IV.—THE ICELAND FISHERIES.*

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During my visit to Iceland, in 1880, with the schooner Ingolf, my attention was directed to the rich fisheries carried on by foreigners in Iceland waters, and to the comparatively small benefit which the country itself derived from the wealth of the sea. In order to draw the attention of the government to this unnatural state of affairs, I prepared a report on the herring fisheries carried on in the eastern fiords of Iceland by Norwegians, which I had occasion to observe in person. In consequence of this report the ministry for Iceland (in December, 1880) commissioned me to investigate the Iceland fisheries and gather such information regarding them as might be of importance for their future development, and also to make suggestions as to the best way of furthering the interests of these fisheries.

After having obtained a leave of absence for this purpose, I bought and fitted out a yacht of 88 tons during the present year, and with this vessel participated in the Iceland fisheries, in which way I gained a practical knowledge of their condition.

At the request of many ship-owners in this country (Denmark) I publish the results of my investigations, in view of the possible participation in the Iceland fisheries by Danish vessels, and also for the purpose of comparing the Iceland fisheries with our North Sea fisheries, which latter might yield much larger profits than they do at present.

A glance at the map shows us that the location of Iceland between extensive banks in the Northern Atlantic (which is famous for its wealth of fish), with its long line of coast and its numerous well-protected fiords, indicates the fisheries as the most natural source of income to this island. Foreign nations have known how to derive profit from the wealth of fish on the Iceland banks, but unfortunately this knowledge is confined to foreigners. Whilst English, French, Norwegian, and German vessels visit Iceland in large numbers, the Icelanders keep up the old boat-method; excepting, perhaps, a few merchant vessels in the western fiords employed in the fisheries for a few months during summer whilst waiting for cargo. The Iceland bank fisheries only yield profit to Danes and Icelanders in very few cases.

* Fiskerierne ved Island. Translated from the Danish by HERMAN JACOBSON.

And still we enjoy this great advantage over foreigners, that we can deposit and prepare the fish in Iceland and furnish a much more valuable and durable article than foreigners, who, moreover, have to travel about 250 (Danish) miles before they reach the fishing station. The reason why the Icelanders, who are by nature directed towards the sea as their principal source of income, are not benefited thereby as they might be, is the circumstance that they are not able to procure larger sea-going vessels. These are, as will be seen from the following, an essential condition, if the Iceland fisheries are to flourish; and when it becomes known what great advantages would accrue to the country from such vessels, it is to be hoped that the government will carry out my proposition and help the Icelanders by advancing a sum of money without charging interest, and thus relieve the lack of capital which makes itself painfully felt. It cannot be wondered at that such a lack of capital exists, if we bear in mind the fact that for centuries Iceland has labored under the most unfavorable financial conditions. It is impossible to overcome the baneful influences of monopolies and protection in a few short years.

It is very strange, however, that Danish capital has not long since been invested in so profitable an undertaking as the Iceland bank fisheries. Here is a vast field, which unfortunately has been allowed to lie fallow too long, and which ought to be reclaimed as soon as practicable.

I know full well that Danish merchant vessels have from time to time attempted codfishing in the Iceland waters, andthat the result has been, that these fisheries "barely pay expenses." But these vessels *have carried cargo both going and coming*. The cargo has been the main object, and the fisheries only a matter of secondary importance, since only about six weeks can be devoted to them from the time the cargo is unloaded until a new cargo is taken. It is self-evident that it will not pay to fit out a vessel for fishing for so short a period, and, moreover, go to the expense of buying provisions and salt in Iceland. That the fisheries *will* pay, when made the principal object, I have found out this year, when I undertook my expedition without any regard to cargo. This does not imply, however, that it does not pay to take cargo, if only about five months—say from May to September, inclusive—can be entirely devoted to the fisheries.

I shall now speak separately of the two principal fisheries which are carried on near Iceland, viz, the cod fisheries and the herring fisheries. The reason why I shall not devote any time to other fisheries is simply this, that I have not, during this year, made any observations regarding them, and, moreover, none of them are of very great importance.

1.—THE COD FISHERIES.

