

## V.—THE BOHUS-LÄN SEA FISHERIES AND THEIR FUTURE.

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[From "*Aftonbladet*," Nos. 6 and 43, January 9 and February 21, 1882.]\*

Bohus-län doubtless occupies the front rank among all the Swedish provinces, both as regards the development and extent which the fishing industries have reached there, and the great fame which one of its fisheries—the great periodical herring fishery—has justly obtained. But as, of late years, the Bohus-län sea fisheries have decreased, whilst on the other hand a new great-herring period seems about to begin after an interval of nearly seventy years, it will not seem strange if we invite the attention of the public to some facts regarding the Bohus-län sea fisheries and their future, and to those measures which we consider necessary for their proper development. In order, however, to understand the latest and most important phase in this development, and in order to make some calculations regarding the periodical herring fisheries, and the peculiar course and economical importance of these fisheries, it will be necessary to give a brief historical review of the more important facts relative to the herring periods. As there are no accurate data regarding our periodical herring fisheries till the latter half of the sixteenth century, it will be necessary to complete the review of the herring periods by means of the knowledge which we possess regarding the herring fisheries on the west coast of Norway during the middle ages. It is well known to what an extent, especially in olden times, the herring fisheries contributed to the material well-being of the nation, and how ruinous was their cessation. In reviewing all that we know certainly relative to the great herring fisheries on the coasts of Bohus-län and Western Norway, we shall soon find that the herring fisheries never flourished on both these coasts at one and the same time, but that they had begun, or at least were about to begin, on the one coast when they had ceased or were about to cease on the other.

The oldest notice we find of the Bohus-län herring fisheries is a prohibition by *Olof the Saint*, in 1017, of the exportation of herring from *Viken to Vestergötland*, contained in the "*Chronicles of the kings*." The herring must, therefore, have come near the coast of Bohus-län at that time; and as the same chronicles tell us that there was much suf-

\* "*Bohus läns hafsteke och dess framtid*."—Translated from the Swedish, by HERMAN JACOBSON.

fering in Norway during the reign of the sons of *Gunhild* (961-970), owing, among other things, to the failure of the fisheries, it is reasonable to suppose that by these fisheries we are to understand those which at the time were the most important for Norway—the so-called spring-herring fisheries; and also that the Bohus-län herring period began soon after, and continued till the end of the reign of *Olof the Saint*.

During the first decade of the twelfth century, and especially during the reign of *Sigurd Jorsalafar* (1100-1130), we find that in *Southern Viken* there was an unusual development of all the material interests, and more especially at *Konungahella*, because it was the most important commercial place of the entire north. As, shortly before the destruction of *Konungahella* by the *Vinds*, in August, 1135, a number of merchants emigrated from there to Bergen, it would not seem out of the way to suppose that the herring fisheries contributed their share to the flourishing condition of *Konungahella*, and that the cessation of the herring fisheries on the coast of Bohus-län and their beginning on the western coast of Norway formed the real cause—not mentioned in the chronicles—of the emigration above referred to. Unless this was really the cause, it would seem difficult to understand why this emigration took place to Bergen and not to *Tönsberg*, *Oslo*, or *Sarpsborg*, whose trade resembled that of *Konungahella* much more than that of Bergen. Supposing this to be correct, this herring period would have begun during the last decade of the eleventh century.

*Southern Viken* shows us a still more striking revival of the herring fisheries during the first half of the thirteenth century, after a most devastating civil war of nearly a hundred years' duration. From *Hakan Hakonsson's Saga* (chapter 333) we know that during the long reign of this famous king, *Marstrand* and other desert islands near the coast were cultivated; that the *Öcker Islands* were colonized and received a church of their own; that the convent of *Tönsberg* was moved to *Dragsmark*, and that *Gullholm* was colonized. Although the last-mentioned measures may have been taken to furnish a convenient commercial highway from Norway to Lake *Venern*, which might take the place of the insufficiently protected former highway by *Konungahella*; the rapid increase of population in the *Öcker Islands*, necessitating a special church, certainly indicates rich herring fisheries, principally carried on near the central and southern coasts, as no place on the northern coast is mentioned. During the latter part of *King Hakan "the Olds"* reign (from 1250) no more herring came to the coast of Bohus-län, so that during the second half of summer the Bohus-län people were in the habit of going down the sound to participate in the *Skåne* herring fisheries. This herring period of the first half of the thirteenth century has, by *Axel Boeck*, and others following in his footsteps, been incorrectly considered the same as the great Bohus-län herring fisheries of the fourteenth century.

