hops."

The vast consumption of coffee, wine and tobacco may be understood when it is estimated that their total value exceeds £4,000,000,000.

Comparing the number of cattle, horses, mules, sheep, hogs, etc., to the world's population the institute estimates that Uruguay has eight head of live stock to each inhabitant, Argentina more than four head, Australia more than two, the United States and Canada one head per person, and Europe only one for two persons.

The Year Book is said to be the most complete set of agricultural statistics ever compiled and covers ten years of agriculture throughout the world. In it are given not only estimates of production for all the cereals and ordinary food products such as wheat, oats, potatoes, rice, wine, sugar, coffee, tea, but account is taken of products grown for textile industries such as cotton, flax, hemp, silkworm, linseed and olive oils, as well as the number and kinds of livestock, prices of all soil products and the use of chemicals and fertilizers.