

DIRECTIONS
FOR
TAKING AND CURING HERRINGS:

AND FOR
CURING COD, LING, TUSK,
AND HAKE;

BY
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NOTICE.

THESE Directions are now reprinted, because the information and the instructions which they convey are calculated to be most useful to the Fishermen and Fish Curers of New-Brunswick. It need not be pointed out that some of the details may be inapplicable to the Fisheries on these Coasts, and are framed with special reference to official arrangements in Scotland.

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DIRECTIONS

FOR

TAKING AND CURING HERRINGS.

*Printed and circulated by the Honourable the Commissioners
of the Board of British Fisheries.*

FRESH HERRINGS, when in prime condition, form a cheap, delicate, and nutritious article of food, and when promptly and efficiently cured, they become valuable as provision. But their value in these respects must necessarily depend entirely on the condition of the fish when caught, and on the degree of promptitude and care which may be exercised in curing them.

Herrings, in regard to their condition, may be divided into three classes, viz., **Maties**—**Full Fish**—and **Spent or Shotten Fish**. **Maties** are those fish in which the roes and milts are perfectly but not largely developed—and it is well to understand that this is the state of the fish in which it is truly in the best condition for food—and when it will be found most delicious to eat, as well as most nutritive. Although it does not exhibit, whilst in this condition, so bulky an appearance as it does when it is in that of a **Full Fish**, it is in reality much fatter, for the bulk of the **Full Fish** is deceptively produced by the great enlargement of the roe or milt, and this does not take place without a corresponding diminution of the body of the fish. The **Full Fish**, however, are those which are most sought after in a mercantile point of view, because of their larger appearance. The **Spent or Shotten Fish** having just performed their function of spawning, and having been thereby reduced to a miserable, lean, and poor state, are unpalatable, and

more or less unwholesome as food when in a fresh state, and in a still greater degree when cured. The more immediately they are taken after spawning the worse they will be, and the longer the time that expires after their performance of that function, the less unpalatable or unwholesome they will become. But it is always advisable to avoid taking or using them in any way until they shall have had time to be fully recruited after their thorough exhaustion from spawning.

The different classes of persons directly employed in the trade which produces the article of commerce, called salted or pickled Herrings, are Fishermen, Fish-curers, Gutters, Packers, and Coopers, and if the portion of work which more immediately belongs to each of these classes be in any instance improperly performed, the whole value of the article may be so impaired as to be rendered altogether unmarketable. Each class, therefore, should perform its duties carefully and expertly, so that by the care and attention exercised by all of them towards one object, their united exertions may bring the manufactured fish to the highest degree of perfection of which it is capable. If the Fishermen are so careless in handling the fish as to injure them in any way, the mischief cannot be repaired by curers—and if Curers fail in their part, the exertions of Gutters and Packers will avail nothing in making amends for their neglect; and although all these may have done their parts well, if Coopers be inattentive to their particular duty, the fish, however well cured, may be destroyed. Hence it is necessary to have the most vigilant superintendence over all these departments, which, if properly exercised, will not much increase the expense of production, whilst it will insure well-cured Herrings, and a ready market, and likewise raise the character of our British fisheries still higher in foreign countries.

FISHERMEN.

It is advisable, in the first place, to consider those things that require to be attended to in the capture of the fish. The Dutch mode of taking them, by employing vessels of from 60 to 90 tons, has many advantages over that of our British fishermen, who use boats only, and especially that of enabling the crews to cure their Herrings immediately on board, and almost before they are well

lead. This may be considered as one great cause of the superior flavour of Dutch-cured fish, as the fish must suffer to a certain extent every moment they remain without having salt applied to them. In one point, however, our boats have an advantage over the Dutch vessels, that much finer netting can be used in them, the weight of the Dutch vessels requiring stronger nets, made of heavier twine, which is not likely to be so successful in taking fish as nets made of twine of a finer description. Any general introduction of the use of such vessels as are used by the Dutch, however, cannot perhaps be looked for; but it may be pointed out as a thing most desirable, that the boats employed by our fishermen should be as large as possible, to be convenient for rowing in calms. Were well-built, well-rigged, and well-found boats of from 15 to 18 tons more common amongst our fishermen than they are, and were these always manned by at least six men and a boy, we should hear of fewer lives being lost—and much more might be achieved by hardihood in contending with heavy seas and gales of wind, and thus much more fish might be captured. But this is not all—for although the fish when caught could not perhaps be cured directly on board of such boats, as they are with so much advantage in the Dutch vessels, they could, at least, be much better preserved until landed, than they possibly can be in smaller boats. The boat ought to be put into perfect order, and properly tarred, and the tar well hardened before the fishing season commences, for if the tar happens to have been too recently applied, those fish which accidentally touch the skin of the boat, will be contaminated with a taste of tar, and as early caught fish are often slightly salted and hurried to market, to obtain high prices as an immediate delicacy, if the flavour or even the smell of tar is perceptible in the pickle or fish of a single barrel, the character of the whole parcel may be injured. It is most essential that all boats should be furnished with pumps, the occasional working of which, if necessary, will keep the boat dry, for nothing is found to be more prejudicial to the fish than their being permitted to wash backwards and forwards in a bath of sea-water, filling the bottom of the boat, by which they have their scales rubbed off by friction against each other, and they are macerated in such a manner as to lose the greater and richer part of their natural juices, and to be-