From well-authenticated documents we know that the herring which during the first half of the fourteenth century had ceased to come to

the Norwegian coast near Bergen, again came to the coast of Bohus-län in large numbers; but the exact location where the fisheries were carried on is not known, although there are indications that about this very time *Marstrand* was in an exceptionally flourishing condition. During this herring period the government allowed the Hanse cities to participate in these rich fisheries, which privilege, however, was very probably abruptly ended by the great plague.

About the middle of the fifteenth century herring again visited our coasts in large numbers, and it is well known that from this time the herring fisheries began on the coast of *Vestergötland*, where the government levied a tax on the fishermen. The great herring fisheries had now become an important source of revenue to the government. During this period *Marstrand* was incorporated as a city (1442), and its church was completed (1460). As the Hanse cities petitioned the government to have their privileges renewed, it is probable that they likewise participated in these fisheries.

From the middle of the sixteenth century herring again came to the coast of Bohus-län in very large numbers near *Marstrand*, and as far as the *Homborg Sound*. These fisheries continued till about the year 1556, which was not many years before the northern or spring-herring fisheries near the western coast of Norway came to an end, as the historian *Peder Claussön Friis*, who is well acquainted with this herring period, expressly says in his history. From printed documents in the Norwegian archives it appears that in 1561 the herring fisheries were principally carried on near *Marstrand* in 1564 (when they began September 6), also at three stations on the island of *Orust*—*Rokersvik*, *Mollösund* and *Svanesund*, and in 1565, in nearly the same localities, *Hermensund* and *Mollösund* being mentioned as important herring places. In 1572, when the fisheries commenced somewhat later in autumn, a superintendent of customs was appointed at *Marstrand*, and customs officers were stationed in various places on the island of *Orust*. In 1576, when the fisheries did not begin till some time in November, large numbers of herring made their appearance north of *Marstrand*. It may be presumed that principally towards the close of the herring period, fisheries were also carried on near *Vette* and near the *Hval Islands* on the coast of Norway; but in those localities they do not seem to have reached a sufficient degree of importance to cause the government to establish a customs station for the purpose of deriving revenue from these fisheries, which began to decline about 1580 and ceased entirely in 1590. During this period the herring were almost exclusively caught with seines and stationary nets, which began to be introduced towards the end of the period, but were strictly prohibited in 1583. As a general rule these herring were smaller and leaner than the Norwegian so-called "spring herring," but the sum of 40 marks had to be paid for the privilege of salting them. The so-called "round salted" herring (herring salted while bloody in flat-bottomed vessels) were only prepared for home consumption or for exportation to Sweden.

Foreigners were allowed to participate in these fisheries by special grant from the King, for which, however, they had to pay a certain sum, just like the natives. Peter Clausson, the historian, testifies to the importance of these fisheries by saying in his work that "several thousand vessels and boats from Denmark and Holstein, as well as from the western and northern portions of Norway, came there to fish, besides those belonging to the place. Thereby thousands of people from neighboring countries have been induced to settle there. They have built themselves houses and cottages, where they live with their wives and children and make a good living through the fisheries. Noblemen, merchants, and farmers have here erected many large and beautiful houses two to three stories high; some of them so large that enormous quantities of herring can be hung up to dry. Thus the coast for 8 to 9 miles is lined with many thousand of houses and cottages, and many people live all along the fiords and inlets and on every island along this coast, as far as the herring extend their migrations. Here are annually seen many thousand ships from Germany, Denmark, Holland, England, Scotland, and France, which come to buy herring; all of them are amply supplied, and take the herring to far-off countries to serve as food for men."

