

## IX.—THE FIRST FIVE YEARS OF THE EMDEN JOINT-STOCK HERRING-FISHERY ASSOCIATION.

By Senator DANTZIGER, of Emden.

The close of last year completed the fifth year of an enterprise which had been started by prominent citizens of Emden in conjunction with the German Fishery Association, for the purpose of cultivating the herring-fisheries which had been carried on in Emden from time immemorial and of combining with these other fisheries on the high seas.

An attempt had been made as early as 1857 to start a joint-stock company for fishing herring and codfish with twenty-five vessels, but the buildings of the maritime association, "Harmony," were destroyed by fire that same year, and nothing more was done than to frame a constitution. This proved a blessing in disguise, for scarcely ten years later a new kind of herring-vessels, the so-called "logger," were introduced in Holland. This brought about other improvements in the herring-fisheries, so that the vessels with which the city had intended to carry on the fisheries would certainly have proved useless. Since the introduction of the "logger," in 1867, the Dutch sea-fisheries have improved considerably. The former system of premiums has been abolished, and, according to the official annual reports, the Dutch are proud of their "free fisheries," which enjoy the favor of the capitalists.

If we go back in the interesting history of the Emden herring-fisheries as far as the beginning of this century, we find that during the first decade they were suffering from those circumstances which at that time depressed commerce and navigation generally. The "buisen"—this was the name of the old-fashioned herring-vessels—do not seem to have gone out every year; the following result is, however, reported:

In 1801, 43 "buisen" caught 3,528 barrels of herring and codfish. During the second half of this decade the fisheries seem to have recovered very rapidly, and the following results are reported:

1815.	?	"buisen".....	3,772	bbls.	} Herring and codfish.
1819.	52	"buisen".....	1,848	bbls. (?)	
1820.	?	"buisen".....	2,757	bbls.	

The "buisen" were accompanied by two clippers, of which one had to take the first haul to Hamburg, while the other had to go to Emden. This was necessary, as the connections of Emden with the interior were

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very imperfect, and remained so for a long time till the West Hanover railroad was opened in 1856. In the year 1819 a tax of 72 cents was laid on every 100 pounds of foreign herring, in order to encourage the domestic fisheries. It is possible that the results did not satisfy the Hanover government, or perhaps English influence was at work, or the premium of \$216 each for 54 vessels, amounting to a total of \$11,664, became burdensome to the Hanover state treasury. At any rate, the Emden people were informed that in future they could only expect an annual premium of \$144 per vessel. Emden remonstrated against this measure, saying that her fishermen could no longer compete with Holland, where an annual premium of \$210 was given per vessel. It was finally resolved that the Emden people must be satisfied with a total premium of \$6,480. As this sum, at the rate of \$216 per vessel, would only furnish premiums for about 30 vessels, one of the fishing associations, with 24 "buisen," emigrated to Eukhuizen, in Holland, in order to get the Dutch premium, while 28 "buisen" and 2 clippers remained in Emden in order to enjoy the former premium in full. In 1856, the number of "buisen" had dwindled down to six. The number of clippers was at first two, afterward three, and in 1828 even four, but after 1834 only one. The best results were obtained:

1841.—13 "buisen," with an average of 282 barrels herring and cod per vessel.

1837.—15 "buisen," with an average of 256½ barrels herring and cod per vessel.

1844.—12 "buisen," with an average of 353 barrels herring and cod per vessel.

1834.—16 "buisen," with an average of 245 barrels herring and cod per vessel.

And the poorest:

1852.—10 "buisen," with an average of 71½ barrels herring and cod per vessels.

1846.—11 "buisen," with an average of 82 barrels herring and cod per vessel.

1845.—12 "buisen," with an average of 97 barrels herring and cod per vessel.

1822.—27 "buisen," with an average of 108 barrels herring and cod per vessel.

1824.—25 "buisen," with an average of 109½ barrels herring and cod per vessel.

1848. —9 "buisen," with an average of 116 barrels herring and cod per vessel.

During the years 1833–1839, 1840–1842, 1844, 1851, and 1854 the average annual result per vessel was 200 barrels. The direct profit which the great fishers derived from the fisheries may have been small; but these fisheries always gave employment to a large number of men, boys, women, and girls; and as Emden at that time was far from the great

highways of commerce, it may be supposed that those traders who had taken contracts for furnishing fish must have made out pretty well, so that every one in Emden has favorable recollections of the herring-fisheries.

It will, therefore, be easily understood that ever since the old herring-fisheries had come to an end in 1857, wishes were from time to time expressed to have them flourish again. People were undecided, however, whether they should follow the advice of the motto over the chief entrance to the Emden city hall, *Concordia res parvæ crescunt*, or whether they were to take comfort from another motto, *In spe et silentio fortitudo nostra*, which is placed in a somewhat out-of-the-way corner near the staircase, and is not seen by every visitor of the three hundred year old building, which is an eloquent witness of Emden's former splendor. In 1871 it was at last resolved to examine the flourishing Dutch sea-fisheries. The favorable reports which had come from there were all corroborated by this examination. The German Fishery Association gave encouragement by promising to support a new joint-stock company by its influence. In the course of this winter the German joint-stock company bought of the firm of Kruthoffer & Co., in Vlaardingen, six "loggers," with everything belonging to them, and the crews which had already enlisted on these "loggers" remained faithful to the new enterprise in spite of some very violent attacks in the Dutch papers.

In May, 1872, these vessels came to Emden, whence during the following month they started out on a herring-fishery amid the cheers of the population. The head of the above-mentioned firm had been induced to become the technical leader of the enterprise. It had been his wish that a joint-stock company might be started with a capital of \$216,000, he to become one of the shareholders and take one-tenth of the shares. The first payment of 40 per cent. would have sufficed to commence the fisheries with the above-mentioned six vessels. As, according to the experience of Dutch fishers, a capital of \$10,800 was required for every "logger," it was his idea to make a payment of 10 to 15 per cent. every year and build 2 to 3 "loggers," till the whole capital had been paid in and a fleet of 20 vessels had at the same time been secured.

It seemed almost impossible for a city of moderate means, which had just escaped from the yoke of a second-rate state (Hanover), and had entered the Russian monarchy with the best intentions and great expectations, to raise the necessary capital. The hope that help might come from other parts of Germany soon proved delusive, for the failures of some former large fishery enterprises were yet too fresh in the memory of the public. It availed nothing to show that these failures did not prove anything in the present case, because those former enterprises had never been engaged in the *herring-fisheries*, and an examination of the Dutch fisheries had proved conclusively that it was just the herring-fisheries which, by the introduction of many improvements, had laid the foundation of profitable fishing enterprises in Holland, and that her-

ring-fisheries should be the main object to which the new Emden enterprise was to be directed. The sentiments which unfortunately prevailed on the Berlin Exchange are illustrated by an answer, which a year later, when a second issue of shares was to be made and when the Emden company could show a good beginning—was given to an Emden delegate by the representative of a wealthy Berlin firm. Nothing would induce this man to advance some money, neither the general usefulness and importance of the enterprise nor the well-founded hope that, after a short period of struggling, ample profits might be looked for, as this domestic enterprise enjoyed the advantage of a tax of 72 cents per ton, therefore a percentage of 6–8, which foreigners did not have, nor the fact that times in Emden were not worse than in Holland. His answer was simply this: “As soon as you can prove to me that you have made a profit of 10 per cent., you can get as much money as you want.”