come flabby, unsightly, and tasteless; and if, in addition to the pump, the boat were floored with deal boards, perforated with holes large enough to allow any water that might be shipped to find its way downwards, it would not only add greatly to the comfort of the crew, but it would tend to keep the fish in much better state till they should be landed. Bottom, or limber boards, foot spars, and walking planks, may be considered as essentials for the preservation of the fish. Whenever the fish are landed, the limber boards should be removed, and the whole interior of the boat should be properly washed and scrubbed. This should be done daily during the fishing season, and thus the glut is much more easily removed, and the boat is rendered clean, and freed from all taint or smell, before proceeding to sea on each successive voyage. Each boat should be provided with a comfortable place forward, for the crew retiring occasionally to sleep or to shelter in, covered with a half deck, and every man should have a comfortable oil-skin canvass coat and trowsers and boots; and if each were to be provided with the patent Edinburgh Safety Cape, invented by Mr. Simpson, or such safety packets as are now furnished to the Coast Guard, many lives would be saved, which would otherwise be lost. As every large boat may have a fire on board, coffee in any quantity could be heated for the crew, and this would be found on trial to be a much more comfortable and nourishing drink for them, and much more enduring in its effects than any spirituous liquor, and free from all after bad consequences.

Where large fleets of fishing boats are assembled, it is a common practice for the whole fleet to follow the course pursued by the first boat that puts to sea, and to run for the same fishing ground. This may be a wise mode of procedure where the certainty of finding a body of fish in that particular quarter may have been already ascertained, but when this happens not to have been the case, it would be much more advisable for the boats to go in separate courses, so as to increase the chance of some of them falling in with the body of fish; and when that has been discovered, the other boats of the fleet might afterwards join them, and thus all might fish successfully; whereas by the present practice, if the fish are not encountered by the first boat, the whole fleet are likely to be equally disappointed. Under any circumstances, the boats

should not crowd too much together, but leave sufficient intervals of room between each other, so that the trains of net may be shot without any risk of one train interfering with, or getting entangled with another. A good and efficient net ought to be 50 yards long on the back rope, by 14 yards deep; and a good and proper train should contain 26 of these nets, hanging in succession from the back rope, thus containing altogether 18,200 square yards, stretching over a line of sea of 1300 yards in length. The swing or net rope should be about 120 yards long, so that the whole length of nets and line may stretch along 1420 yards of sea, or about four-fifths of a mile. These nets should be properly tanned; and if done with the drug called *catechu*, or *terra japonica*, it will be found much better than oak-bark; but care must be taken when using it, not to overdo the process, otherwise the meshes may become contracted, and too much hardened. Sir William Burnet's patent likewise has been found extremely good for the preservation of nets. And farther, whilst on the subject of nets, it may be well that fishermen should know that Messrs. Jamieson of Kilbirnie, and Mr. Paterson at Musselburgh, have manufactured a particular description of small twine for nets, which, whilst it is equally strong with the common net, is much less easily seen by the fish in the water, and has consequently been found by experiments made by orders of the Board, to be much more successful than the ordinary nets.

The train of nets having been carefully and regularly coiled up in the boat, should, on arriving at the fishing ground, be gradually shot out with equal care and attention, and then the boat lies with the train attached to it. After the train shall have remained in the water for such a length of time as may appear necessary for allowing the herrings to mesh, during which time the nets must have been occasionally pulled up a little and examined, so that when no likelihood of herrings may appear, the nets may be hauled, the ground shifted, and the nets shot elsewhere, and when it is found that the herrings have meshed, the train must be carefully and not too rapidly hauled up. And now comes a part of the fishing process which demands the most serious attention from the fishermen, as the future value of the fish may be immensely deteriorated if this part of these instructions be neglected. The

whole of the fish should be carefully shaken out from each successive part of the net as it is taken into the boat. If this is not done, the herrings are liable to be much jerked about with every pull that the net receives whilst in the boat, and so they are stripped of their scales, are bruised, torn, and broken, and become soft, and more or less tainted, and consequently they are thus, even before cure, rendered to a great extent unmarketable; whilst herrings immediately shaken from the net in the manner here enjoined, being alive at the time, fall easily from the meshes into the bottom of the boat, where they remain in a beautiful state, with every scale adhering to them, and continue firm and uninjured until the boat reaches the beach, where they are immediately and promptly delivered. To secure attention to this most important matter, fish-curers, in contracting with fishermen, should make an arrangement that all herrings brought to the shore in the nets should be paid for at a reduced price; and no indulgence should be allowed as to this rule, unless in cases where stormy weather may have rendered it impossible for the fishermen to shake the herrings out of the nets whilst hauling. It becomes the more essential to impress all this the more strongly both on fishermen and curers, that the plan of shaking out the herrings from the nets as they are hauled is but too seldom followed, and this in defiance of all the means which the Board of Fisheries has taken to get the proper practice pursued, its Commissioners having, so far back as the 22d June, 1816, issued, through its secretary, an order to its officers to do all in their power to promote the adoption of this most important practice; but notwithstanding all the exertions of the officers, it is still very universally neglected. It is earnestly hoped, however, that the fish curers, to whom a mode of correcting the evil has been pointed out as existing in their own hands, will now seriously bestir themselves to put an end to the practice of allowing the herrings to be brought ashore in the nets, which so much destroys them even before a single step is taken in the process of cure. Another precaution would be highly valuable if it could be adopted. If a piece of an old sail were fitted so as to cover the space from the mainmast of the boat to the pump, the moment after the Herrings were shaken into it from the nets, and made fast over each gunnel, so as not to interfere with the management of the boat