In the beginning of the second half of the seventeenth century large numbers of herring seem again to have approached our coasts. When, in 1658, Bohus-län was united with Sweden, and the herring fisheries attracted the attention of the authorities, regulations were issued in 1666 for these fisheries, in which it was said, among other things, that the preparation of herring should only be carried on in *Gottenburg*, *Kalfsund*, *Marstrand*, *Mollösund*, *Gullholmen*, and *Lysekil*, which clearly indicated that, at that time, the herring principally visited the central and southern coasts. About the year 1670 the herring ceased to come to the southern coast, but continued to visit the central coast till the end of that herring period, which was about 1680, or, according to some, in 1697. Nothing is known regarding fisheries on the northern coast during this period, but it is probable that herring also came there. The herring fisheries, which were greatly disturbed by the political condition of the country, were also, during this period, carried on with nets.

About the middle of the eighteenth century the herring again came to the coast of Bohus-län in large numbers. In a report on the fisheries from the year 1758 we read the following: "In 1747 and 1748 the herring again commenced to visit the northern coast of Bohus-län in large numbers. A few years later they went as far south as *Marstrand*, and from 1752 on they made their appearance at *Gottenburg*." In the report of the Royal Fish Commission, dated April 22, 1761, we read: "From the year 1750 the herring had their station on the southern coast, between *Gottenburg* and *Marstrand*, and about 3 to 4 miles north of the last-mentioned city." In the report of the same commission of 1764 we read that "in autumn the herring were generally found on both sides of *Marstrand*. Some years they appeared in large numbers near *Gottenburg*

and also on the *Halland* coast. In autumn and towards winter they went a little nearer to the northern end of the *Gullmarsfiord* and the Norwegian frontier." In a pamphlet published in 1765 we read "of the necessity of having superintendents of fisheries appointed in the districts of *Gottenburg* and *Bohus-län*." The herring must, therefore, have staid on the southern and central coasts, which also appears from various laws and reports published about that time. In the report of the Royal Commission of Fisheries of January 15, 1770, it is said that "the herring fisheries continued, without interruption, on the coast of *Bohus-län* for twenty years; the only observable change being that they appeared more plentiful on the northern portion of the coast during the latter part of this period than during the first part." The comparatively insignificant fisheries on the northern coast during the first years of the period are hardly mentioned in any reports from that period, but from 1750 or 1752 we find more frequent data regarding the fisheries. According to the so-called "oil-refuse act" (*Trangrums-akten*), the herring seem at that time to have made the *Gottenburg* coast their principal place of sojourn, whilst later in the period they were not seen there so frequently. In 1773 the herring were reported to have made their appearance and to have been caught, late in autumn, or rather in the beginning of winter, as far north as *Strömstad*, and from 1778, also, near the *Hval Islands*, on the coast of Norway. From the above-mentioned "*Trangrums-akten*," passed in 1784, it also appears that the principal oil refineries were, during the seventh and in the beginning of the eighth decade of the eighteenth century, found in the neighborhood of *Udde-valla* and *Marstrand*, on the central portion of the coast of *Bohus-län*. A report of 1788 says, that about that time the herring were found principally near the *Ellös* and *Elgö* fiords, also on the central portion of the coast. In the same report we read that at that time the herring fisheries began about the end of October, when the most northerly points where herring were caught were *Gullholmen* and *Lyskil*; and that the fisheries generally commenced near *Marstrand*, *Klädesholmerna*, and in the neighborhood of the *Brunskürsfiord*, where the largest number of herring were caught; and that as winter approached the herring went farther north and were caught in large numbers near *Grafvarne*, *Hunnebostrand*, *Flüskö*, and towards the end of the season near *Saltö*, which is about one mile south of *Strömstad*. The same conditions continued till the end of the herring period, in the winter of 1808.