These fisheries are the principal source of revenue to the Icelanders. To show how little use is made of this source of income, owing to the

fact that only open boats and very imperfect apparatus is employed, I shall quote a portion of the report on fisheries in the district of *Myra* and *Bargarfiorda*, made by the governor of said district, and then compare this report with the result of my expedition, taking into consideration the circumstances that this expedition was my first attempt in this direction, and would therefore not, in all probability, be accompanied by as favorable results as might be looked for from a second attempt.

The governor says in his report:

"The only place in this district where the fisheries may be said to form the principal source of income of the inhabitants is *Akranes* the outer point of which, the *Akraneslage*, stretches far out into the *Fase Bay*. The following remarks will, therefore, apply exclusively to that locality.

"As a general rule the fishing season at *Akranes* commences about March 1, and is divided into three periods, according to the seasons of the year, the first period comprising the winter fisheries, March 1–May 12, the second the spring fisheries, May 12–June 24, and the third the autumn fisheries, November 1–December 23. This division of the fisheries entirely agrees with that of the neighboring districts of *Kjösar* and *Gullbruiga;* it has probably been known for many years, and is also given in the Iceland Almanac.

"From the information which I have been able to gather, the following vessels were last winter engaged in the *Akranes* winter fisheries: 5 boats with 8 oars (7 to 9 men); 22 boats with 6 oars (5 to 7 men); 10 boats with 4 oars (4 to 5 men). After the 21st of April, 50 boats, with 2 to 3 men each.

"It may safely be assumed that the *Akranes* winter fisheries have, on the whole, employed about 350 men, and the spring fisheries 400 men. About half this number belonged to *Akranes*, whilst the other half came from the neighboring inland districts, as the farmers are in the habit of sending some of their farm hands to the coast during winter and spring. With the beginning of the spring fisheries (May 12) the use of the large boats with 8 oars ceases, whilst the other boats, with 4 to six oars, continue to be used, and the number of small boats (with 2 to 3 men each) is somewhat increased. All the boats, both large and small, belong to *Akranes*. Larger vessels have not been used, the fisheries being carried on entirely with the above-mentioned open boats, which have neither name nor number.

"The number of fish of all kinds caught by the *Akranes* fishermen during last winter's and spring's fishing season amounted to 250,000, valued at about 50,000 crowns ($13,400).

"Every time the boats come on shore, the fish are immediately divided among the crews of the different boats in the following manner: in boats with 8, 6, or 4 oars the owner receives two shares to every share given to each of the crew, whilst in the small boats the owner's share is equal to that received by each one of the crew. At *Akranes* it is the

rule that each person prepares the fish which fall to his share. This preparation generally consists in cleaning and salting the fish and bringing them to market as "*Klip-Fisk.*" The smaller portion of the fish caught are prepared as "flat fish" and are sold for home consumption. Of all the fish caught at *Akranes* two-thirds are sold to *Akranes* merchants and one-third to *Reykjavik* merchants.

"In two other places in this district (*Alptanes* and *Hraunhreppar*) fisheries are carried on in spring, but not to any great extent, as they only form a leisure occupation of the inhabitants, who are principally engaged in sheep-raising and in agricultural pursuits; and I have consequently not deemed these fisheries important enough to make a report on them.

"I must, in conclusion, express my conviction, which is shared by all persons acquainted with the condition of our country, that the manner in which the Iceland fisheries have been carried on for a long time (and are still carried on) needs a radical reform, and that, therefore, it would be desirable to take the necessary steps for bringing about this much needed change as soon as possible."

As regards my own expedition I have to report as follows: After having fitted out my vessel, I left Copenhagen on the 8th April without a cargo; the crew (including myself) numbered six persons. Reached the *Færö Islands* April 14, and remained there till April 21; hired ten Færö fishermen. The reason why I staid so long at the *Færö Islands* was, that the fishermen of these islands, who only use English cutters in their bank fisheries, did not have much confidence in the sea-going capacity of my vessel, at least as far as its use for the fisheries was concerned. Instead of engaging these fishermen on the share plan, which is by far the best, as it makes them take some interest in their work, and as it does not necessitate the constant and wearisome superintendence of the owner, I was obliged to have them on the following conditions:

During the hand-line fisheries: 15 crowns ($4.02) per month; 6 crowns ($1.60) per 100 standard cod (upwards of 2 feet in length); 1½ crowns ($0.40) per 100 cod below the standard length (16 to 22 inches).