We succeeded, however, in selling \$72,000 worth of shares at par, and make the next year a second issue of another \$72,000 worth, of which shares to the amount of \$30,960 were sold. These sums were not sufficient to gradually enlarge the enterprise, and this was the hope which was continually held out to the director, who had no fixed salary, but only 20 per cent. of the net profits, and who, if no hopes had been held out to him, might have resigned his place very soon. All this, of course, proved a continual source of trouble.

The results of the first two years, however, were very satisfactory, although we had to confine ourselves to the herring-fisheries, and had to be satisfied with rented buildings which lay inconveniently scattered. The first business year, comprising eight months, yielded a dividend of \$1.98 per share, the payment on each share having been \$50.40. All the regulations were strictly observed, and the reserve-fund was not forgotten. During the second business year, comprising twelve full months, of which, however, only nine, from June to November, had been devoted to the herring-fisheries, the number of vessels was increased to nine, and the shareholders received a dividend of \$2.16 per share.

In order to fulfill the promises made to the director, three new “loggers” had to be built (these were the first built in Germany), and it had become necessary to contract a loan. Even these first two years having yielded small profits, there were reasonable hopes of obtaining better results in the future, as the buildings which had been constructed with a special view of facilitating the business had meanwhile been finished. A favorable location close to the harbor had been bought from the city for a cheap price; a track had been laid from the harbor to the railroad depot, passing between the two main store-houses; six convenient piers had been constructed. Each of the two store-houses, measuring 90 feet in length, has a good cellar, one for salt, the other for storing, packing, and sorting herrings. Above these cellars, on a level with the cars, there are two rooms, inclosed on three sides but open on the side facing the track. These rooms are connected by a small draw-

bridge, and the one above the packing-cellar has a trap-door leading down to it. In the northern store-house there are, on the same floor, the office of the association and a room for storing provisions. In the southern store-house there is at one end the dwelling of the store-house keeper, and at the other end a room for tools and materials. An outside staircase leads to the large second-story room, where about 20 women and girls are busy all the year round mending nets. Above this room there is a large garret-room, where different materials for the nets are prepared. This gives constant employment to several men. In the northern store-house a staircase leads to a large room in which the nets are kept during winter. This room has no windows, but blinds, which are opened in dry and closed in wet weather. The garret-room has twelve compartments, in which the sails, cordage, &c., of every vessel are kept separate. The net-store-room is, by a bridge, connected with the net-mending room. South of these two store-houses there is a large wooden shed for storing staves, hoops, and barrels; north of this shed there is a stone building, containing the coopers' shop. A well 170 feet deep furnishes good water for providing the vessels with drinking-water and for making the finished barrels tight. In the eastern corner of the lot there is a tanning establishment. The catechu is kept in a closed space; in the walls of this space there are two copper kettles in which the catechu is dissolved in hot water; from the kettles it is by pipes conveyed to two square cemented holes in the ground, in which the nets are tanned. These holes have a roofed building over them, which, however, is open on three sides. The upper edges of these holes have rollers, so the nets cannot be injured in taking them out. The tannery building likewise contains the modest dwelling of the tanner. Near it there are long rows of poles on which the nets are hung up to dry. For drying those nets which have been used a narrow strip of land extending along the harbor has been rented from the city. There is nothing to hinder the increase of the lot to double its present size, as the ground bordering on it only contains a small house used for no particular purpose, and is owned by the government. It is probable that no Dutch establishment combines as many advantages as the Emden one.

The chief centers of the herring-fisheries are Vlaardingen and Maas-luis. These are located on the river Meuse, but they are not on a railroad. The total cost of the new buildings, the tracks, fences, paved sidewalks, 6 piers, and well, has not exceeded \$20,000; which is certainly so small a sum that it would have been difficult to put up the same establishment at such a price in any other city.

With all these favorable conditions, it seemed altogether incomprehensible that after two successful years a comparatively large number of nets were lost, and there was a very sudden decrease in the number of fish caught during the year 1874. Everything, however, had been so well regulated that a dividend of  $1\frac{2}{3}$  per cent. could have been declared if it had not become necessary to reserve all the profits; as some

of the crews demanded higher wages, which the association could not grant, and even went to law about it. The issue of this lawsuit, which is still pending, is not doubtful, as the decision of the inferior court was unfavorable to the association.

The chief cause of all this must be found in the tendency to strike, which is unfortunately so common in Germany, and which had also spread among the otherwise steady workmen of Eastern Westphalia, Oldenburg, and the Lippe principalities. The result of the strike was that the crews received, besides their wages, a certain percentage of the fish caught by them; this, however, was only granted by the association on condition of strict obedience and good behavior. These conditions must of course be filled to the letter, while the crews thought they could ignore them, and appropriated considerable quantities of herring under the pretext that they were allowed to make presents to their relatives. Although there was no provision made in the "rules and regulations for sailors" for such a percentage, the inferior court held the opinion that one of the above-mentioned regulations applied in this case, which provided small fines for offenses of this kind. Of late, the relation between the association and the crews has become more amicable, and the time does not seem to be distant when the crews will be allowed a certain clearly stated percentage of the fish caught by them.

In order to ascertain this percentage, sales are held immediately on the arrival of the vessels at which the association itself becomes a buyer when the demand is not very great and the prices consequently low. Of these prices a deduction is made for barrels and 3 per cent. for the dividend; and the crews then receive the following percentage:

	Per cent.
1 captain .....	4
1 mate .....	2½
8 sailors @ 2 per cent. ....	16
2 sailors @ 1½ per cent .....	3
1 sailor @ 1 per cent. ....	1
1 boy @ ¾ per cent. ....	¾
1 boy @ ½ per cent .....	½
	<hr/>
15 men .....	27¾

During the first two years, the captains, according to their assiduity, skill, and good luck, made from \$200-\$300, besides their board and lodging; which was quite a good sum for five months' service. During the three years, 1874-1876, the other members of the crew received very good weekly wages instead of their percentage; although not as many fish were caught as during the preceding years, especially in 1875 and 1876, when not half as many were caught as in 1872 and 1873; so that the crews have always made a very decent living.

Meanwhile a change of directors had taken place in 1875. The new

directors soon made the startling discovery that an ominous mistake had been made in *the management of the nets*. These represent a capital of about \$3,750 per vessel, or \$45,000 for 12 vessels—or rather \$41,250 for 11, as, unfortunately, one vessel had been lost in 1875. As there are otherwise no very great expenses in carrying on herring-fisheries, the chief point coming into consideration is the question of the nets.

The nets were formerly knit by women and girls, and the material employed also for the herring-nets was hemp. This material has now been almost universally superseded by cotton, which is cheaper and more pliable; and the nets are now made by machinery. In Holland and Great Britain, and also to a great extent in France, the cotton nets are made at least as strong as the former hemp nets by repeated tanning with catechu, alternating with a soaking in linseed-oil. This soaking requires considerable attention in order not to break the nets, of which there is danger if the drying, which must follow the soaking in linseed-oil (the superfluous oil is removed by pressing the nets between rollers), is not done evenly. It was thought that this could be avoided by not soaking the nets in oil; all the more, as in 1872 several French fishing associations had adopted this method, and, as reported, with satisfactory results. This is not impossible, as the circumstances in France are somewhat different. The French herring-fisheries are nearly all coast fisheries in the channel; the voyages are shorter and the nets are more frequently exchanged. Other French reports, however, say that the method of tanning and oiling is to be preferred in spite of the greater expense. The fishermen of the Emden association say they have repeatedly warned the members not to omit the soaking in oil, but in vain. When the present director, in 1875, accompanied the "loggers" on their first voyage in a clipper he had similar misgivings, and his long experience as a sea-captain enabled him to understand the whole matter when, during this voyage, the fishermen told him their views regarding the soaking of the nets; but during the fishing season nothing could be done, and when the sea was not very rough the evil consequences of omitting the soaking were not seen. Even the second voyage gave no indication of the terrible failures which were to follow so soon; but the third and fourth voyages, in 1875, exhibited an almost uninterrupted series of losses, the nets being either partially or totally broken, so that but very few fish were caught. This is certain, that only the right degree of soaking will give to the nets that elasticity and power of resistance which is required for long voyages, such as the Emden herring-fisheries involve. As the tanning makes the nets loose they will, when piled up high in the narrow hold of the vessel, be compressed into a compact mass by their own weight. A great degree of warmth is developed, actually increasing to heat, especially when the nets come wet from the water, and cannot be aired on account of continued rain-storms; and, as in wet hay, a burning process does finally take place. The association even now owns nets which are five and six years old, and

are as useful and as strong as new nets. But the most important quality of oiled nets is this, that the meshes open better, and that consequently they catch the fish better, for the herring is caught by passing its head so far into the meshes that it hangs fast by its gill-fins.