In order to fully understand the importance of the experience gained from the last great herring period (1748-1808), it will be necessary to state, first, that the fisheries commenced, in 1753, September 29; 1757, September 3; 1762, August 16; 1766, September 9; 1769, October 3; 1773, October 14; 1778, November 4; 1781, October 24; 1783, November 3; and thereafter gradually later and later, till finally they did not commence till the middle of December; and, second, that in 1755 the fisheries yielded 75,000 tons of herring, in 1760 upwards of 200,000, about the year 1785 1,000,000 tons, and in 1795, when the fisheries were at their

greatest height, nearly 2,000,000 tons;\* from that year, however, the quantity of fish caught rapidly decreased. The reason why so few fish were caught in the beginning of the fisheries was, simply, that there was a lack of experienced fishermen and improved apparatus, and also a lack of a proper market; but not, by any means, that fewer fish came near the coast. An experienced fisherman, who had taken an active part in the fisheries ever since 1754, says in 1809: "After the year 1767 the number of herring on our coast was not as large as prior to that year, but our fishermen have gained more experience; we have better nets, boats, and salting-houses, and more men to take part in the fisheries, so that as many herring were caught and prepared as were needed, till the latter part of the herring period, when the approach of winter greatly interfered with the fisheries." From trustworthy sources we learn that, during that portion of the herring period when the fisheries were at their greatest height, the herring came near the coast in such enormous numbers that those which were caught only represented a *very* small portion of the total number of fish on the coast; and that each season the fisheries came to an end, not because there was a lack of herring, but because no one could be found who was willing to pay anything for them, all demands having been fully satisfied. From the fishery report of 1788 we learn that, in 1787, there were on the coast of Bohus-län 338 salting-houses, 429 oil-refineries with a total of 1,812 vats, which used 13,662 tons of fresh fish every time oil was made, or 40,986 tons per day; 358 large nets; †2,100 herring-boats, &c. It is evident that these fisheries were very profitable. *Granberg* says, in his "*History of Gottenburg*," that the city of Gottenburg owed its flourishing condition, during the latter part of the eighteenth century, "to its East India trade and the herring fisheries." According to the same author, the exportation of herring and oil gave a new impetus to commerce, and exercised a beneficial influence on all branches of trade and industry. The large sums of money which flowed into the country aided in furthering the development of many different industries, and that this had really been the case became still more evident when the source of wealth became exhausted with the close of the herring period. To give a better idea of the flourishing condition of Bohus-län when the fisheries were at their height, and of the misery and suffering caused by the decline of the fisheries, we will quote the following from a work on the Bohus-län fisheries by Rev. O. Lundbecks: "Any one who knew the coast of Bo-

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\*It should be remembered that the Swedish ton holds 209.4 liters, and that the herring are measured in flat vessels, which were filled to repletion; and that during that summer people commenced to calculate how many fresh fish were required for a ton of oil, for large masses of herring were used for that purpose. By way of comparison we will mention that the total yield of the Scotch fisheries in 1880 was 1,473,000 crans, of about 170.2 liters each (of which 1,201,105 crans fall to the share of the east coast, and 272,495 to that of the west coast).

†In the beginning of the period both floating and stationary nets were employed, but as the fish caught were not of the most valuable kind, they were soon replaced by common seines, which paid much better.

hus-län twenty-five years ago (this was written in 1831), and were to see it again at the present time would hardly be able to refrain from shedding tears. Twenty-five years ago our coast presented a lovely picture. Massive and costly walls and bulwarks supporting extensive salt-houses and oil-refineries rose from the very sea; further inland could be seen spacious warehouses and busy workshops, and on the brow of the hills handsome residences and small but comfortable houses for the fishermen and mechanics. The shore swarmed with people, and the sea was crowded with white sails. Every night the coast presented a magnificent scene, when the many thousand lights were reflected in the waves. Everywhere there was life and bustle, and the revenues were counted by tons of gold. Now, nothing remains of all this splendor but bare ruins. Here and there is seen a dilapidated cottage, which awakens the same feelings in the visitor as a neglected cemetery. Would that the former times so ardently sighed and prayed for by many thousands of people might soon return!"

With the beginning of the winter 1877-'78, the *genuine sea-herring*, which had been observed near *Skagen* since the autumn of 1875, again came to the coast of Bohus-län in large numbers; and as last year they began to come *earlier* and *go further south* than during the previous year, it seems evident that the old and well-known cycle repeats itself.