either in sailing or rowing, the fish would be kept from all risk of suffering from the sun, and if a boat-hook or boom were placed fore and aft under it, they would be protected both from rain and sea water until ready for delivery. These precautions would not only preserve the fish in prime condition till the curing process should commence, but the boat's crew would find their account in attending to them, from the great saving of time and labour which would thus be secured to them on their landing. Thus a crew which might reach the shore at six o'clock, A. M., with a large take of herrings, having their nets all shaken, and the fish ready for immediate removal, might land, spread their nets, or hang them on the drying poles, and, in ordinary circumstances, they might have their fish delivered by ten o'clock, get themselves washed, and take their victuals, and then go to bed and sleep comfortably for four or five hours, after which they would have ample time to mend their nets, and to carry them down to the boat, so as to be ready to proceed to the fishery, full of that strength, vigour, and energy necessary to prosecute it successfully, whilst other fishermen, on the contrary, who have had similar success, but who may have hauled their nets without shaking the fish out of them, have all this to do after reaching the harbour, and that with much difficulty, for it is often found to be so impossible to draw the nets from under the fish, that those on the top require to be shovelled to another part of the boat, or landed, before all the nets can be got out, the effects of all which on fish caught during the hotter months may be easily imagined. But as regards the fishermen themselves, from all these difficulties, the day is far spent before the fish are delivered, and the nets all spread out or hung up, so that before they have reached home, washed and had food, there is no time left for sleep, or for mending their nets, and the preparation for the ensuing night's fishery is begun without befitting energy. Such crews, too, often arrive so late at the fishing ground from these causes, that they cannot easily find a clear berth to shoot their nets in; and when they do obtain it, no sooner are the nets fairly out of the boat than the men are asleep, or at all events they are so fatigued from want of rest, that they have not courage to haul their nets, so as to change their ground if necessary, and to take a second shot, and therefore, they thus too often return disappointed.

When the Herrings are landed from the boat, they ought to be measured by the legal Cran measure, and not counted, unless the quantity taken be so small as not to fill a Cran measure. As it is for the interest of both fishermen and fish-curers that the Cran measure should be used, as it affords the truest and justest mode of dealing both for buyer and seller, every one should unite in putting an end to the practice of reckoning the fish by numbers, as the law is, that nothing is to be used but the Cran measure, having the Brand of the Board of Fisheries on it.

FISH-CURERS.

If Fish-Curers have the desire they ought to have, to compel the men who fish for them to handle the Herrings with proper care from the time of their capture to that of their delivery, they should certainly do their best to set them a good example, by seeing that every thing is done in their own department strictly as it should be. If they leave their Herrings after delivery in the curing-boxes, exposed to the sun or rain, it is not very likely that they will have much influence in persuading the fishermen to shake the Herrings out of their nets as they are hauling them, or to take any other necessary precaution for their preservation, seeing that all such care would be thrown away if the Fish-Curer should thus neglect the Herrings after he has received them. It is the Fish-Curer's business, therefore, to see that the receiving boxes and tubs have proper awnings over them, and likewise that the barrels, when packed, are properly covered and protected from the sun and rain; and much of the good or bad character of British cured Herrings will depend on the attention which may be paid by Curers to these injunctions, for the neglect of them may, and probably will give an incurable taint to the fish. The sooner salt is applied to the Herrings the better, as it secures the adhesion of the scales, so important to the after appearance of the fish. For this purpose, salt should be sprinkled over them as they are emptied in successive portions from the Cran measure into the receiving or gutting-box. All Herrings should be gutted, cured, and packed, on the day they are caught. If this cannot be accomplished, they ought not to be cured as gutted Herrings. They may, however, be cured as ungutted Herrings, or made into red Herrings.

GUTTERS.

Gutting, and packing also, should commence immediately after the first cran is delivered; but this practice is too much neglected, particularly on days when the fishing has been partial, or when the state of the tide may have occasioned an irregular delivery. Although a number of Gutters are in attendance, they do not begin until such a quantity of fish is delivered as will give constant employment to all. Thus unnecessary delay, exposure, and deterioration of the fish take place; all which might be obviated on such days, and the parties satisfied, by dividing the payment, for the whole number of barrels gutted and packed, equally among all. A most important matter is, to see that the Herrings are properly picked and assorted into Maties, Full-Fish, and Spent-Fish; and this should be done as the gutting goes on, by having baskets or tubs for each particular sort; and to prevent all after mistake, the barrels into which these several sorts of fish are separately packed, should be immediately, and severally, marked by means of a marking iron, with respective letters, M ———. F ———, or S ———.

Great care should be taken by Gutters and Packers to remove all fish which have lost their heads, or which have been broken, bruised, or torn, in the bellies, so that they may be packed separately.

Bad gutting, and tearing the bellies of the fish, often arises from the knives being blunt. To prevent this, the gutting knives should be collected, and delivered to one of the Coopers every evening, who should have the particular duty of seeing them all carefully sharpened on a smooth stone, and returned to the Gutters in the morning. Due attention to this will be likely to produce neater gutting; the bones will be cut and not left exposed; and the fish will not present that ragged appearance which so often disfigures them. Whether the fish are gutted for continental sale or for exportation out of Europe, the orifice left at the top of the belly of the fish should be as small as possible, and particular attention should be paid that the breast be not lacerated or torn down, so as to leave the bones exposed. The incision with the knife should be made in the throat quite down to the back bone, and the knife turned round with the hand, and drawn upwards under the breast-fins, and not

downwards along the belly of the fish, otherwise the orifice will be made too large, and the roe or milt will be exposed.

The fish must be cleared, not only of the gut, but of the liver, stomach, and gills, which last, being full of blood, is known to taint the fish in a short time after it is killed; and the incision of the knife should be made down to the back bone, so as to allow the blood to flow freely from the great blood-vessel of the fish, which will tend much to the after preservation of the Herring.