As a sort of excuse for the failures of 1875 it was said that the factory which had done the tanning had used gamboge instead of catechu, in order not to tan the nets too strongly, which, however, had had the consequence of giving the nets a lighter color, making them more visible to the fish in bright nights. Even if both of these assertions were correct this would not prove the advisability of omitting the soaking in linseed-oil.

The whole series of nets must be imagined as a wall fully 6,000 feet long and 48 feet high, representing, therefore, a flat area measuring 300,000 square feet. It is kept in the water in a perpendicular position by having pieces of cork on the upper and pieces of lead or stone on the lower edge. The nets are fastened one behind the other by hemp lines to an inch-rope called the *speerreep*. On this *speerreep* there are also fastened the so-called "seisings," strong lines about 42 feet long, which at a distance of about 42 feet are fastened to the *fleethreep*, a rope of the thickness of an arm. At the end of the *seisings* the buoys are fastened which keep the *fleethreep* floating at a depth of about 18 feet. The *fleethreep* extends far beyond the first net and connects the vessel with the nets. The upper edge of the nets is therefore fully 40 feet below the water, while the lower edge is 90 feet below. The whole "series" consists of sixty-five nets, and as each net has 216,000 meshes, we get the considerable number of 14,040,000 meshes for the whole "series." Besides these, each vessel has sixty-five reserve nets, so she can start with fresh nets 2-3 days after having reached the port. If everything is in order a vessel sometimes catches in one night 100-120 barrels, *i. e.*, 70-80,000 herrings. It is no rare occurrence that a "logger" catches a full cargo (280-340 barrels) in 10-12 succeeding nights. Although, therefore, the expenses of fitting out a herring-fleet are considerable, there is a good chance of making fine profits. The amount of these profits depends, besides on good luck, on the skill and assiduity of the crew. The managers on shore can, especially when they have sufficient funds at their command, save many a dollar by prudent management, but their influence does not reach as far as the actual catching of the fish.

The most important point is, under all circumstances, the treatment of the nets, and this should be done according to certain well-defined rules. Experience has taught that it is best for the success of the fisheries if *not more than one-third of the nets* has to be renewed in one year. One may be contented if no more are lost by tearing or by a total loss in stormy weather. If we count the total number of nets required for the Emden fisheries  $65 \times 11 \times 2 = 1,430$ , we would consider 450-500 nets as about the average number needed annually. Experiments made on



a small scale had proved that by omitting the soaking in linseed-oil \$2.50-\$3 could be saved per net. The total saving per year would therefore be \$1,250-\$1,500—truly a small item compared with the risk of ruining the whole fishery.

The present board of directors would gladly have changed the method of treating the nets as early as 1876, and commenced a new era in the history of the Emden fisheries, but their funds were not large enough to do this, and it also proved at that time a technical impossibility. The attempt to soak the nets in oil long after they had been tanned proved a failure, and was only successful with those nets which had not yet been used in fishing. All that could be done was to get 800 nets prepared according to the Dutch method, to examine the old nets frequently, and use the best of them by adding them to the lower portion of the "series." With such nets only very moderate results could be expected in 1876, and even these were dependent on fortune's favor, which, we are sorry to say, deserted the fisheries in that year. The year 1876 will always be mentioned in the history of the herring-fisheries of all nations as one of the most unfavorable years on record, because the herrings came later and in smaller numbers than usual. The Scotch caught one-third less than during the preceding year, and the Dutch, French, and Norwegians did not fare any better. The fact that the reports of the herring-fisheries in 1876 mention considerable losses must not, however, be considered as an indication that the herring-fisheries could never be profitable again; but the different unfavorable circumstances which combined to bring about this result must be taken into account. It is encouraging at any rate to know that the decrease was one-half less than what it was in 1875. The chief cause of the losses which the Emden association experienced in 1876 was the extraordinarily large number of new nets which had to be bought. In 1877 the association will begin the fisheries with entirely new and good nets.

All we have said hitherto will enable our readers to understand the statistics of the last five years. In giving them we have for perspicuity's sake avoided to give the data too much in detail, which, considering the smallness of the whole enterprise, might easily lead people to make wrong conclusions:

Year.	Total No. of ships.	First voyage.		Second voyage.			
		No. of ships.	Result.		No. of ships.	Result.	
			Bbls.	Dollars.		Bbls.	Dollars.
1872	6	6	689	9,265	6	1,307	12,165
1873	9	9	1,190	14,319	9	1,832½	18,846
1874	12	12	1,009	13,240	12	2,369½	22,290
1875	11	11	1,202	14,937	11	1,675	17,633
1876	11	11	571½	9,270	11	1,493	19,481

Year.	Total No. of ships.		Third voyage.		Fourth voyage.		Total.			
	No. of ships.	Result.	No. of ships.	Result.	No. of ships.	Result.	No. of ships.	Result.		
									Bbls.	Dollars.
1872.....	6	6	1,410	12,221	6	379	3,294	24	3,785	36,045
1873.....	9	9	1,885	19,372	7	570½	5,711	34	5,478	58,248
1874.....	12	12	2,137	20,068	10	186½	1,813	46	5,602	57,411
1875.....	11	11	343	3,717	.....	.....	.....	33	3,220½	30,287
1876.....	11	10	1,080	13,198	1	29½	363	33	3,174	42,312

Year.	Total No. of ships.	Average result per ship.					
		First voyage.		Second voyage.		Third voyage.	
		Bbls.	Dollars.	Bbls.	Dollars.	Bbls.	Dollars.
1872.....	6	115	1,544	218	2,027	235	2,037
1873.....	9	132	1,591	204	2,094	209	2,152
1874.....	12	84	1,103	189	1,857	178	1,672
1875.....	11	109	1,358	153	1,603	31	338
1876.....	11	52	842	136	1,771	108	1,330

Year.	Total No. of ships.	Average result per ship.				Average per voyage.		
		Fourth voyage.		Total.		No. of voyages.	Bbls.	Dollars.
		Bbls.	Dollars.	Bbls.	Dollars.			
1872.....	6	63	549	631	6,157	24	158	1,539
1873.....	9	81½	815	602½	6,652	34	161	1,713
1874.....	12	12½	181	467	4,813	46	122	1,248
1875.....	11	.....	.....	292	3,299	33	97½	1,099
1876.....	11	29½	363	286½	4,296	33	96	1,032

The reason why the average results of the fourth voyage fall so far short of those of the second and third is not only that large hauls of fish are not very frequent during the second half of October and during November, but also that the stormy weather which often prevails during these months occasions great losses of nets. If a ship loses her nets, she may occasionally—this has also happened to some of the Emden ships—return without having caught anything. Such failures will of course make the average lower, while it would be higher if we were to count only those voyages on which anything is caught. The “logger” which was lost during the fourth voyage in 1874 has been counted in our statistics.