It remains to briefly indicate those measures which should be taken in order to derive the greatest possible benefit from that source of wealth which the return of the herring to our coast has opened, and to further the development of other sea fisheries in connection with that of the herring.

As regards the method of preparing herring, the selection of the proper place for the necessary establishments is of great importance. The experience gained during the former herring periods indicates clearly that the *central* portion of the coast (the coast from *Marstrand* to *Soten*) offers on the whole the most favorable locations for such establishments during the entire herring period; whilst the southern coast is most favorable during that part of the period when the herring come early during the year, and are particularly well suited for salting. The northern coast, where the herring come towards the end of the year, and where they frequently stay longest, is therefore very well suited for selling fresh herring for immediate consumption. As the herring, however, during the greater portion of the period when they come late in the year, do not come regularly every year to the *Gottenburg* coast, and as only those herring which are caught towards the close of autumn can be bought at a price which allows of their being used on a large scale for the manufacture of oil, glue, manure, &c., it is evident that the central coast is best suited for such establishments, and next to it the northern coast, where the herring come later, and are, on the whole, somewhat leaner.

As regards the different ways of preparing herring, it needs no proof that it will be most advantageous to utilize the herring in every pos-

sible way, as thereby the chance of selling them in different markets will be largely increased. This is a very important consideration, as it is well known from former herring periods that the number of fish caught is limited by no other reason than that there is no ready market for them. Moreover, in such large fisheries it frequently happens that large masses of herring are brought on shore which cannot be consumed in a fresh condition, and which, from some cause or other, are not suited for salting or smoking. Such herring could possibly be sold if prepared in a different way—that is, steamed, and then passed through a machine which separates the firm from the soft portions. From the latter oil, artificial butter, glue, and from the former fish-flour, guano, &c., can be manufactured. During the last fishing period all that was done was to separate the fat by boiling the herring—all the rest of the fish was thrown away; and it is not long since a more improved method of preparing the “menhaden” (a kind of herring found on the coasts of America) has been adopted in the northeastern part of America. During those years, when the fisheries of the last herring period were at their height, 30,000 to 60,000 barrels of oil were produced every year (15 to 20 large barrelsful of herring being required to make one barrel of oil).

As a ready sale of fish, and of the products of the fisheries, is an essential condition for an increase in the number of fish caught, it will be necessary to extend the market for our herring. In this connection it should be remembered that an increase in the sale of fish will cause a greater development of the entire fish industry by making it possible to introduce improved methods, to use better materials, and inducing more persons to engage in this industry. The sale of our herring could be greatly increased if the government would take the proper steps for spreading a knowledge of the different methods of preparing herring, and of the herring trade in general; and would see to it that the salting of herring is properly regulated and superintended. It would also prove a great benefit if the means of communication could be increased and improved, and especially a better connection be established between the outer coast and the railroad system of the interior; this being one of the most efficient means of developing deep-sea fisheries. Widely different as are the opinions regarding the various methods of improving and developing the deep-sea fisheries, there is no difference, or rather there has been none for the last 20 or 30 years, as to the vast importance of railroads to the sea fisheries. All the foreign fish commissions have, without exception, testified to the vast benefits accruing to the sea fisheries from the introduction of railroads, as it thereby becomes possible to carry fresh fish a very considerable distance, and as it tends to increase the material well-being of the entire coast population by building up all the industries, and by furthering the commercial intercourse of the coast with the rest of the country.

The railroads have already proved a great benefit to the Bohus-län herring fisheries by opening up new markets, and have at the same time enabled the greater portion of our poor throughout the country to



obtain at a cheap price a wholesome article of animal food. The importance of the railroads to the herring fisheries increases in the degree as people accustom themselves to use herring in the household and as the railroads open up new districts. As the herring are principally obtained on the central and northern coasts of Bohus-län during the cool season, when they can, of course, best be transported fresh, the lack of suitable railroad connections and a good outer harbor in each of these portions of the coast render it necessary at present to send them all the way to Gottenburg (a journey sometimes occupying several days), in order to ship them to other places in the country by rail. The herring, therefore, are liable to be spoiled, and, even under the most favorable circumstances, their prices will be raised and their usefulness as a cheap and wholesome article of food for the masses will be considerably diminished.

