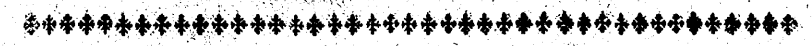
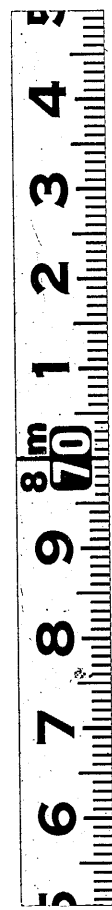


0334

87-28



T H O U G H T S

ON THE

Manufacture and Trade of Salt,

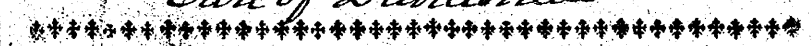
ON THE

HERRING FISHERIES,

AND ON

The COAL-TRADE of Great Britain.

Carl of Dundonald



THOUGHTS

ON THE

Manufacture and Trade of Salt,

ON THE

HERRING FISHERIES,

AND ON

The COAL-TRADE of Great Britain,

SUBMITTED

To the Consideration of the Right Honourable WILLIAM PITT, Chancellor of the Exchequer, &c. and of every Lover of his Country.

BY

THE EARL OF DUNDONALD.

EDINBURGH:

PRINTED FOR WILLIAM CREECH.

M,DCC,LXXXIV.

T H O U G H T S, &c.

TH E R E were formerly upwards of two hundred falt-pans at North and South Shields; at present there are but twenty.

The decrease of the falt manufacture on the east coast, is owing to the superior advantages of making falt, by the assistance of the sun, on the south coast, and the making of it from rock-falt on the west.

The places from whence London is chiefly supplied with falt are Limmington and Liverpool.

At Limmington the sea water is let in to shallow ponds or reservoirs, where it evaporates to a certain degree. It is afterwards boiled down in pans, with coals got from Newcastle and Sunderland, which coals pay a duty of 5 s. $4\frac{7}{10}$ d. per chalder; so that

A

the

(2)

the salt made at Lymmington may be said to pay duty twice; first, on the coals used in making the salt; and, secondly, on the salt when made.

At Liverpool, which is a principal place for the manufacture and export of salt made from salt rock, the last mentioned salt is dissolved in sea-water, making therewith the strongest possible brine or solution of sea-salt; when the brine has deposited the impurities of the rock-salt, it is boiled down in pans, in much the same manner as at Lymmington.

The vein or stratum of rock-salt hitherto discovered, is near Northwich in Cheshire. It is upwards of 50 feet in thickness; but, from salt springs being so common in different parts of that county, there is reason to believe that this stratum extends through a great tract of country, and will, for ages, furnish an inexhaustible supply of that valuable article to the inhabitants of this island.

Rock-

(3)

Rock-salt is only allowed to be imported into the following ports in England and Wales, Swansey, Holyhead, and Lymm-marsh, or to those places within ten computed miles of the salt pits. To all other ports in Great Britain its importation and use is prohibited.

Rock-salt is allowed to be exported to Ireland duty free.

Coals exported to Ireland pay only a duty of 1 s. $1\frac{4}{10}$ d. per chalder; whereas coals consumed in Great Britain, and carried coastwise, pay a duty of 5 s. $4\frac{7}{10}$ d. per chalder.

Coals imported into the port of London pay 8 s. 7 d. per chalder.

Coals exported in British bottoms pay 8 s. $0\frac{3}{4}$ d. per chalder.

Coals exported in foreign bottoms pay 14 s. $4\frac{1}{4}$ d. per chalder.

The Irish are so sensible of their own interest, and of the favour conferred on them by the British government in supplying them with *coals and rock-salt, duty free,* that

(4)

that they think they can do no less *in return* than *supply* the inhabitants of the west coast of England and Scotland, likewise *duty-free*, with the manufactured produce of the *rock-salt* they got *from England*, charging only, as is reasonable, freight, commission, and the expence of manufacture. And, accordingly, exclusive of what is sent to England, three fourths of the west of Scotland are supplied with smuggled salt of Irish manufacture.

Contrast here how much more favourably the Irish are dealt with than the native inhabitants of this island. To the Irish, the free importation of rock-salt is allowed; to the British, all but a few ports, it is forbid. The salt makers in Ireland pay a duty of 1 s. $1\frac{4}{10}$ d. per chalder, for the coals they use; but, by the salt-makers at Limmington, Portsea, and other places, where coals are got by sea-carriage, a duty is paid of 5 s. $4\frac{7}{10}$ d. per chalder.