During the long-line fisheries: One-third of the total yield, divided among the whole crew.

In both cases the fishermen are found.

The fears entertained by the *Færö* fishermen were not well founded, as my vessel did just as well as the French fishing schooners, although not quite as well as the English cutters, which are narrow and pointed.

My Danish men were paid in the manner customary in Denmark, and received, moreover, 2 crowns ($0.53) for every 100 standard cod, and 1 crown ($0.26) for every 100 cod below the standard size. During the long-line fisheries, however, they preferred to work on the share plan.

Touched *Cape Reykjanæs* on the morning of April 27, and cast anchor on the banks off *Cape Skagen* during the forenoon of the same day.

From April 27 to July 1 we fished with hand-lines along the *Vester*

and *Nordland* coast. The weather, especially during May, was very stormy and unfavorable, so that the fisheries were frequently interrupted.

From May 28 to May 31, staid in the *Isa Fiord*, where we laid up the first batch of fish, to be prepared as "*klip-fish*." Continued hand-line fishing till June 26. June 26 and 27, staid in the *Ömundar Fiord*, and June 28 to 30, the second batch of fish was laid up at *Isa Fiord*, where we had made an arrangement with a merchant to prepare our fish.

Left July 1, and went, in a northerly direction, to *Österlandet* to engage in the long-line fisheries, which are here carried on by a number of *Færö* fishermen. Fished on the way whenever there was a calm. Reached *Reyder Fiord* July 15, and commenced long-line fishing the same day.

In order to avoid any misunderstanding, it must be stated that boat-fishing from a ship, as the central station, cannot be compared with the Icelander's boat-fisheries from the shore.

From July 15 to September 20 we fished with long lines in the mouth of the *Reyder Fiord*. Left Iceland September 24, touched at the *Færö Islands* September 30, staid there till October 7, and arrived in Copenhagen October 14. The total result of our five months' fisheries was about 52,000 codfish, which were sold, either salted or prepared in other ways, for 11,700 crowns ($3,135.60). This year we only salted codfish, and did not prepare any other fish. The net revenue from our expedition was about 2,500 crowns ($670), and as my vessel represented a capital of about 10,000 crowns ($2,680), this would be about 25 per cent. on the capital invested; subtracting 10 per cent. for amortization, this would leave a net surplus of 15 per cent. for the first year; and this, in spite of the circumstances that the sailing of our vessel was considerably delayed by the exceptionally severe winter, that she took no cargo, and that the fishermen had been engaged under peculiarly unfavorable conditions.

By way of comparison, I will mention that a schooner from *Isa Fiord* with a crew of 18 men realized a net surplus of over 3,000 crowns ($804) during fisheries which only extended over a period of 2½ months.

The individual earnings of each man on my vessel averaged 50 crowns ($13.40) per month. If we compare the result of my expedition with the above-mentioned report from *Akranes*, it will be seen that 350 men in 2½ months, 400 men in 1⅓ months, or, which would be the same, 400 men in 3½ months, have during the present year, with 87 boats, only caught 250,000 fish of all kinds, with a total value of 50,000 crowns ($13,400).

The total income of every participant (not counting off the repairing, &c., of boats and apparatus) would, therefore, only be about 35 crowns ($9.38) per month, without board and lodging, whilst on my vessel every man on an average earned 50 crowns ($13.40) per month, besides being found.

If, however, we distribute the above-mentioned 400 men over 26 sea-going vessels with a crew of 15 men each, and two such vessels with a

crew of 10 each, these would during the same time, *i. e.*, 3½ months, have caught: 26 vessels with 15 men, in 3½ months, 946,400 fish; 2 vessels with 10 men, in 3½ months, 24,500 fish—total, 970,900 fish, representing a value of 218,400 crowns ($58,531.20); in other words, all the conditions being equal, the result of the fisheries is four times as large when larger sea-going vessels are employed than with open boats, and the pecuniary result is over 4⅓ times as large.

No more convincing proof could be furnished of the superiority of larger sea-going vessels for deep-sea fisheries, over open boats; but there are still other circumstances which speak strongly in favor of larger sea-going vessels:

1. The Icelanders lose a great deal of time by being obliged to row several miles before reaching their fishing stations, and then having to row home again the same distance, whilst larger vessels can stay on the fishing banks for months.