In order to understand the Dutch manner of gutting Herrings, we must suppose that the fish is held in the hollow of the left hand, with its belly uppermost, and the head and shoulders projecting about an inch before the fore-finger and thumb; that the gutting-knife is held in the right hand, with the fore-finger and thumb grasping the blade to within an inch or so of the point; let the knife then be plunged into the throat of the fish at the side next the right hand, and thrust down so as to touch the back-bone, and so forced through to the other side, with the point a little projecting therefrom, and let the fore-finger then be turned over the head of the fish, and placed under the point of the knife, and the flat part of the thumb laid on the breast-fins or gip of the fish, and pressed on the broad part of the knife; the entrails are then to be gently started, the gut and gip seized between the knuckles of the fore and middle-fingers, and a sudden pull given, by which means the crown-gut, anatomically called the Plyoric appendages, will be left hanging from the body of the fish, while the gills, fore-fins, heart, liver, &c., will fall into the hollow of the hand. This is what is understood to be the mode of gutting practised by the Dutch, in which it is necessary to observe, that only one pull is required to bring away every thing that they consider to be necessary, when the operation has been performed in a proper manner. In the British method, the only difference is, that a second, and sometimes even a third and fourth pull are necessary, because the whole of the intestines, including the crown gut, are extracted. It will thus be found, that the breast or belly of the fish is most frequently lacerated in the act of removing these parts of the entrails, owing to the Gutters making the pull downwards towards the tail of the fish, instead of making it upwards towards the head. Curers should therefore give the most particular instructions to their Gutters to

make the pull upwards and not downwards, so as to leave the orifice as small as possible, and to prevent the breast of the fish from being torn. That mode of gutting by which the crown-gut is left attached, is peculiarly well adapted for the continental market, where it is believed that the crown gut is a powerful influence in improving the flavour of the fish, and where the appearance of the Herring is held to be great'y injured when it has been by chance removed.

PACKERS.

The packing of the fish should be proceeded with as expeditiously as the gutting, and in fact both operations should be carried on at the same time, the usual proportion of persons employed being two in gutting to one in packing. The moment the first Herrings are gutted, the curing process should begin. The proportion of salt to be used must vary according to the season of the year and the nature of the fish, as well as the market for which it may be destined. The Dutch use one barrel of small Spanish or Portuguese salt for sprinkling eleven barrels of Herrings, in order that they may be more conveniently handled, and one barrel of great salt for packing seven and a half or eight barrels of Herrings for the European market; and if this quantity should be found rather small, an additional plateful of salt is introduced into the middle of the cask to supply the deficiency. The calculation for each barrel of Herrings may be about five-sixteenths of a barrel of coarse Spanish salt. It must be observed, however, that whilst the Dutch mode of cure may produce a perishable article of luxury for the table, it is not capable of producing that imperishable article of commerce required by British and continental merchants. But the parties employed in the cure must be the best judges of the quantity of salt to be used for the different markets for which the Herrings may be intended. It is, moreover, difficult to lay down any well defined rule as to this point, from the circumstance, that there are several qualities and sizes of Liverpool fishing salt, which are of different degrees of strength. Many Curers use only one kind, whilst others use a mixture, and very frequently both Lisbon and Liverpool salt are jointly used for curing the Herrings of the same barrel. Thus the quantity of salt required for fish free from glut, and early salted

under cover, would be quite insufficient for fish mixed with glut, and delivered in the afternoon of a sultry or wet day. It must be remembered, however, that the use of Spanish or Portuguese salt would produce a much better cured article than is produced by Liverpool salt. The Herrings are then carried to the rousing-tubs, where they receive the first part of the cure, called rousing or roiling—that is, working them well to and fro among salt. In performing this operation, the Packers should mix a proper quantity of salt among the fish as they are emptied into the rousing-tubs, and the Herrings should be turned over continually, until a proper proportion shall have adhered to each. When this has been done, a small quantity of salt should be scattered in the bottom of each barrel, and the Packer should begin by laying the Herrings into the barrel in regular tiers, each tier being composed of rows laid across the barrel, taking care to keep the heads of the Herrings at each end of the row, close to the inside of the staves of the barrel, with their tails inward, and making up the deficiency in the middle of each row by laying Herrings in the same line. Care should be taken to scatter salt on the heads. The Head Herrings should then be placed. These are laid across the heads of the Herrings already forming the tier, and these Herrings should also receive a sprinkling of salt, which should likewise be thrown into the centre of the tier. The second tier must be packed in the same way, taking care that the Herrings shall be placed directly across those of the first, and so on alternately, the Herrings of each successive tier crossing those of that below it. A proportion of salt should be distributed over each tier, St. Ubc's or Lisbon salt being always preferred for this purpose. When the barrel is completed, a little additional salt should be put on the top tier. Herrings intended for the Continent should be packed on their backs; but for the Irish market they are preferred when packed flat, or more on their sides. The fish in each barrel should be all of the same kind and quality throughout. The nefarious practice of packing inferior Herrings in the middle of the barrel, or superior Herrings at the top is always discovered, sooner or later, to the confusion and loss of character of the Curer. The barrels should be filled above the chime of the cask, in which state they are allowed to stand till the following day, or even longer, when by the pining or shrinking of

the Herrings from the effects of the salt, they fall down so much in the barrel, that it requires to be filled up. The moment the barrels are packed, they should be properly covered over, to prevent the sun's rays or rain penetrating the fish. All vessels which go to cure on open beaches or shores should be provided with old sails, or some other such covering, to protect the fish from the sun and rain; for if spread on the beach without any such protection, they will infallibly be spoiled.

COOPERS.