With the exception of losing nets, the Emden “loggers” have been very fortunate in being preserved from accidents. One of the “loggers” ran ashore on one of the Shetland Islands in 1876. It was got afloat again but had to lie in Lerwick several weeks to undergo repairs, and thus lost one voyage. This was the only case in which an Emden “logger” has only made two voyages during a season. In former times the “buisen” (the old vessels) only made one voyage, rarely more than

two, but the average number of annual voyages of the quick-sailing and practically built "loggers" ought to be four.

The year 1875 ranks lowest as to the average results; 1876, in spite of the general failure of the fisheries in all countries and the still prevailing lack of good nets, shows a little advance. For, although 47 tons less were caught, the sum realized exceeded that of 1875 by \$6,025. But the most important indication of an improvement in the fisheries in 1876 may be seen in the fact that in 1876 the result of the third voyage was a great deal more favorable than in the preceding year, one vessel at least returning in time to undertake a fourth voyage. The main profits of a season are in the third voyage; the results of this voyage are the criterion whether a season has been favorable or unfavorable. Extraordinary results such as occasionally occur in Holland, as for instance, one of the Vlaardingen "loggers" once caught 1,400 tons—for instance, one of the Emden vessels. None of these has been obtained by any Emden vessels. None of these has made more than four voyages during the season, while among the large number of herring-vessels which leave the Dutch ports every sea-lane there are always some which make 5-6 voyages. These, however, generally catch many small fish which are not very highly esteemed in Emden.

Long since, however, certain measures have been introduced in the management which will save a good deal of money, so that in future a result of 500 tons per ship will be sufficient to make some small profit. But as during the first two years the average per ship has been 631 and 608½ tons, some having caught 800 and more, it is to be hoped that in the future our average results will not fall far short of the Dutch. These according to the official reports obtained the following results during the last five years:

1872,	64	" logger "	@	716½	bbls.;
1873,	63	" logger "	@	975	"
1874,	83	" logger "	@	695	"
1875,	88	" logger "	@	589½	"
1876,	94	" logger "	@	540	"

or an average of 686 bbls. per vessel and per year.

The details on which this calculation is based—to give which would lead us too far—give an interesting insight into the varying results of the Dutch herring-fisheries. Those associations which secured an average success numbered 10-18 vessels. Extraordinary results were mostly obtained by smaller associations. One of these follows the same principle as the Emden associations, viz, to order nets with the largest possible meshes. The poorest result for years has been that of a Harlingen association owning only one "logger"; this poor result has also in some measure been due to the great distance between Harlingen and the two chief herring-ports Vlaardingen and Maasluis. In the fisheries there is always something new to be learned, and the smaller they are the fewer will be the new experiences. The fact that the number of Dutch "log-

gers" has in five years increased from 64 to 94 proves that the Dutch herring-fisheries must have been successful (although during the last year there have been complaints that they were not as flourishing as formerly), and also that the strong and elegant vessels called "logger" are the most suitable for carrying on the herring-fisheries, or are at any rate considered so in Holland.

Whatever the individual results may be, the following facts will speak for themselves: From 1858-1871 there was in Emden some trade in fish, which were brought by vessels from Norderney, Borkum, and Pesum, occasionally also by vessels from the Elbe and from the British coasts; but the expeditions fitted out by the new association undoubtedly have brought new life into the Emden trade. During the last five years the Emden vessels have all in all made 169 voyages, and brought home a total of 21,259 barrels of herrings. The total sum realized from the fish-auctions has been \$231,208; and on those fish which the association bought there was a further profit of \$21,151, so that the total sum realized was \$252,359, which may certainly be called the reward of home activity, all the more gratifying when we call to mind the former tribute which Germany paid to foreign fishing associations by buying their fish.

The Emden association has at all times paid special regard to bringing a good quality of fish into the market. The best proof that the Emden herrings are held in high esteem by their steady customers is found in the average price which they fetch; the average price per barrel was \$10.67 in 1872, \$11.53 in 1873, \$11.30 in 1874, \$12.42 in 1875, \$14.30 in 1876.

This gradual increase to fully one-third corresponds to the rise of prices in the Dutch and Scotch markets, which have always exercised an influence on our markets. But I believe that there is not another association, not even in Holland, which can command as high prices as the Emden one, and which without employing any artificial means can furnish such a delicately flavored herring. The association seeks an honor in upholding the old reputation of the city of Emden, by handling and sorting the fish very carefully. Classed according to quality we get the following results in barrels:

	1872, 6 vessels.	1873, 9 vessels.	1874, 12 vessels.	1875, 11 vessels.	1876, 11 vessels.	Total.
1. "Maatjes" herrings .....	27½	61	47	14½	14	164
2. "Full" herrings, first quality .....	3,036½	4,622	3,707½	2,813	2,725	16,994
3. "Full" herrings, second quality .....	92	61½	1,112½	75	46	1,417
4. "Ablen" herrings .....	199	240½	102½	140	156	838
5. "Wreck" herrings .....	358½	355	415½	122½	95	1,346½
6. Smoked herrings .....	63	51	75	.....	30	219
7. Mackerel .....	.....	0	1	11	7	25
8. Codfish .....	8½	51	51	44½	100½	255½
Total .....	3,785	5,478	5,602	3,220½	3,173½	21,259

"Maatjes" herring are those herring which are just entering upon their sexual development. They are at the beginning of the season

caught in small quantities. They have a most delicious flavor, and are not salted very much, because they are sold very rapidly. A barrel of "maatjes" contains about 1,000 fish.

"Full" herrings, first quality, are fish whose sexual organs are fully developed, and are at the same time the fattest of all herrings. The association have them sorted in "large" and "small" ones, and there are generally three-fourths of the former to one-fourth of the latter. A barrel of large "full" herrings contains about 700 fish, and a barrel of small ones about 900.

"Full" herrings, second quality, are those which in Holland are called "knitziek", that is, ripe, and are not quite as fat as the before-mentioned kind.

All "full" herring must be well salted, and, if kept properly in brine, retain their delicate flavor for years. Here it is where a mistake is often made, especially by buyers of small quantities. As soon as a barrel is opened and some of the fish taken out, an empty space is created. This space ought to be kept filled with brine up to the lid, which ought to be pressed down by some heavy weight. This brine is easily procured by dissolving coarse salt in hot water until the water is thoroughly saturated with the salt. This brine must, of course, not be poured over the fish until it is quite cold. If this simple procedure is omitted, there will invariably be some fish with an impure or oily flavor.

"Ihlen" herring are those from which the milt or roe has been taken. They have a pure flavor and a large size, but are mostly lean or dry. This kind is well suited for pickling, and is always considerably cheaper than the "full" herring.

"Wreck" herring are those fish which have been a little damaged by the leaking of the barrels. Whenever this is the case some of the brine is lost, and as soon as herring is too long without brine it gets an impure, oily flavor. On the arrival of the vessels every barrel is, therefore, carefully examined. While at sea, the barrels are filled up for the first time a few days after the fish have been caught. This is done a second time on shore, so that 17 barrels packed at sea are equal to about 14 barrels of so-called "merchants' packing." In packing the barrels the men themselves exercise a strict mutual control, and on shore there is a man specially appointed for superintending the packing. "Wreck-herring" is gladly bought by the poor inhabitants of the coast on account of its cheap price, and because, as a general rule, a large portion of the contents of a barrel consists of very good fish.