2. Storms and waves often interrupt the fisheries, not to speak of the great danger to which open boats are exposed on the high sea, where a sudden storm may often compel the fishermen to cast nearly all the fish they have caught overboard in order to save their lives. On a sea-going vessel, however, the fisheries are not exposed to as many dangers. Regular rest, strengthening food and dry clothes, make the fishermen better fitted for work, than sleepless nights, poor food (or none at all), and wet clothes, such as fall to the share of the open-boat fishermen.

3. The fish can be much better prepared on larger vessels, where they are immediately killed, cleaned, and salted, and can thus be made into a much more valuable article than is possible in the open boats. The Icelanders never kill their fish in their boats; but often let them lie for one or several days, so that the blood coagulates, the fish turn dark in the brine, become less durable, and of course much less valuable. The best and fattest fish, moreover, are found far away from the coast, and every one, acquainted with the herring fisheries, knows that the so-called "yacht-fish" fetch a much higher price than "boat-fish."

It is not necessary to give further reasons against the use of open boats for deep-sea fishing, *i. e.*, when the boats are stationed near the shore. The comparisons given above will be amply sufficient to prove this: That the result of the fisheries, all other things being even, is four times as large when sea-going vessels are employed as with open boats. The former have, moreover, the great advantage, that with them fishing can be carried on all the year round, whenever the weather permits, as the schools can be followed up when they leave the coast.

The above-mentioned 400 men from *Akranes* and *Opland* would, *e. g.*, in seven months' great fisheries and two months' boat fisheries, reach the following results:

	Fish.
26 sea-going vessels, at 15 men (March 1 to October 1)	1,892,800
1 sea-going vessel with 10 men (March 1 to October 1)	49,000
87 boats (4 to 5 men each), November 1 to December 1	130,000
Total	2,071,800

Valued at 470,000 crowns ($125,960), whilst the same number of men, in 5½ months' boat fisheries would only catch about 400,000 fish, valued at 83,000 crowns ($22,244), therefore not one-fifth of the revenue they might earn, if they used sea-going vessels.

In comparing the exportation of fish from Iceland during the last year, which was a good fish year, with the average yield of the cod fisheries carried on in Iceland waters by Frenchmen, it will become still more apparent that the Icelanders do not utilize this great source of revenue near as much as they might do.

According to the official reports, France annually sends about 230 vessels, most of them schooners and luggers of 100 tons burthen each, to engage in the Iceland fisheries. The crews number 400 in all, or on an average 17 men per vessel. The fisheries are generally carried on from March to September all round the island, beginning on the southern and western banks and finishing the season on the eastern banks.

The annual yield amounts to about 12,500 tons or 25,000,000 pounds, representing in France a capital of about 5,500,000 crowns ($1,474,000), or 24,000 crowns ($6,432) per vessel.

The exportation of fish from Iceland during 1880 was as follows:

	Pounds.
To Spain	8,238,000
To Denmark	4,758,000
To England	2,920,000
Total	15,916,000

Calculating the home consumption at 6,400,000 pounds, Iceland's share of the cod fisheries in 1880 would be 22,316,000 pounds, representing a value of 3,500,000 crowns ($938,000), *i. e.*, 2,684,000 pounds less than the average yield of the French cod fisheries near Iceland. The small town of *Dunkirk* in France, which every year sends 105 fishing-vessels to Iceland, receives as many fish from the Iceland banks as the total amount of fish exported in 1878, viz, about 11,800,000 pounds.

If sea-going vessels were introduced by the Icelanders, matters would soon be changed, and the yield of their fisheries would be five times as large. Supposing that this development of the fisheries extended over the entire island, Iceland would be enabled to export six times as many fish as she does now, provided that the home consumption remained the same.

The yield of the fisheries would be five times as large: Therefore 5 × 22,316,000 pounds, 111,580,000 pounds; subtract home consumption, 6,400,000 pounds, would leave for exportation 105,180,000 pounds, whilst in 1880 the exportation only amounted to 15,916,000 pounds.

Taking the average price of fish, the quantity exported would represent the comfortable capital of about 16,000,000 crowns ($4,288,300), or about the same as Denmark's exportation of agricultural products in 1879.