It is the duty of the Cooper to see that all his barrels are properly made, and of the legal size. It is of the greatest importance that he should ascertain whether they are sufficiently tight for containing the original pickle, because there is no after remedy for the evil effects produced in the fish by its escape. Barrels should be constructed of well-seasoned wood, and be made tight in the bottoms and seams, and croze, by introducing the broad-leaved water plant called the sedge or flag, which would tend to secure the original pickle under all circumstances. During the period of the curing, the Cooper's first employment in the morning should be to examine every barrel packed on the previous day, in order to discover if any of them have lost the pickle, so that he may have all such barrels immediately repacked, salted, and pickled. A very common practice is to pour pickle repeatedly into barrels of the previous day's packing, which have thus run dry, without having in the first place, secured the leak; and then afterwards to use the Herrings of such dried barrels for filling up such barrels of Herrings as are well cured and tight. This is a practice which should never be allowed, as the distribution of these dry, and consequently bad Herrings, amongst the Herrings of a number of otherwise well cured barrels has a tendency to destroy the whole.

As already stated the Cooper in charge should see that the Gutters are furnished every morning with sharp knives. He should be careful to strew salt among the Herrings as they are turned into the gutting boxes—give a general but strict attention to the Gutters, in order to insure that they do their work properly—see that the Herrings are properly sorted, and that all the broken and in-

jured fish are removed—take care that the fish are sufficiently and effectually roused. Then he should see that every barrel is seasoned with water, and the hoops properly driven before they are given to the Packers. He should likewise keep his eyes over the Packers, to see that the tiers of Herrings are regularly laid and salted, and that a cover is placed on every barrel immediately after it has been completely packed. The Cooper should write with red keel or black coal the name of the Packer on the bottom or quarter of each barrel as it is delivered, together with the date of packing, and the letter M, or F, or S, for Mixed, Full, or Spent Fish, as the case may be. Where this excellent regulation is practised, it is found to be a check to bad or imperfect selection, as well as to bad gutting and irregular salting; and it prevents the different descriptions of Herrings from being packed up together, when the barrels are unheaded in order to be filled up, or for being bung packed.

After the Herrings have been allowed one, two, or at most, three days to pine, the barrels should be filled up with Herrings of the same date as to capture and cure, and of the same description as those which they contain, care being taken not to pour off much pickle, or unduly to press the fish. The barrels should then be headed up and tightened in the hoops, and laid on their sides, and this always under cover, so as to be shaded from the sun's rays, which are seriously injurious to the fish; and they should be rolled half over every second or third day, until they are bung packed, which part of the process of cure should be performed within fifteen days from the date of the capture of the Herrings; and not sooner than that period, if it be the object of the Curer to obtain the Official Brand of the Board of British Fisheries at bung packing. When the pickle has been sufficiently poured off, a handful of salt, if required, should be thrown around the insides of the barrels, and the Herrings should be pressed close to the insides of the casks, and additional fish of the same description and date of cure should be packed in until the barrel is properly filled, after which it should be flagged, headed, blown, and tightened; and the curing marks should be scratched on the side. The barrel may then have its pickle poured in, and be finally bunged up.

REPACKING HERRINGS.

For the purpose of preserving the fish in warm climates, and in order to enable them to be exported out of Europe, all Herrings must be repacked; and before the repacking commences, fifteen days must have intervened from the date of their capture and first salting. For this purpose the Herrings must be emptied out of each barrel in which they were originally packed, into a large tub or box, filled with clean fresh water, where they are washed and freed from all glut; after which they are placed in open baskets, to allow the water to escape, and then weighed, when 224 lbs. of fish are allowed to each Packer for every barrel. The fish are then regularly repacked into the same barrels, and Liverpool great salt is strewed on each tier as packed, until the barrel is full; the fish are then dunted, that is, the head is jumped upon by the Packer, and when the quantity of fish weighed does not fill the barrel more is added. The barrel is then headed, flagged, and tightened; the quarter of the head end of the barrel hooped up, and an iron binding hoop, one inch in breadth, driven on each end; the chime hoops are then nailed, which completes the process of full-binding. The barrels are then placed in tiers—each bored in the centre of the bulge—filled up with strong pickle made from clean salt—and bunged; and they are then ready for inspection, official branding, and shipment to any place out of Europe.

Herrings are called Sea Sticks when they are shipped off soon after being taken and cured, so as to be first in the market for early consumption, and so to obtain a high price. When barrels containing Sea Stick Herrings are cured on board of vessels cleared out for the fishery, or shipped to be carried to other stations, if the lower tiers are not carefully stowed, and the barrels well hooped and tightened they are apt to lose the pickle, and if kept for any length of time in this state, they will be found on landing to be gilded and tainted. Sufficient attention and care will prevent this, and if it be properly guarded against, the cure of the Herrings will be improved by the voyage, as they will be free from undue pressure, and as they will be found when opened to be well flooded with pickle. Whether the barrels of Herrings are prepared for the Official Brand of the Board of British Fisheries or not, they should

be kept constantly full of pickle, and where a leak appears, the barrel should be made tight, or the fish should be taken from it and repacked into a sufficient barrel. Barrels should be rolled half round weekly until shipment. Herrings must have been cured for fifteen days before the Official Brand can be applied for. If the Curer wishes to have the Brand, he must give the Officer notice, stating that it is his intention at such a time and place to have so many barrels of Herrings branded—Maties or Full Fish—as the case may be, and as a matter of course the Officer attends. In the first place, he sees that the owner's name, with the place where and the year when cured, are branded on the barrels, all of which should be done prior to the Officer's appearance. The Officer having taken the required declaration of the Curer, and gauged the barrels, each of which ought to be of a size capable of containing 32 gallons English wine measure, he proceeds to examine the casks and Herrings, causing so many thereof to be opened for his inspection, taking out the heads and the bottoms of the alternate barrels respectively, so as to satisfy himself that the Herrings are in all parts of the barrels perfectly what they ought to be, before he proceeds to apply the brand to them.