The annual gross revenue arising from the salt duties in England, when at 3 s. 4 d. per bushel, was upwards of L. 700,000.

The

(5)

The number of bushels of salt used in England, according to the above duties, is 4,200,000. The number of inhabitants in England, supposed seven millions, each person, on an average, would, in household use, salting meat, fish, butter, &c. consume $33\frac{1}{2}$ lib.

On an average of twelve years preceding the 5th of April 1783, the quantity of salt made annually on the east and west coasts of Scotland amounts only to 349,512 bushels, and the quantity of foreign salt imported for the fisheries to 85,179 bushels. Total 434,691 bushels.

The number of inhabitants in Scotland, estimated at 1,500,000, each person, according to the above quantity of 434,691 bushels, is supposed, for household use, salting of fish, meat, &c. to consume only $16\frac{1}{2}$ pounds of salt, instead of $33\frac{1}{2}$ pounds, the average quantity used by each inhabitant in England. But if equal quantities of salt are supposed to be consumed in Scotland as in England, according to the respective numbers of inhabitants, there must be used

900,000

900,000 bushels, consequently there is smuggled into Scotland, from *Ireland* or *elsewhere*, to the amount of 465,309 bushels, whereby the gross revenue, at the present duties of 1s. 6d. per bushel, is defrauded of the sum of L. 34,898 : 3 : 6 Sterling *per annum*.

The indulgence granted to the Irish by the duty-free exportation of rock-salt, and the trifling duty paid for coals, must, if allowed to continue, capitally hurt many British manufactures; and, amongst other advantages, may be deemed a British parliamentary reward or bounty to the Irish for refining British rock-salt, and smuggling it into Great Britain.

It is a maxim in trade, that the exportation of a raw unmanufactured commodity, which can be manufactured to advantage at home, is improper. As such, the export of rock-salt to Ireland or elsewhere, should be strictly prohibited. Were such an act passed, and the Irish, as to the duties on coal, put upon the same footing with the inhabitants

inhabitants of London, the evil complained of would be effectually cured.

The duties paid in the port of London are here expressly alluded to, as holding a middle between the home-coasting and the export duties. It would be improper to treat the Irish entirely as foreigners, and no less imprudent to supply them with so necessary an article for a variety of manufactures, at a less price than is paid by the inhabitants of the city of London, who bear so much larger a proportion of public burdens.

The above measure, at the same time that it will cut up, root and branch, the smuggling of salt from Ireland, is recommended as a means of increasing the revenue. The increase, on an average of eleven years, of the quantity of coals exported from Britain to Ireland, will amount to L.

An effectual means of preventing the smuggling of salt from Ireland having been pointed out, consisting in giving the Irish no

*

(8)

no *rock salt* to *smuggle* back upon us, and in making them pay duty for their coals, it now remains to show, how the salt-trade of Great Britain may be carried on to the greatest advantage; how the importation of foreign salt for curing fish and meat will be rendered unnecessary; and how salt from this kingdom may be rendered a staple article of export trade to Flanders, Holland, part of Germany, Prussia, Norway, Denmark, Sweden, and Russia.

It has been observed, that the manufacture of salt at Shields, and on the east coast of this island, had decreased ever since the discovery and the working of the stratum of rock-salt in Cheshire. Trade will always go to those places where it can be carried on to the greatest advantage. It should be there principally encouraged and promoted, and not, from motives of bad policy, laid under restraint.

The Legislature should in these respects regard the interest of the whole, not of a part. The proprietors of the rock-salt have
reason

(9)

reason to complain, that the sale of it has been prohibited to those places where coals are in abundance, and where it could be refined to advantage.

The author has been informed that it was proposed, about forty years ago, to allow the importation of rock-salt into Scotland. That measure was promoted by Archibald Duke of Argyle; but it seems the proprietors of salt-works on the Forth signified to the Duke, how much it would (as they thought) hurt their interest. In consequence of which the idea was at that time laid aside.