Just as Denmark is intended by nature for an agricultural country,

so is Iceland to be a fishery country; and the sea is to be the vast field where she can reap rich harvests even without sowing.

It need hardly be pointed out how much the financial condition of Iceland would be improved by such a development of the fisheries, and what indirect advantages would therefrom accrue to Denmark. We have in Denmark hundreds of vessels which are well adapted to the Iceland bank fisheries, and which might in these fisheries make more money than by the carrying trade, in which they will be thrown more and more into the shade by steamships.

2.—THE HERRING FISHERIES.

These have never been a great source of revenue to the Icelanders. Herring have been caught, in stationary nets, for bait and for daily use in the household, but as far as known they have never been prepared as an article of trade. This is partly owing to the circumstance that a rational method of fishing, which is an essential condition of the development of fisheries into a profitable industry, is unknown in Iceland, and partly to the lack of capital.

The attention of the Norwegians has meanwhile been drawn to the large schools of herring which visit the Iceland waters, and which, at certain seasons of the year, enter the fiords. During the last few years Norwegian fishermen have derived an income from a source which ought to have enriched Iceland.

The first expeditions were sent out from *Mandal* in Norway to *Seydis Fiord* in Iceland, in 1868.

The very imperfect method of fishing, however, in connection with a certain lack of energy shown by the persons participating in this expedition, caused the results to be less than they might otherwise have been. I shall briefly describe the method employed:

By means of heavy nets with narrow meshes the schools of herring are surrounded when they go into the fiords in autumn. These nets are from 50 to 150 fathoms long, 14 to 17 fathoms deep, and have generally 114 meshes to the fathom. Along the buoy-line, pieces of cork, each 8 inches long, are fastened every yard; whilst along the foot-line there is a stone of 6 pounds' weight to every fathom. Such a net is worked by about 16 men, 2 large boats in which the nets are piled up, and 5 to 6 small boats, 2 of which are furnished with a small capstan.

The foreman or "boss," supplied with a sounding-line and a telescope, generally rows out into the fiord every afternoon, accompanied by the net-boat and 4 small boats. Whenever he has discovered a school of herring (either by means of the sounding-line, which is let down till within a few feet from the bottom, so that he can *feel* the school when it pushes against the line; or by means of the telescope; or, finally, by seeing the commotion caused near the surface by the herring) he gives a sign to the net-boat to indicate in what direction the net is to be set so as to inclose the herring. One of the boats with a capstan takes the

rope of the net, rows quickly towards the shore, casts anchor, joins the rope to the capstan, and commences to haul in the net; the net-boat meanwhile surrounds the school in a semi-circle, as far as the net will stretch, then rows towards the shore with the other rope and acts in the same manner as the capstan-boat. In order to hold up the buoy-line more floats are attached to it, and when both ends of the net are close to the shore the herring are surrounded without any hope of escape.

It is evident, however, that this method of catching fish depends altogether too much on accidental circumstances to give a safe and in any way calculable result. The proper home of the herring is the sea, and only every now and then do they go into shallow water for the purpose of spawning. The spawning process, however, may also go on in the deep sea, but only in exceptional cases when the temperature of the water in the fiords is too low.

The first condition for the Norwegian to catch herring is, therefore, that the herring come near the coast; secondly, that his attention is drawn to them, *i. e.*, that he either feels or sees them before the net is cast. Both these indications may mislead; and, although the Norwegians have of late years furnished the proof that by the above-mentioned method of catching fish the capital invested may be doubled, I would not advise any one but a capitalist to follow this method, for under unfavorable circumstances one may have to wait for years until the money invested pays any interest.

A much more rational method of fishing is that pursued by the Dutch and Scotch, viz, the drag-net method, as thereby one makes himself independent of the migrations of the herring and follows them to their home—the sea. With good sea-going vessels, cutters and luggers, the Dutch and Scotch fishermen go over a vast extent of sea with their drag-nets.

The Norwegian Association for the Advancement of the Fisheries has become fully convinced of the great importance of the drag-net method, and has sent Norwegian fishermen to the Netherlands and to Scotland to become acquainted with their methods of fishing.

To return to the Iceland herring fisheries in their present condition, I will quote the following from the official report of the Bergen Board of Trade:

"Three expeditions left Bergen for Iceland in 1880, one with two nets, fitted out by Mr. I. E. Lemhkuhl, one by the Bergen-Mandal Company, with one net, and one by a joint-stock company in Bergen, with one net.