A Cooper should be in constant attendance on board of every vessel during the time Herrings are shipping, to replace hoops, chimes, or any other damage the barrels may have sustained by cartage, and to nail the chime hoops, if not previously done. The master of every vessel should be bound to use slings, and not crane hooks for hoisting the barrels on board, and to stow every barrel bung upwards, without the use of a crow-bar.

The superiority of Dutch cured Herrings arises chiefly from scrupulous attention being given to the different directions which have been detailed in this Treatise, and in a great degree also to Lisbon or Saint Ube's salt only, being used in their cure, as well as to their being packed into oak barrels alone, whilst ours are cured with Liverpool salt, and packed into barrels made of birch or alder.

As it is extremely desirable, and very much for the interest of fishermen, and all parties concerned in the Herring fisheries, that the practice of taking Herring fry, or undersized Herrings, should be put an end to, each fisherman should hold it to be his duty to

aid the Board of British Fisheries in stopping it. It is chiefly under the pretence of taking Sprats or Garvies that this destructive practice is pursued. It is therefore important that the distinguishing marks of the Young Herring, and the Garvie or Sprat, should be so generally known as to be rendered familiar to all. These have been described by Mr. James Wilson of Woodville, the well known naturalist, in a communication made to the Secretary of the Board, from which the following is extracted :—

“ 1st. The first character to which I would direct your attention, is one which is so distinguishable by touch as well as sight, that it would be quite easy by means of it to divide into two separate portions the largest and most intermingled mass of these fishes, even in total darkness. I refer to the jagged or spiney edging which prevails along the lower outline of the Sprat or Garvie, almost all the way from throat to tail. This character is scarcely at all perceptible in the true Herring. It is slightly developed in the fry, but soon disappears. It seems never absent in the Garvie, but grows with its growth, and presents so stiff a toothing along the abdominal line, that if a fish is held not very tightly by the sides between the finger and thumb, and then a finger of the other hand is pressed along that under line from tail to throat, the projections will present so much resistance that the fish itself will be moved forwards.

“ 2d. The eye of the Herring is proportionally larger than that of the Garvie, so that if you place a young Herring beside a Garvie of greater size, its eye will nevertheless be larger than that of the Garvie, and if the fishes are themselves of the same size, the difference of the eye will be of course the more perceptible.

“ 3d. The third character is less obvious, till attention is called towards it, than the two preceding, but it is of equal importance, being not less constant and discriminative. If you observe the position of the dorsal or back fin of the Herring, and suppose a line drawn perpendicularly downwards from its foremost portion where it enters the back, you will find that such line will invariably fall *in advance* of the ventral or belly fin beneath it. But if you draw a similar line from the front portion of a Garvie's dorsal fin, it will invariably drop *behind* the insertion of the ventral fin.

“ 4th. The fourth character of distinction results from or is connected with the character just mentioned. There is a shorter

space and fewer divisional lines between the pectoral or breast fin, and the ventral fin in the Garvie, than in the Herring, so that the anterior portion of its body is less elongated.

“5th. The divisional plates or segments which occupy the lower space between the pectoral and ventral fins, are larger in size and fewer in number in the Garvie than in the Herring, there being about fifteen in the former, and about twenty in the latter. In conformity with this distinction in the outer aspect, the number of ribs is different, being considerably smaller in amount in the Garvie than in the Herring.

“Many other distinctions of a minuter kind are known to naturalists, but I think the preceding will suffice for the object you have in view, viz. that the difference between the Sprat or Garvie, and the fry of the true Herring, may be ascertained with ease and accuracy by all who desire to do so.”

By order of the Honourable the Commissioners.

THOS. DICK LAUDER,
Secretary Board of Fisheries.

ROYAL INSTITUTION,
26th June, 1845.

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DIRECTIONS

FOR

CURING COD, LING, TUSK, AND HAKE.

*Printed and Circulated by the Honourable the Commissioners
of the Board of British Fisheries.*

BEFORE noticing the cure of Cod, Ling, Tusk, and Hake, it may be right to mention, that where circumstances afford it, walled smacks should always be employed in the capture of the fish; for the fishermen can not only better preserve their bait in good condition in such craft, but the process of cleaning and salting the fish as they are caught can be carried on in them with the greatest convenience and advantage. But whether the fishing be so prosecuted, or by means of boats, it is essential never to allow the lines to remain so long down that the fish may die upon them; and if boats are employed in their capture, they ought to return to the shore with the fish as soon as possible after they are caught; and the fish taken on different days ought never to be mixed together.

As it is an unquestionable fact, that two parcels of fish, which are of equal size and quality when taken, will, from the difference of the cure alone, obtain very different prices in the same market, it is obvious, that not only the knowledge, but the practice, of the best mode of curing, must be of the most essential importance to the individual Curers, as well as to the country from which the article of commerce is to be exported. And surely, when it is understood, that it is not extra expense, but only a little additional attention, that is necessary to produce this superiority of excellence in the fish cured, and that all the attention required may be easily given in the course of the operations of bleeding, cleaning, and drying, by the fishermen or their families,—it may be hoped, that Curers or their Superintendents will, for their own sakes, see that everything necessary be promptly and efficiently done, that may ensure a ready and profitable sale for their fish.