Contrary to the opinion here expressed that the herring fisheries might be improved principally by opening up new markets for their products and improving the means of communication, leaving the rest to follow the natural course of their development, some people have advanced the opinion that now, at the very beginning of the herring period, before suitable markets for our goods have been found, and before we have a body of men trained and experienced in all that pertains to the herring fisheries and the herring trade, we should use new and expensive apparatus—drag-nets after the Scotch and Dutch model. But as drag-net fisheries in the open sea require a larger capital than we can afford at the present time, and demand skill and experience in preparing herring as well as a ready sale of the fish at a price which will cover the expenses incurred in procuring new apparatus, and as, moreover (as we know from the last fishing period), such fisheries cannot compete with the seine fisheries (more especially at this time, when the herring period is just beginning and the herring approach the coast earlier in the season), it will need no further proof to show how impractical are these opinions. At any rate, there is time enough to introduce drag-net fisheries on a large scale during that part of the herring period when the herring come to the coast later in the season; when only fish of a poorer quality are caught in the seines; when more capital has accumulated; when our people have become more skilled in preparing herring,\* and when new markets have been opened for the products of our fisheries. Nor would it be wise, at the present time at least, to excite the competition of foreign nations, as the consequences of such a step might be detrimental to the prospects of our fisheries. The drag-net fisheries in the open sea are free to all, and

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\* The introduction of the Scotch fishing methods and apparatus demands as careful a preparation of the herring as that in vogue in Scotland, if the herring caught in drag-nets are to bring a reasonable price; for fresh herring can with us only be sold in comparatively small quantities at such a price as to pay the extra expense incurred in buying new and expensive fishing apparatus.

Sweden has no suitable places to form a basis for these fisheries in the Kattegat and the Skagerack. It should be our aim to make the herring fisheries in our seas, as was the case during the last herring period, an exclusively *Swedish* industry, and to prevent foreigners from enjoying those natural advantages which by right belong to us.

Any measures intended to further the sea fisheries should therefore not only aim at remedying those evils which made themselves felt during the former herring periods, but at bringing to the utmost degree of development all the great sea fisheries, all of which may be reached by improved means of communication, and by concentrating the fishing industries in certain favorably situated places on the coast. The creation of a regular fish trade, and of a body of experienced fishermen and salters, &c., will only be possible in places where the very location points to the sea fisheries as the most natural and profitable industry, such as Bergen, Yarmouth, Grimsley, &c., for only in such places can capitalists be found who take enough interest in the matter to invest their money in the fishing industries. Through such a concentration of the fishing industries the Bohus-län fisheries would become more thoroughly Swedish and would supply the Swedish nation with a cheap and wholesome article of food; whilst, if nothing is done to promote the fishing interests, there is great danger that the Swedish deep-sea fishermen (as is already the case to some extent with the *Aalesund* fisheries) will cease to be independent fishermen, and become the servants of foreigners, from whom we would thus continue to import the greater portion of the fish which we consume. The salting of fish caught in the deep-sea fisheries which has been much neglected during the last ten years, should again be taken up energetically, and the endeavors made with such good success in the years 1857-1865 should be repeated and applied to the sea fisheries, more especially if the proposed new railroads make it possible to carry both fresh and slightly salted fish to any part of the country.

From these brief indications it will be evident that all that our Bohus-län fisheries need in order to be brought to their proper height, is, above everything, increased means of communication by railroads connecting the various important harbors on our coast, and by a line connecting this coast railroad with the railroad system of the kingdom.

Such measures, if properly carried out, will infuse new life not only into the Bohus-län sea fisheries, but also into all our industries, and will moreover vastly increase the business of all our railroads, and soon repay all the money invested.

Whatever opinions one may entertain as to the importance of our Bohus-län fisheries, and their value to our whole country, it will, under all circumstances, be very desirable that the indifference our people manifest at present to this great industry should be overcome, and that they should be induced, by every possible means, to take an active interest in this matter.