The great advantage of the Emden, and also of the Dutch method, over the Scotch method does not only lie in the more careful sorting of the salt herring (the common name of all the above-mentioned kinds), but also in the fact that the fish are killed as soon as they are taken out of the net, and are immediately, on board the ship, salted down in barrels, while in Scotland all this is done on shore. (The fish which are caught during the night are piled up high in the middle part of

large open boats, which reach the shore some about noon and others toward evening. The fish is then half dead, and is, moreover, not killed, cleaned, and packed till the following day. It is therefore softer, has not such a pure flavor, and does not keep as well as the Emden and Dutch herring.) If a very large number of fish is caught, it is impossible for the crew to kill and salt all the herring on board. Such fish which are not killed and salted till the next day are called "overnight herring," and are considered an inferior quality.

*Smoked herring.*—If the last haul made immediately before returning is so large that all the barrels are filled, the remaining fish can, of course, not be packed on board, but they are, with plenty of salt between, stowed away in every vacant corner of the ship, frequently filling even some of the berths. These loose herrings are in Holland called "Steurheringe". After the vessel has arrived in port, they are well soaked in water and are smoked over the smouldering refuse of oak wood, and are then brought into the market as smoked herring; an article whose excellence has so far not been fully appreciated in Germany.

The tender mackerel is as large as a full-sized herring, and is so voracious an enemy of the herring, that it often swallows young herrings. The mackerel is likewise smoked and has as delicate a flavor as the smoked herring.

In Emden they make a distinction between the codfish proper and the tough, so-called "koolfish," which latter is sold separately. Both have a weight of 8-12 pounds, and are, owing to their voracity, easily caught with a hook and line. Their favorite food, a herring, is generally used as a bait. The catching of these fish forms the private amusement of that part of the crew which is on guard. The meat of the codfish is soft and white; it is cleaned on board and salted in barrels; it is then called "laberdan". The throat and lips, being the tenderest parts of the whole fish, are packed separately in small kegs. This delicacy is so much sought after by the inhabitants of the coast towns, that it scarcely ever comes in the foreign market. The gills of the codfish are likewise put up separately, are then called "kibbling," and are considered a great delicacy. The "laberdan" is not much appreciated in Germany, because people do not know how to prepare it. It should be soaked for 2-3 days, and the water should be changed repeatedly. It should be placed over the fire in cold water, and kept boiling for 3 hours. Care should be taken that the water does not boil over. If these rules are not observed carefully, the fish is hard and dry when it comes on the table.

It may be said that, as a whole, the Emden herring-fisheries are now in a fair way to enjoy a long-continued season of prosperity. About 250 hundred-weight of old nets which have been sold recently may be termed a landmark designating a new era in the fisheries. But although the question of the nets is a very important one, it is self-

evident that its solution alone is not enough to insure the future of the enterprise.

The second difficult question is that of the crews, and this cannot be solved by the herring-fisheries alone, as these commence about the middle of June and end during November, so that vessels and crews only have employment for  $4\frac{1}{2}$ -5 months. In starting the enterprise, it was positively the intention to keep the vessels and crews occupied the rest of the time by other fisheries on the high seas. But when the herring-fisheries during the very first season had yielded unexpected profits, which justified the managers to expect greater profits in the future, the idea of winter-fisheries was placed in the background. Of the six "loggers" bought in Holland, the three older ones had a so-called "bünne" (well). This is a square space in the center of the vessel, occupying its full breadth at the bottom; a narrow entrance leads to it, and small holes in the bottom of the vessel admit sea-water. In this space fish may be kept alive for several days, and will, of course, fetch a higher price in the market than dead fish. It has been objected to this mode of preserving fish alive that experience has shown that fish which are kept in this well grow lean and have actually lost 15 per cent. of their former weight, so that it is better to kill and clean the fish on board and keep it fresh on ice. It was well known that the first manager of the enterprise who had carried on winter-fisheries on his own account had never made much by them; but even he declared that under favorable circumstances the winter-fisheries might be made profitable. It would, therefore, have been the proper thing, during the winter following the first herring season to attempt line-fishing on one of the "loggers" having a well, to catch codfish, or in company with another "logger" to begin fishing with drag-nets, even at the risk of diminishing the yield of the herring-fisheries to some extent. But even those members of the board who took a special interest in the winter-fisheries did not deem it advisable to urge the matter until the whole enterprise had been established on a sound basis. The funds at their command were not sufficient to carry on even the herring-fisheries alone in the most profitable manner.

As regards line-fishing it was well known that the lamprey (*neunauge*) is the best bait. This fish has the good quality that it shines longer after death than many other fish. The lampreys are kept alive in small tanks whose lids have holes to admit fresh air; they are cut in oblique pieces and put on the hook. For many years, however, it has been so difficult to obtain lampreys, and their price has risen so much, that to use them as bait would have meant a positive loss. The question was, therefore, likewise discussed whether the example of the Norderney sloops should be followed, which use worms or shrimps as bait. But the entrance to the Norderney channel was not without danger to the "loggers," which go about nine feet deep in the water. The "Vitschbalge" channel, near Borkum, has a still more dangerous en-

trance; and the thought of reviving the fisheries of this island cannot be entertained unless a good harbor, or at least a breakwater, is made in its south coast which is quite close to the deep Ems channel. Negotiations were for some time carried on with the inhabitants of the island of Juist, who offered for a small remuneration to bring the full nets in the "Memmertbalge" channel on board the vessel. The roadstead, however, is quite a distance from the island; and then a roadstead is no harbor, and frequent interruptions could not well have been avoided. Another objection to line-fishing is this, that it requires from ten to twelve men, and that therefore the expense for wages and board would exceed the profits.

Fishing with the drag-net or trawl-net is considerably cheaper, as no bait is required and a crew of five or six men would be sufficient. Some of the Dutch fishermen say that during some winters they have realized a small sum from such fisheries. Inquiries made in England make these assertions very doubtful, as the sails used on the herring-vessels only permit the use of a very small trawl-net. Experienced English fishermen, however, thought that if a "logger"—which, in spite of its graceful shape, is a very solid and strong sort of vessel—got more ballast, and another foremast with all the sails belonging to it, it would make just as successful a trawler as the largest English smack—a cutter having a small mizzenmast—and that it would certainly pay to transform a "logger" in the manner described at an estimated expense of \$1,500. This might have been done during the winter 1874-75, but was delayed on account of lack of funds, and with the hope that successful summer-fisheries would bring some money into the treasury, or at any rate improve the credit of the association. But as this hope was not fulfilled, the misfortunes of 1875 shaking the credit of the association to its very foundation (with great trouble a loan of \$8,750 was negotiated, enabling the association to continue the fisheries), the association gladly accepted an offer made by five of the largest shareholders to venture an attempt if 1-3 "loggers" were during three winters placed rent-free at their disposal.