Perhaps the best process of cure is that practised in Yorkshire, where the object of the Curers is to produce the finest fish for the Spanish market. As this affords by far the highest price for fish, it ought to be the study, as it is obviously the interest of all fish-curers, to bring their article of commerce to such a degree of perfection as may make sure of this market. That this must be well worthy their best endeavours, is best proved by the fact, that the Curers at Eyemouth, by entering into direct correspondence with some of the principal Spanish merchants in London, are now offered for STAMPED COD what amounts to £3 a ton more than they got previously. Any Curer, in any quarter, may have an opportunity of opening up such a direct correspondence, by application to Mr. Campbell, the chief officer of the Board of British Fisheries in London, who will be happy to inform applicants of the names of the firms of the different Spanish houses; but it must be observed, that no attempt to do so need be made unless the fish are of such quality as to merit the OFFICIAL STAMP, and that they shall have actually received it from the Fishery Officer of the district.

The moment a fish is taken off the hook it should be bled. This may be done by the person who is employed in taking it off the hook. The fish must then be headed, split up, and gutted,—in doing which, the sound should be carefully preserved for cure. The fish should then have the bone removed, care being taken that it shall be cut away to within twenty or twenty-two joints of the tail, not directly across, but by the splitter pointing the knife towards the tail, and cutting the bone through two joints at once, in a sloping direction, so as to leave the appearance of the figure 8. This looks best, and it has this advantage, that the fish are not mangled, as they are apt to be when the bone is cut square through one joint. A slight incision should be also made along all the adhering part of the bone, to allow any remaining blood to escape, and the splitter should then drop his fish into clean water. The fish should then be thoroughly washed in the sea from all impurities; but where this cannot so immediately be accomplished, they should be dropped instantly into a large tube or vat full of sea water, where they should be carefully washed, and the water should be poured out of it when it gets foul, and fresh water sup-

plied. Care must be taken to remove the black skin that adheres to the laps of the fish.

If these operations cannot all be performed on board the fishing craft immediately after capture, the fish, upon being taken off the hook, and immediately bled, which is absolutely essential, should be put into boxes, or some convenience, to keep them from exposure to the air, and from being trampled on, which would be extremely hurtful to them. But it may be again repeated, that the more of the above operations that can be performed immediately after capture the better. If the salting can be done on board the craft, it will be of the greatest advantage, as the sooner the fish are in salt after they are taken out of their native element, the greater is the chance that their cure will be successful. But, whether cured at sea or on shore, they ought in no case to be permitted to remain a longer period before being laid in salt than forty-eight hours.

Some Curers think, that instead of laying the fish in salt immediately after they are washed, they ought to be left to soak in water for twelve hours, or allowed to remain in a heap for the same period, before being salted. This has been done by many, under the impression that it will make the fish, when cured in pickle, appear thick and plump at market, and because the coating of slime found on the skin, when the fish come to be repacked or dried, thus becomes thicker and easier removed, than if the fish were salted from the washer's hand. But the fact is, that the swelling of the fish, and the thick coating of slime, indicate tainting, and it is therefore obvious that when fish remain without salt for twelve hours, the pickle will just so much the sooner become sour, so that the fish must be thereby injured. Herrings, though a richer fish than cod, are never soaked in water before salting, or allowed to remain for hours without salt after being gutted; the reverse is the universal practice. In the same manner, therefore, the sooner that Cod, Ling, Tusk, or Høke, can be salted after being thoroughly washed, the better will the cure and the quality be, and the less salt will be required. The salting should always be carried on in vats, tubs, or troughs, which should have covers. But whether the fish are to be so cured, or by that very inferior mode called **BULK**, they must be regularly laid in layers on their backs,

one over the other, each layer being carefully spread over with a sufficient quantity of salt, 45 or 50 pounds of Liverpool salt per hundred weight of dried fish being about sufficient. Where this quantity cannot be given, a day or two longer in salt may be required; and if salted in bulk, they will certainly require to remain a few days longer. Over-salting is frequently practised to increase the weight of fish, but nothing is more fallacious,—not only is the sap thus extracted, and the fish made lighter, but, as the drying advances, they become encrusted with salt, which falls off at every handling, whilst the fish are so much deteriorated, as to be rejected as salt-burned, or taken at a very reduced price. In Yorkshire, where the mode of cure is such as to produce the most perfect article, the whole of the fish are salted in tubs or vats, three days being generally allowed them to remain in salt, and one ton of salt is allowed to cure three tons of fish,—but if the fish are large, more salt will be required than if they are smaller. This is a difficult matter to manage where the climate is damp, for if the season happens to be wet, and the fish do not receive a sufficient quantity of salt, they will soon get mited. The knowledge of their having taken in a sufficient quantity of salt, so as to be enough cured in that respect, whether they are yet too soft, must be obtained by the grip of the hand of an experienced Curer, before they are taken out of the pickle. If the fish be salted when fresh off the hook, they will take in no more salt than will perfectly cure them, however much may be given them; but if they are not fresh, by giving them too much salt they will get salt-burned.

After the fish are drawn from the vats, they should be well washed, and the pickle brushed out in the sea, or in sea water, and then they must be built up in a long pile on a stony beach, taking care that each fish is placed in a sloping direction, that is to say, with its head higher than its tail, so as to allow the salt water to be well dripped out of them. They may remain in this state for a day or two before they are laid out for the purpose of drying.