"The first-mentioned expedition comprised one vessel of about 950 tons burden, with a crew of 16 men, which sailed for Iceland in the beginning of June, with materials for erecting a large salting-house; five nets with everything belonging to them; a large net-boat, and several small boats. Soon after the first vessel another one sailed taking out about 2,000 tons salt, one large net-boat, and other materials. In July these vessels were followed by a steamer and a yacht, with a crew of 12

men, both vessels carrying a cargo consisting of kegs, salt, &c.; three nets, boats, &c. Later during the season the steamer plied regularly between Iceland and Bergen, continuing her trips till the end of October, whilst the two sailing-vessels staid in Iceland, where they were were used as lodging-vessels, until the fishermen returned from the fisheries in November. The crews of these vessels, 28 men in all, had to do every kind of work, and act as sailors, fishermen, salters, carpenters, wheelwrights, &c. The captain and the foreman of the fisheries and of the salting, received respectively 48, 56, and 64 crowns ($12.86, $15 and $17.15) a month, and the rest of the men 20 to 24 crowns ($5.36 to $6.43); all of them were found. Besides this, every man received for every ton of herring shipped from Iceland to Bergen 1 öre (a little more than ¼ cent) additional on every four crowns of their monthly wages; the foremen thus got 12, 14, and 15 öre, and the rest of the men 5 to 6 öre additional on every ton of herring. The entire quantity of herring caught by this expedition was 5,952 tons.

"The Bergen-Mandal expedition comprised two vessels with 18 men, and was furnished with building materials, 5 nets, 2 large net-boats. This expedition was managed in exactly the same manner as the one described above. It also employed a steamer to carry the fish (9,500 tons) to Norway.

"The Southern Bergen expedition comprised two large vessels of 1,700 to 1,800 tons each, 20 men, 1 net, 2 net-boats, &c., but did not carry any material for erecting buildings. The nets and net-boats were not owned by the same parties as the vessels, but there was an agreement between them, that all the fish caught should be taken by the vessels at 8 crowns ($2.14) per standard ton, half of which was to go to the owners of the nets and the other half to the men, to be evenly divided among them. The crews of the vessels received in addition 8 crowns ($2.14) per month, and had to find themselves.

"This expedition, which caught about 4,500 tons of herring, took all its apparatus, boats, &c., back to Norway, partly in their own and partly in hired vessels, whilst the other expeditions left their boats in Iceland till the next year."

If we calculate the cost of fitting out an expedition of this kind at 20,000 crowns ($5,300), and the average yield in 1880 at 4,000 tons per expedition, we find that, counting the ton at 20 crowns ($5.36), the net result must have been at least 40,000 crowns ($10,600), *i. e.*, 200 per cent.

A joint-stock company which commenced work last year with a capital of 20,000 crowns ($5,300) made 125 per cent. Every share of 1,000 crowns ($268) paid 1,250 crowns. Of the 20 shares 10 were taken in Norway and 10 in Iceland.

The total quantity of herring caught by the Norwegians near Iceland in 1880 is estimated at 100,000 tons, valued at 2,000,000 crowns ($536,000).

By directing the attention of my countrymen to the above facts, I hope to stir them up a little to take a more active interest in the deep-sea fisheries, as a large portion of our merchant marine might be much more profitably engaged in the fisheries than in the carrying trade. It would doubtless be advantageous if in that case 5 to 10 ship-owners would form a sort of joint-stock company, as various advantages could thereby be secured, especially with regard to the sale of the products of the fisheries. Considering the difficulties involved in the carrying out of such an undertaking, I have proposed to the government to appoint an officer in the capacity of official adviser who could give all the advice needed.

In conclusion, I would ask our North Sea fishermen to seriously consider if the introduction into their fisheries of larger sea-going vessels would not prove as much of a benefit to them as to the Icelanders

Open boats for deep-sea fisheries will hardly answer the purpose anywhere, and if the proposed harbor should be established on the west coast of Jutland there would be a very strong inducement to derive as much benefit from our deep-sea fisheries as other nations from theirs; as they certainly are, when carried on in the proper manner, a rich source of revenue and consequent national prosperity.

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