Sea-water on the Frith of Forth yields, on an average of the year, $\frac{1}{33}$ of salt; 100 tons, therefore, contain,

	Tons.	Cwt.	Qrs.	Lbs.
Of salt	2	17	0	16
Of water	97	2	3	12

A hundred tons of saturated solution of rock-salt in sea water contain

	Tons.	Cwt.	Qrs.	Lbs.
Of salt	23	0	1	20
Of water	76	19	2	8
		B		The

(10)

The improper expenditure of fuel in making salt from sea-water, without the aid of rock-salt, cannot be more fully shown than by the above states. By the former, upwards of 97 tons of water must be evaporated to procure 2 tons 17 cwt. of salt, equal to 114 bushels; by the latter 77 tons of water nearly, to obtain 23 tons, equal to 920 bushels of salt; a quantity (with 20 tons less evaporation) eight times greater than is procured from sea-water.

From the above facts it may safely be concluded, that, to procure the same quantity of salt from sea-water as from salt brine, it will require eight times the fuel, and eight times the labour;—an object of less importance to the salt manufacturers, than to the country in general, which ultimately pays, by an advanced price on salt, for the extra charge of manufacture.

The selling price of salt at Liverpool and on the Forth, (exclusive of duties) confirms what is above stated.

Per

(11)

Per bushel.

At Liverpool, the best salt sells at 8 d.
Small salt 6 d.

On the Forth, from 20 d. to 15 d.

The expence of manufacture on the Forth stands near 11 d. per bushel; and the salt-makers at Liverpool, who use rock-salt, have as much profit by selling their salt at 7 d. or 7½ d. as those on the Forth at 15 d.

The heavy duties already laid on this necessary of life render it an object of moment to the country in general, more especially to the poorer sort of people, that the cheapest mode of manufacture should be adopted. The importation, therefore, of rock-salt, under certain restrictions and regulations, should be allowed into all the ports of Great Britain where the manufacture of salt is carried on. Objections may be started, 'That the revenue would suffer thereby, viz. Either by the rock-salt being made use of in its crude state, or by the strong brine being carried away, or disposed of from the salt-works.'

To

(12)

To the first of these it is a sufficient answer, that rock-salt contains so many impurities, particularly of a red clay or earthy matter, that it could not be made use of for household purposes, or the salting of meat; and, could it even be made use of, its colour, its size when whole, and its unformed grains or particles when broken or pounded, will afford an easy method of detection.

The last objection, 'That salt brine would be secreted or carried away from the works,' militates equally against the present mode of making salt from sea water; because, in either case, salt must be in a liquid ere it can be in a solid state. As the law stands at present, the penalty for disposing of or taking away the brine is very great. Besides, watchmen attend the salt-pans night and day; and, if thought farther necessary, the pump that draws up the brine from the reservoir or pit, in which the salt rock is dissolved by the sea water, may be under the lock and key of the

(13)

the salt-officer, who shall be obliged to attend when the pans are filled.

It having been clearly proved, that salt made from rock salt can, at equal profits to the maker, be afforded to be sold at half the price of salt made from sea water, it now remains to show, first, how home-made-salt can, at a small expence, be purified, or rendered of equal or superior quality to bay or foreign salt, for the purpose of curing fish, and salting of meat and butter; 2dly, How such purified salt can be made a staple article of trade and export from this kingdom.

The method of purifying home-made salt is fully explained in the following letter, addressed to the Secretary of the Royal Society of Scotland: But, previous to the insertion thereof, it will be proper to give the substance of what Campbell, a prolix but well-meaning author, says, in his *Political Survey*, of the importance of the manufacture and trade of salt to Great Britain.

'Salts

(14)

‘ Salts of all kinds are made in Britain,
 ‘ and of some sort or other in almost every
 ‘ part of it. If we consider the extensive
 ‘ use of this indispenfible neceffary of life,
 ‘ we muft look upon the abundance of it
 ‘ in this kingdom to be a very great and
 ‘ extensive bleffing. From the immense
 ‘ and continual confumption of falt, we
 ‘ may form fome idea of the number of
 ‘ families maintained by the making, tranf-
 ‘ porting, and vending of this valuable ar-
 ‘ ticle. The confumption within this laft
 ‘ century has increafed amazingly, and is
 ‘ ftill increafing, as manifefly appears by
 ‘ the public revenue arifing from it, which
 ‘ amounts at prefent in South Britain to
 ‘ L. 700,000 per annum.