By far the best mode of drying the fish is that practised in Yorkshire, and all Fish Curers are earnestly recommended to adopt it, as nothing will so certainly tend to ensure their fish taking in the Spanish market, which will amply repay them for any trifling additional expense to which they may be put at first by making

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proper provision for it. The Yorkshire Curers use flakes of wood, raised on posts three feet high, of such length as may be found most convenient, and about four feet wide. These are constructed at top with a platform of cross bars, placed six inches asunder, on which the fish are to be laid. The greatest possible advantage is derived from these flakes, and it is the earnest desire of the Board of Fisheries to see them brought into universal use among Fish Curers, as they are far superior to any stony beach whatsoever, howsoever favourable for the purpose. The great advantage of the flake is, that it preserves the fish clean, and owing to the current of air passing underneath, the drying process goes on simultaneously below as well as above; and it prevents all chance of the fish being sunburnt, blistered, or scalded, when first laid out, as frequently happens when they are placed on a hot stony beach in a warm day. But when a stony beach is to be used, the greatest care should be taken not to lay the fish down when the stones are too warm from the heat of the sun, otherwise they will certainly get sunburned, and no subsequent care will be successful in curing them properly. In all cases, whether the flake or the beach be used, great care must be taken not to expose the fish to a powerful sun for the first few days, and that they be not dried too hastily, otherwise they will heat, become brittle, and loose from the skin, and appear as half roasted, and so be unsaleable. At first they should be laid on their backs; but towards night they should be laid back upwards, in small heaps or clamps, which ought to be increased in size as the fish get harder; and, during the process of drying, the fish may be laid with their back or belly upwards alternately, as occasion may point out. As they acquire firmness, frequent turning is advantageous, and as the heaps become enlarged, stones or weights may be placed on them to facilitate pressing, which imparts to them a smooth and compact surface. When the fish are about half dried, or so, it will then be easy to tell whether they have got too much salt, and if so, the skin side should be laid up to the sun during the heat of the day for future drying, which will draw the salt from the surface of the fish side, and tend to make them appear a fine greenish colour. When the fish are gathered together in heaps in the evening, they should be carefully covered with matting or canvass

during the night, as well as when damp weather prevents their being laid out. After a fortnight's drying, the fish should be put into a pack, or steeple, for the purpose of sweating, and they ought to be allowed to remain in that state for twelve days, carefully covered, after which they should be laid out to dry for a week; and then after sweating them a second time for four or six days, two or three more days of drying should be sufficient to complete them. But of course this must all depend on the state of the weather; and, according as that may be favourable or otherwise, the whole time employed in curing them may average from six to eight weeks. The pining and sweating of the fish is a most important part of the cure, and must be extremely well attended to, for if not properly sweated, before they are housed, they will soon get mited, slimed, discoloured, and unsaleable. Fish prepared for the Spanish market require to be highly salted, quite transparent, and of a pure greenish colour, and very hard dried. After the fish are properly sweated, pined, and finished, they should be housed, but never in a warm day, or warm from the beach or flakes; they should always be collected in a cool state—either in the evening or morning,—and with this precaution, and always provided that they have been properly pined and sweated, they will keep for a long time without being slimed or mited, care being taken to have the air excluded from them by proper covers, and by their being put into a tight cellar or warehouse. Many of the Yorkshire curers, when packing their fish in their stores, after being fully dried, lay a small quantity of clean straw between each layer of fish. This tends to draw the surplus salt from the surface of the fish, prevents them from getting slimy or mited, and very much improves their colour.

When fish caught in winter are to remain in salt until the drying season arrives, a little additional salt is necessary, and if laid in bulk, they should be carefully covered with matting or canvass to ensure cleanliness, and to prevent them from getting discoloured.

When the fish are to be cured in pickle, they may remain the same time salted in vats, before being repacked into barrels. On removal they should be carefully scrubbed and washed with clean water, and the slime well scraped off with a knife from the skin and back fins. The fish may be then repacked in barrels, with

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clean salt, and prepared for market. The number of fish in each barrel should be scratched on the side of it. For curing and re-packing for the home market, 84 lbs. of salt per barrel is sufficient; but 112 lbs. will be required for fish intended for exportation.

By order of the Honourable the Commissioners,

THOMAS DICK LAUDER,

Secretary to the Board of British Fisheries.

ROYAL INSTITUTION,

26th June, 1845.

DIRECTIONS

FOR

CURING COD, LING, TUSK, AND HAKE, WET, OR IN PICKLE.

THIS is a mode of curing which produces a valuable article of merchandize—very useful in household economy, and its wider extension becomes a most desirable object in promoting the interests of the British Fisheries. The most approved mode of conducting this description of cure is as follows :—

The fish having been properly split, scrubbed, and washed, should be salted in large tubs, or square boxes, capable of retaining the pickle, and properly covered from the sun and rain. After being forty-eight hours in salt, they may be washed in clean fresh water, and the skin of each fish must be well scrubbed with a small heather scrubber, or a hand brush, which is sometimes used for the purpose. Having been perfectly cleared of slime, and well rinsed in cold water, they are laid in a heap and allowed to drip, and are then repacked into barrels with clean salt. In performing

this process, the skin side of the fish is kept next to the bottom of the barrel, and they are regularly packed up with a proper quantity of salt on each layer, keeping them as flat as possible, and close to the sides of the barrel. The fish should be collected, and assorted into three or four sizes, and each size should be packed in different barrels.

If the fish have been firmly packed, and the barrels allowed to stand on end one night properly covered before being tightened, it will not be necessary to jump upon them. The uppermost or top fish in the barrel is then placed with the skin upwards, and salt is strewed on it. The barrels must then be flagged and tightened,—laid down—tiered—bored on the side—and filled up with pickle, which should always be made from clean salt, and it should be skimmed when necessary, as any impurity in the pickle injures the whiteness of the fish.

The number and kind of fish contained in each barrel must then be scratched on the side, with the date of repacking, and if the casks and fish are found on inspection to be in all respects agreeable to law, and to the Board's regulations, the barrels may then be officially branded.

By Order of the Honorable the Commissioners.

THOMAS DICK LAUDER,

Secretary Board of Fisheries.

ROYAL INSTITUTION,

26th June, 1845.