After the negotiations had been carried on for many weeks, an arrangement was made which was very satisfactory to the association, as their presiding board was intrusted with the management of the whole affair. They had to do this without any remuneration, to which they agreed cheerfully, as it was in their own interest to encourage the enterprise, and as all the experience gained by it would eventually prove profitable to them. The "logger" Oldenburg, with a select crew, was sent to Hull, and was in January, 1876, fitted out there. After the foremast with all the cordage and sails belonging to it had been removed, a firm mainmast, able to resist the winter storms, was put in position near the middle of the vessel and furnished with entirely new cordage and sails. The mizzenmast remained as it was, and a new Hull invention, a patent cap-rope, which could be placed in four different positions,



completed the arrangement on deck. Below deck most of the partitions were removed and were so arranged that they could easily be put in again in spring and removed in autumn. Then ice-rooms were made likewise so arranged that they could easily be put up and removed. Finally a trawl-net of the largest size was procured, as also a second or reserve net, which was constructed in the following manner: At both ends of a 50-foot pole made of oak or beech, strong iron shors resembling the runners of a sleigh are fastened, which keep the pole about three feet from the ground; to this pole the upper edge of the rolled-up net is fastened. The large net resembling a sack is made of hemp and has wide meshes; it ends in a point, near which there is a valve, through which the fish can be taken out conveniently after the net has been hauled in. The fish are killed and cleaned on board and carefully packed in layers of ground ice. By means of a rope fastened to the trawl-pole, which is tied to the fore part of the vessel, the "logger" drags the net along the bottom; successful fishing is, of course, dependent on a sufficient quantity and strength of sails. The ship is guided by another rope fastened to the stern, and it sails against the current. When fishing for plaice fewer sails are required, and the ship sails slowly with the current. In this manner the Elbe vessels generally fish; but plaice can only be caught in the latter part of spring, as only at that season they have a truly delicate flavor.

The transformation of the Oldenburg has proved an entire success. The expenses, however, amounted to almost \$2,250, including the cost of a journey to England undertaken by the director, and the high wages and board of an English fisherman to serve as instructor. In future the expense of fitting up a "logger" for winter fishing will only be \$1,500-\$1,750. The Oldenburg made five voyages to Hull, which, not considering small unavoidable repairs, proved successful, as the fish were quickly sold in the large Hull market. The English buyers paid the highest market prices for these fish, which had been carefully handled and came to market in good condition. During the return voyages to Emden the nets were likewise let down several times, and the fish caught sold in Emden at public auction. The result of these voyages has been as follows:

Kind of fish.	First voyage.		Second voyage.		Third voyage.		Fourth voyage.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
	<i>Pounds.</i>		<i>Pounds.</i>		<i>Pounds.</i>		<i>Pounds.</i>	
1. Haddock .....	7,490	\$180 25	6,300	\$187 00	10,850	\$338, 00	5,180	\$136 00
2. Plaice, &c. ....	1,567	40 25	1,316	24 00	1,470	28 75	2,100	38 75
3. Codfish, &c. ....	1,260	31 00	660	18 50	300	14 25	90	4 50
4. Turbot, &c. ....	35	4 50	5	1 25	129	19 50	207	21 00
5. Whiting .....	154	3 50	350	9 00	273	8 00	.....	.....
6. Sundry .....	.....	5 50	.....	6 00	.....	3 75	.....	.....
Total .....	10,580	265 00	8,631	245 75	13,022	413 00	7,577	190 25

Kind of fish.	Fifth voyage.		Return voyages.		Total.	
	Quantity.	Price.	Quantity.	Price.	Quantity.	Price.
	<i>Pounds.</i>		<i>Pounds.</i>		<i>Pounds.</i>	
1. Haddock .....	6,300	\$81 50	1,400	\$22 00	37,520	\$933 00
2. Plaice, &c. ....	2,450	41 00	420	15 75	9,383	188 50
3. Codfish, &c. ....	30	75	20	25	2,360	69 25
4. Turbot, &c. ....	160	11 25	94	7 00	630	64 50
5. Whiting .....					777	20 50
6. Sundry .....		2 00			(1)	17 25
Total .....	8,940	136 50	1,994	45 00	50,670	1,293 00

The fish found a very ready market in Hull, and the vessel could regularly start on another voyage on the second day after its arrival. The voyages lasted:

First voyage, from January 31 till February 10.....	11 days
Second voyage, from February 12 till March 6.....	24 days
Third voyage, from March 8 till March 27.....	20 days
Fourth voyage, from March 29 till April 17.....	20 days
Fifth voyage, from April 19 till May 8.....	20 days
Return voyage, from May 10 to May 20.....	11 days
Total .....	106 days

If one takes into consideration that the men had a good deal to learn, it may be presumed that experienced men will during the period from February till the middle of May—the last voyages were always the least profitable ones—make one to two voyages more, and catch more fish; three or four voyages more can be made at any rate, if the vessels are fitted out immediately on their return from the herring fisheries and can begin the winter fisheries in November or latest in the beginning of December. The English smack-fishers have had a series of very profitable years, and new vessels have every year been added to their fishing fleet, whose number was only limited by the consideration in how far the increase of the coast population could supply the necessary crews. The markets are but rarely glutted to such an extent that the fish could not be sold. The prices, of course, vary according to the quantity brought into the market, and the Oldenburg was not fortunate in meeting high prices. The months of December and January, which in most years are particularly favorable for the sale of fish, were lost to our vessel during the winter 1875-76. Comparisons instituted between our results and those obtained by English vessels during the same period have proved that the Emden "logger," with an outfit for winter fishing such as the Oldenburg has got, can obtain the same results as large English smacks. A competent judge estimates the average annual sum realized by the Hull and Grimsby smacks at \$5,000, the smaller half of which falls to the months May to October and sometimes to November, and the larger part, about \$3,000, to the remainder of the period during which the winter fisheries are carried on.

The summer fisheries are chiefly carried on south of the Dogger bank, more or less near the German coast. During summer calm nights often oblige the vessels to lie still. Associations are therefore formed for carrying on these fisheries in common. A smack or a rapidly sailing clipper takes all the fish to market and returns with ice, provisions, &c. A special company owning five steamers supplies the London market in this way. The fishing-fleet, consisting of several hundred vessels which these steamers serve, carries empty boxes in which the fish are packed on board between layers of ice. To transmit these boxes while at sea is especially during winter difficult and dangerous. During that season each vessel prefers to fish on its own account, and take the fish to market. In November they begin to fish some degrees north of the Dogger bank, gradually going farther south. This explains the fact that during the winter months the small German fishing-vessels which dare not venture far from the coast do not catch many fish. If Germany, therefore, wishes to be entirely independent of foreign countries with regard to her supply of salt-water fish, it can only be done by fitting out "loggers," for they are just as good vessels for high sea fishing as the English smacks, carry the same quantity of sail, and are just as strong.

All reports agree that the most profitable season for the English smacks is from December to April, and that the unfavorable results of the other months are thereby counterbalanced; yea more, that this season has contributed its share to the prosperity of a number of English ports, such as Hull, Grimsby, Yarmouth, Lowestoft, &c. It is a fact that during winter the sum of \$400-\$600 is realized as a rule at every voyage of 2-3 weeks, and that a sum of \$900 per voyage is no rare occurrence.

As in Germany crews cannot be gotten as cheap as in England, where two men and three boys compose the whole crew of a smack, the "logger" can of course not obtain the same brilliant results during the winter fisheries as the English smack; but this is not required either, because the herring-fisheries prove a sufficient source of profit to the Emden "logger." As our "logger" loses several weeks by its voyage from Emden and back to the fishing-grounds near the English coast, it will not realize more than \$2,500 during a winter, while the smack will during the same time realize \$3,000. The experience of the Oldenburg has shown that of the sum realized from \$1,500 to \$1,750 have to be counted off for wages of crew, repairs, &c. Several winters must pass before any reliable calculations can be made.