‘ In 1670, in the lands of William Mad-
 ‘ burry, Efq; of Madburry in Chefhire,
 ‘ was difcovered the mine of rock-falt.
 ‘ There have been fince many more works
 ‘ wrought by other proprietors, who have
 ‘ moft of them joined in company for that
 ‘ purpofe. This rock-falt is fent to Liver-
 pool

(15)

‘ pool and other places, where, by boiling
 ‘ it in fea-water, they produce a fine white
 ‘ falt, which they can fometimes afford at
 ‘ twenty fhillings a ton, equal to 6 d. per
 ‘ bufhel, exclufive of the duty, and export
 ‘ it to the plantations.

‘ Notwithftanding our great plenty of
 ‘ falt, we are obliged to ufe foreign falt for
 ‘ the fisheries. It is undoubtedly a wife
 ‘ policy to grant a drawback on the foreign
 ‘ falt employed: But, would it be a lefs
 ‘ wife policy to propofe a reward for ma-
 ‘ king falt here, as fit for curing fifh as fo-
 ‘ reign falt, and at a moderate price?’

† *Copy of a Letter to the Secretary of the
 Royal Society of Scotland.*

S I R,

‘ YOU will be fo good as to return
 ‘ my thanks to the Royal Society for the
 ‘ honour they have done me, in electing
 ‘ me one of their number; and will like-
 wife

(16)

‘ wife please to communicate to them the
 ‘ following account of the method I have
 ‘ of late used with success, for freeing
 ‘ home-made salt from the large quantity
 ‘ of magnesia salita and magnesia vitriolata
 ‘ with which it abounds.

‘ The unfitness of home-made salt for
 ‘ the preserving of fish, meat, and butter,
 ‘ is sufficiently known; and, by a variety
 ‘ of experiments I have made, it seems to
 ‘ be principally owing to the septic power
 ‘ of the magnesia salita.

‘ A method of purifying common salt
 ‘ without dissolving it in water, and decom-
 ‘ pounding the salts with earthy basis, by a
 ‘ fixed alkaline salt, has hitherto been a
 ‘ desideratum, and is an object of import-
 ‘ ance to the public in general; more espe-
 ‘ cially to the curers of fish and meat.

‘ The already mentioned method of dis-
 ‘ solving in water, &c. &c. and afterwards
 ‘ boiling down and granulating the salt,
 ‘ could not, from the expence with which
 ‘ it is attended, be practised in the large
 ‘ way.

(17)

‘ way. Besides, there would in the pro-
 ‘ cesses be formed the following salts, accor-
 ‘ ding to the alkali made use of, viz. If
 ‘ fossile alkali, a common sea-salt and a
 ‘ Glauber salt; and, if vegetable alkali, a
 ‘ salt of Silvius and a vitriolated Tartar.
 ‘ The separation of the salt of Silvius from
 ‘ the common salt, if necessary, could not
 ‘ be made; that of the vitriolated Tartar,
 ‘ it is true, from its small solubility in wa-
 ‘ ter, could more easily be made; but it
 ‘ would require the salt brine to be drawn
 ‘ off the subsided crystals of vitriolated Tar-
 ‘ tar, which would be attended with ex-
 ‘ pence and loss of time. The objection
 ‘ to the other method of decomposing
 ‘ by fossile alkali is, that a proportion of
 ‘ Glauber salt would be formed in place of
 ‘ the magnesia vitriolata decomposed,
 ‘ from which it would be no less difficult
 ‘ to free the sea-salt than from the mag-
 ‘ nesia salita. It is true, that in this pro-
 ‘ cesses a proportion of sea-salt would be re-
 ‘ generated; but each pound of salt so ob-
 ‘ tained

(18)

' tained (fossil alkali supposed at L. 36
 ' per ton) would cost 2 d. instead of $\frac{1}{4}$ d.
 ' the price (exclusive of the duty) that it
 ' may be purchased for at present: And,
 ' upon the whole, neither of these proces-
 ' ses, including the price of the alkalis used,
 ' could be done for less than 15 d. per
 ' bushel, equal to the original price of the
 ' salt. Every objection, however, to the
 ' proper purifying of salt, is removed by
 ' the following process:

' Take a vessel, of a conical figure, with
 ' a hole in the apex or small end of it, put
 ' it near the fire, with the bottom or base
 ' uppermost; fix it in such a manner that it
 ' may be moderately heated by a stove or
 ' stew going round it; fill it with salt; take
 ' a twentieth part of the salt contained in
 ' the vessel, dissolve it in its proper propor-
 ' tion of water in an iron pan; let it boil,
 ' and pour it, when hot, upon the surface
 ' of the salt in the conical vessel. The hot
 ' and fully saturated solution will dissolve
 ' no more sea-salt, but will, as it descends
 ' and

(19)

' and filtrates through the salt in the vessel,
 ' liquify or dissolve the magnesia salita, and
 ' magnesia vitriolata, which will drop out
 ' at the aperture in the small end of the
 ' conical vessel. After that the liquor has
 ' ceased to drop, take out a twentieth part
 ' more of the salt contained in the vessel,
 ' dissolve it in water, proceed as aforesaid,
 ' pour it on the salt, and repeat the same
 ' with fresh quantities of salt out of the ves-
 ' sel, until the remaining salt be of the re-
 ' quired purity. Three washings will render
 ' home-made salt purer than bay-salt. Each
 ' operation renders the salt $4\frac{1}{2}$ times purer
 ' than it was before. Its purity, throwing
 ' off the small fractional parts in each multi-
 ' plication, will increase in the following
 ' progression:

First operation	4.5
Second ditto	20.
Third ditto	91.
Fourth ditto	410.
Fifth ditto	1845.

' The

(20)

' The superior quality of salt, thus freed
' from the bitter nauseous salts, is no less
' obvious to the taste than its effects are in
' salting or preserving of fish, meat, and
' butter; of which I have satisfied myself
' by a variety of experiments. I am,

S I R,

Your obedient and very humble servant,
DUNDONALD.

' P. S. If a salt perfectly pure is required,
' as all salt made by fire contains a small
' portion of uncombined magnesia, the salt
' may be freed from it, by adding to the
' first liquor that the salt is washed with, as
' much marine acid as will neutralise and
' dissolve the magnesia.'

The simplicity of the process for purifying salt here described, and its cheapness, as it can be done for less than $1\frac{1}{2}$ d. per bushel, will, it is hoped, recommend it to the attention of the legislature, and the practice of it be enforced by act of parliament

(21)

ment at all the salt works throughout Great Britain. The propriety of such an act of parliament will not strike those who imagine the purity and quality of salt of little moment, and who are unacquainted with the great quantity of bitter or heterogeneous salts contained in it. The common salt made at Shields, or on the frith of Forth, is found, by repeated trials, on an average, to contain one tenth of its weight of those bitter putrescible salts, aiding instead of preventing putrefaction. According to the above proportion, a bushel of salt of 56 pounds, contains $5\frac{1}{2}$ pounds of the already mentioned salts.

This plan of purifying common salt must be enforced by act of parliament at all the salt works in Great Britain, before it would be prudent to prohibit the importation and use of foreign salt; because, were it otherwise, and the purifying of the salt left in the choice of the salt-makers, they might be tempted to save the small expence the process is attended with, to impose on the public,

blic, by supplying the curers of fish and meat with unpurified salt, who, from outward appearance, could not distinguish the difference, and who may neither know, nor give themselves the trouble to put the purity of the salt to the test of an alkaline solution. Were the practice here recommended made general, there would be no complaints of the rancid smell and taste of our salted butter, nor in the navy and merchant service, of tainted ill cured meat. The health of our seamen is, of itself, an object of sufficient importance to recommend what is here proposed to the serious attention of government. The Dutch have been long famous for curing fish, meat, and butter, superior to any nation in Europe, which, at the same time that the greatest cleanliness is observed by them, is principally owing to the superior quality of the salt they make use of. Best Spanish or Portugal salt is, by them, not thought sufficiently pure for many purposes, particularly for salting butter. It is, therefore,
made

made to undergo a purification, according to some process concealed by them, but which can only consist in freeing salt from the impurities with which it is mixed. In the history of the French Academy of Sciences, mention is made, 'That the Dutch use sour whey in the purification or refining of salt, and that it is owing to this method that they are famous for having the best salted provisions in Europe.'

Notwithstanding so respectable an authority, there is reason to believe that this is not the method the Dutch use in purifying their salt; for the butter, or oil, contained in the whey, would hinder the crystallization of the salt, and the acid would join with the uncombined magnesia, and form a deliquescent salt, from which it would be no less difficult to free the sea-salt than from the bittern formerly mentioned.

The means of purifying common salt having been sufficiently explained, it now remains to show how salt may be rendered
an

article of export trade from this kingdom to the northern nations of Europe, who draw their principal supply of that article from Spain, Portugal, and Sardinia. French or Bay salt is reckoned inferior to the above, and as such is prohibited by the Dutch to be used in curing of herring, on penalty of forfeiting the herring so cured.