The last winter, 1876-'77, has been an unlucky one for the English smacks, and the three Emden "loggers," have unfortunately had the same experience. After the three vessels had by dint of enormous exertions been fitted out for the winter fisheries by the middle of December, and every one hoped that toward Christmas and New Year they would share in the brilliant results of that period, they had like the English vessels to meet the most terrible storms. One of the mates lost

his life, all the vessels were damaged, and during a long voyage caught scarcely any fish.\* Later the Oldenburg took a good many fish, while the other two Emden "loggers" only caught few. Competent men in Hull have expressed the opinion that the two "loggers" did not carry enough sail. It would be foolish, however, to abandon the whole enterprise on this account. All maritime enterprises have to go through similar experiences, and they only go to prove that the average sum realized by the winter fisheries would have to be calculated at \$2,000-\$2,250 instead of \$2,500, and the average expenditure at \$1,750-\$2,000, instead of \$1,500-\$1,750. Even with such small profits, one important end would have been attained, viz, to give occupation to the crew all the year round without having to spend any extra money.

The Emden enterprise had from the very start an advantage over the high sea fisheries of Hamburg and Bremen by always having a sufficient number of men. As soon as the amount of wages had been definitely settled, as well as the manner in which they were to be paid, plenty of men could be had. But there was a constant coming and going, especially of those who possessed some nautical experience. If once this stock of the crew—perhaps one-third of the fifteen hands per "logger," which are required for the herring-fisheries—has been firmly attached to the enterprise, or if when some of them leave their places can immediately be taken by others, it is a comparatively easy matter to supply the rest of the crew, which in reality are nothing but common laborers, whose occupation—the turning of the windlass to haul in the nets, the killing, cleaning, and salting of the herrings—is a useful one, but does not require much thought. These assistants and laborers are during winter employed chopping wood and doing small jobs which do not pay as well as the herring-fisheries. The only trouble about these men has been that the Dutch (up to the present time without result) have endeavored to entice them by promising fixed wages instead of a percentage, and by representing that the Emden enterprise would soon come to an end owing to lack of funds. It therefore seems all the more important for the association to secure a good stock of experienced men, especially captains and mates, and make them firmly attached to the enterprise. Men of nautical experience do not dread the dangers of the sea in winter, but they want to have steady occupation and pay. They look down upon the summer fisheries, and consider themselves and the "loggers" too good for these. But from August on there are frequent storms, which require nautical knowledge and experience in managing the sails and the nets. To a genuine sea-faring man occupation on shore is only a very poor substitute for his favorite employment. And as they, just like other people, are subject to the force of habit, it would

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\* The coast of East Friesland was, as is well known, visited by a storm-flood toward the end of January, 1876, the most violent during this century. A similar flood occurred in December, 1863, and experience has demonstrated that winters like that of 1876-'77 occur once in 12-15 years.

be, so to speak, against their nature to show all their talents and virtues immediately after going to sea, after having either loafed round on shore for months, or been engaged in some occupation utterly distasteful to them.

These talents and virtues are still more lulled to sleep by the beginning of the herring-fisheries during the calm summer months; and this circumstance has its own peculiar dangers. The majority of the crew is composed of men who have spent most of their time on shore, and who have but little experience in nautical affairs. They do not readily understand the object of the captain's orders and arrangements, and, following their instinct of tardiness, they always advocate a policy of procrastination and waiting. If the captain allows himself to be influenced by their talk, which will often be the case if those of the crew who possess some nautical experience do not immediately take his part, something is sure to go wrong. But if the men of nautical experience have become thoroughly identified with the vessel, they will take a firm stand and there will be better order on board from the first day of the voyage.

All these circumstances determined the managers of the enterprise to begin the first winter fisheries with a very full crew. In England four to five adults and one boy are considered a sufficient crew; but our managers selected one boy, three "logger" captains, and three mates, to be instructed in trawl-fishing by an English master. The command was left in the hands of the captain of the Oldenburg; the two other captains became first and second mates. In order to avoid jealousy, they all received the same, viz, captain's wages; the captain of the Oldenburg receiving a trifle more for a few necessary expenses connected with his office. The three mates were appointed as sailors. The wages were fixed by giving the men a share of the gross receipts, but a minimum monthly sum was guaranteed to them; this sum will have to be paid at any rate during the first years. It was of course understood that the men were to receive their board. Although the new enterprise exposes the men to many difficulties and hardships, it soon found great favor among them, and when, during the following winter, two more "loggers" were fitted out, the places on these were in great demand, which is not at all astonishing if we hear what those seven men on the first "logger" earned besides free board. They earned the following:

	Winter fisheries.	Herring-fisheries.	Total.
John Janssen, as captain .....	\$117 16	*\$157 60	\$274 76
Arie Bass, as first mate .....	111 00	*159 48	270 48
J. Gerhard Janssen, as second mate.....	111 00	*225 46	336 46
J. de Geus, as sailor .....	74 00	191 73	165 73
F. de Vries, as sailor .....	74 00	130 93	204 93
John Visser, as sailor .....	74 00	199 39	173 39
H. Pating, as boy .....	44 40	138 58	82 98

\*As captain.

†As mate.

‡As boy.

Two of the men who had the good luck in the herring-fisheries to exceed the limits of the minimum share made a very good living, while the others might console themselves over the moderate result of the herring-fisheries—obtained by their vessels—with the thought that their total earnings amounted to a sum which they could only have gained from the herring-fisheries under very favorable circumstances. The winter fisheries thus remunerated them in advance for the unfavorable results of the later herring-fisheries.

As soon as the combined fisheries yield steady results the managers will be able to pay such good annual wages that the best men will not think of leaving them. During the first year only five months' wages were paid; during the following year—and so on—one month more. By adding, therefore, about 20 per cent. to the above figures we will get the next minimum earnings, and by adding 50 per cent. more we would get near the maximum which can be attained. The wages should, therefore, in the future, if everything is managed properly, be as follows :

	Herringfisheries.	Winter fisheries.	Total.
Captain....	\$200 00 to 300 00	\$137 05 to 200 00	\$337 05 to 500 00
Mate.....	125 00 to 187 05	112 05 to 150 00	237 05 to 337 05
Sailor.....	100 00 to 150 00	87 05 to 125 00	187 05 to 275 00

and in the same proportion for the rest of the men.

The uninterrupted service of the herring-fishery association has moreover another advantage, which the service on sailing vessels offers but rarely: the men can twice a year visit their families for several weeks, and besides this several times for a few days. It is but natural that under these circumstances the service meets with greater favor from year to year.

The Oldenburg has brought upwards of 50,000 pounds of fish into the market from February to May, 1876. If the fisheries are established on a firm basis, and commence in the beginning of December, every vessel could easily catch double this quantity of fish. Eleven "loggers" would therefore catch about one-half million kilograms of fish per year.

It would be very desirable, and would contribute greatly to make the use of salt-water fish as an article of food more common in Germany, and would make them cheaper, too, if the association would as soon as possible bring their fish into the German markets. So far, however, the Hull, Grimsby, Yarmouth, and Lowestoft markets have offered greater advantages than the German ones. The above-mentioned ports supply the city of London, which is said to consume as much fish, oysters, crabs, &c., as meat, on a large scale; the transportation by rail being organized in the most perfect manner. In Germany, the salt-water fisheries are locked down upon by the railroad companies; in England and Scotland, the very reverse is the case.

In most of the English ports there are special docks in which hundreds of fishing-vessels land early in the morning. Close to the water, open halls have been built on the quays which are used for sorting, cleaning,

packing, and the public sale of fish. Recently a second story has been added, in which the ship-owners, merchants, agents, and commissioners have their offices, for which the railroad company get a good rent, fully paying the interest of the money invested in these buildings. Immediately on the other side of these halls is the railroad track. Near the depot there are ice-houses—the ice mostly comes in blocks from Norway, and is brought to the halls in sacks, where it is ground in small mills turned by hand—smoke-houses, and other buildings owing their existence to the fisheries. Not far from the depot there are dry-docks in which vessels can easily be repaired or cleaned in a few days. "Time is money," is the prevailing thought which prompted the erection of all these buildings which have sprung up like mushrooms. Within the space of two to three hours all the fish have been sold for cash at the public sales which any one can hold. The cleaning, packing, &c., all combine to produce the liveliest activity. One train after the other rolls up to the halls; open cars carry the four-wheeled fish-wagons, which have three to four water-tight compartments; at 4 p. m. all business is finished; the business man can return to town and play the "gentleman."

At the fixed time the fish-trains start, so as to reach their destination early the next morning. Immediately on their arrival one car after the other moves up to a ramp; the shaft of the fish-wagon, which has been lying under it, is placed in position, the horses, of which every large railroad company keeps some thousands, and which stand ready, are hitched to the wagon, and the railroad company does not consider its duties fulfilled until the wagon halts before the door of the fishmonger.

In stores which combine practical arrangements and cleanliness the fish are exposed for sale in the most tempting manner, lying on slightly inclined marble counters with small grooves to gather the moisture which collects by degrees, and kept cool by large pieces of ice. A few hours again suffice to sell all the fish. The great variety in the English methods of preparing fish undoubtedly contributes its share toward this rapid sale, and even a little *hautgout* is masked by a sharp sauce. Englishmen rely on the conscientiousness of the agent of the board of health in the matter of excluding spoiled fish from the market, and it is well known that, especially during the summer months, large quantities of fish are inexorably condemned.

In England ice is used very extensively to keep fish from spoiling, while in Germany there is a good deal of prejudice against employing ice. Who does not recollect the violent outcry of short-sighted Hamburg and Bremen dealers against the so-called "joint-stock company fish," *i. e.*, fish on ice, declaring that it was every way inferior to the "fresh," *i. e.*, half-dead fish, the worthy companion of the Scotch herring? These men, by their violent denunciations, actually succeeded in forcing some associations, which had been dealing in fish on ice, to close their stores. Fish-eaters should not allow themselves to be deceived in this manner, but should rather try it once more, for the dif-

ference of flavor is only imaginary; haddock on ice is at least as wholesome and nutritive as so-called "fresh" haddock. Even in the markets of sea-ports you do not find any really "fresh" or "live" haddock, as it dies very soon when taken out of its true element, the briny water of the ocean. The haddock does not come near the German coast till late in spring, when the lenten season is over, but the "logger" could easily fish them in those places where they come earlier in the season. The Oldenburg generally got  $2\frac{1}{2}$  cents per pound in the Hull market, while, so far German dealers have not offered more than  $1\frac{3}{4}$  cents per pound, on condition, it is true, that they would pay cash on the arrival of the vessel and engage to take the whole cargo. As matters stand at present the question of making this fish, which occurs in great numbers, really profitable remains altogether in *statu quo*. If the German press would take an interest in the salt-water fisheries, which, unfortunately, it does not, many of the existing prejudices would soon be rooted out. All the existing difficulties could be met if there were sufficient funds. It would require a strong organization to obtain the same net prices as in England; it would require ice-houses and other buildings which scarcely exist in most of the German ports, not even in Emden. The railroads would also have to take a greater interest in the matter.

The Hansa (German paper) recently explained a concession which it had made to public opinion in the following manner: "After the fisheries in the German Ocean had dwindled down to a very small trade, chiefly owing to the unfavorable railroad connections, the railroad companies have lowered their freight rates, which one and a half year ago had been declared unnecessary, because it is said the fishing trade did not patronize the railroads." In the interest of the existing ocean-fisheries this measure is to be hailed with joy, as it publicly testifies to a more favorable view of the whole question taken by the railroad companies. It can scarcely be doubted that the railroads will find it in their own interest to grant still more favorable conditions as soon as they can be assured that considerable quantities of fish will be shipped.

When the Emden joint-stock herring-fishery association was started the great capitalists assumed a hostile position toward the enterprise. The Emden people were not inclined either to promise very large dividends; nor would it have been possible to obtain large sums of money on such hard conditions as were customary at that time; consequently it was determined to raise the money privately among friends and well-wishers who were well acquainted with the final aim which the association had in view. The managers of course expected to meet with difficulties, but they hoped to conquer these by increased activity. But instead of this they met with reverses in 1875, and since then not much progress has been made. All sources of self-help have unfortunately been exhausted, and it cost a great deal of trouble to raise the necessary means for carrying on the herring-fisheries during this summer.

The chief creditor of the association was induced to wait for the pay-



ment of his money, which had been borrowed at 6 per cent. interest, till the end of this year's herring-fishing season, and even advanced some more money; and the minister of agriculture gave from his limited contingent fund \$1,500 as a present, and \$1,500 more to be repaid whenever it would be convenient. But even with such help the enterprise cannot be established on a firm basis, and when the herring fisheries have come to a close this season the association will have to decide the question, whether besides the three "loggers," which according to agreement are to be left rent-free to private individuals during the winter 1877-78, they will be able to fit out some more "loggers" in order to carry on the winter fisheries for the association. The management of the trawl-net can easily be learned, if only half the crew has some experience. If, therefore, the association were to fit out three more "loggers" for the winter fisheries 1877-78, it will be possible when the contracts with crews are made for the next herring season to promise steady employment from that time on to the whole stock of the crews possessing nautical experience. The future of the enterprise, which at present can neither die nor live, would then be secured if there were sufficient funds to make use of all the advantages.

It is well known that the association has laid a petition before the "house of delegates" (lower house of the Prussian parliament) to let them have a loan from the national treasury at a low rate of interest; and the house has by a large majority recommended this measure to the government. If this aid is granted, the enterprise, which so far stands alone in Germany, will be enabled to fulfill its economical mission also in the future. It is true that other enterprises which receive aid from the state, such as railroads, have similar aims, but then many of these pursue a competitive aim within the national boundaries, which is not the case with the herring-fisheries. For similar enterprises which might spring up will be able to start at a great advantage by not having to learn at a great expense all that which the Emden association had to learn. There can be no question of unlucky results, as every lender remains master over his future resolutions. The whole enterprise, moreover, means nothing less than a national competition with Holland and Great Britain, where capitalists are satisfied with lower rates of interest than in Germany. After it has within its present limits become more consolidated, it will soon be able to command private capital for the purpose of extending its sphere of capacity. It would have to be deeply deplored, if all the experience bought with so much money should be lost to the nation; for if the association were to declare itself bankrupt, their vessels would be sold in Holland, where they would fetch the highest price, and the buildings would have to be sold at a great loss, to be used for other purposes. Another generation would pass away before any one would again think of confronting the difficulties inevitably connected with the beginning of high-sea fisheries. This would have to be deplored all the more, as the managers

may have committed mistakes but have never been guilty of any wrong or dishonest act. The whole cost of administration has been so cheap, that every joint-stock company should take an example from it. The members of the board of directors receive no percentage. The report for 1876 will show, in conclusion, that the property, according to its book-value, represents about 75 per cent. of the whole joint-stock capital. But the actual value is even higher; thus the real estate is only reckoned at \$19,062.50, and the eleven vessels at \$58,762.50, while the latter have been issued at a value of \$70,975. With the exception of lack of funds, the condition of the association is a healthy one throughout. The city of Emden and many patriotic Germans throughout the empire hope that his excellency the minister, Dr. Friedenthal, who looks on the enterprise with favor and who is fully competent to understand all its needs, will be able to find a way by which its future existence and prosperity can be secured.