What is here proposed will be best shown by a comparative state of the price of Spanish and British salt delivered at Copenhagen.

Spanish salt, one ton equal to	
40 bushels - - -	L. 0 15 0
Freight and insurance on ditto	2 0 0
Equal to 1 s. 4 $\frac{1}{2}$ d. per bushel	<u>2 15 0</u>

British refined salt.	
One ton equal to 40 bushels	1 10 0
Freight, &c, on ditto	0 12 0
Equal to 12 $\frac{1}{2}$ d. per bushel	<u>2 2 0</u>

The

The last mentioned freight to Copenhagen will appear high rated, when it is considered that two-thirds of all the east country ships go out in ballast, making their freight upon their homeward bound voyage; and, it is not doubted, that vessels may be had to freight at half the above sum, choosing rather to accept of it than incur the expence of going out in ballast. So that, whatever they get on an outward bound voyage, however small, may be deemed as clear gain, and, at six shillings per ton, is equal to one third of the homeward bound freight.

The example given here of the freight and price of salt delivered at Copenhagen, will answer for any of the following ports, viz. Gottenburgh, Christianstadt, Stockholm, Lubec, Dantzic, Memel, Riga, Petersburgh, &c.

Where large quantities of Spanish and Portugal salt are imported, from its superior quality, it sells at a higher rate than British unpurified salt, which is found, at home as well as abroad, unfit for the fisheries,

D

(26)

ries, or for salting of meat. But, were it purified, as proposed, its quality and colour, independent of its low price, would give it a decided superiority over any foreign salt in these markets.

The author has, as he thinks, incontestably proved the three propositions he set out with: That salt may be made one half cheaper from rock-salt dissolved in sea-water than from sea-water alone: That home salt may be made of equal or superior purity to foreign salt: And that salt may become a great article of export trade from this kingdom.

He is unconnected with the proprietors of the rock-salt, and manufacturers of salt on the west coast. He is himself a considerable manufacturer of salt on the east coast, and apprehends, that neither his own interest, nor that of the manufacturers of salt on the Forth, will be hurt by the free importation and use of rock-salt, but, on the contrary, that their trade and profits will be greatly increased. Independent of these

(27)

these considerations, the author thinks it his duty to point out any means whereby smuggling may be suppressed, and the trade of Great Britain extended.

Amongst the various purposes for which purified salt should be used, the herring fishery appears not the least considerable. To the impurities of the salt generally made use of, and to the ignorance in the method of curing, the inferior quality and flavour of our British herrings are entirely to be attributed. The public are so thoroughly convinced of the importance of this fishery, that, waving all introduction, the author shall, *first*, Give an abstract of the Regulations of the States of Holland and West Friesland, concerning the herring fishery; *2dly*, Shall make some remarks on, and contrast the British and Dutch methods of conducting this fishery; and, *lastly*, Shall give directions for salting and curing herrings, according to what he apprehends to be the Dutch method, discovered by him, and put in practice in December 1783, in salting,

(28)

ing, and in curing several barrels of herrings.

An ABSTRACT of the Ordonances of the States of Holland and West Friesland, concerning the managing of the Great Fishery.

NO vessel sailing out of Holland or West Friesland shall be allowed to go to the Great Fishery without the consent of the burgomaster of the town from whence he sails, and that he make oath, that he will not sell, give in presents at sea, or cure on shore, any herrings, under penalty of 24 guilders for each barrel, and confiscation of the fish : And, further, that he shall separate the herrings caught in one night from those caught in another, and shall declare on what night each were taken, on forfeiture of the cargo and ship, and degradation of the master.

Nor

(29)

Nor shall any master deal for herrings with any but those authorized by the chief magistrate in the place where the herring trade is established. Further, they shall not, at sea, ship herrings on board any other vessel than those so authorized, under penalty of the said herring, or their value, and a fine of 600 guilders, and the master rendered incapable of ever acting in that capacity for the future.

That the masters of jagers make oath, that they will not take on board herrings from any others but subjects of Holland and West Friesland ; taking care to get a certificate from the master, signed by himself, and two or three sailors, with the ship's name and port she sailed from, the quantity delivered, and that they were taken after St John's day (June 24.) salted and laid in barrels in his ship, on penalty of the herring, or value of them ; nor shall any master ship them on board jagers after the 15th of July, penalty as above, and the money received for such herrings.

That

That no inhabitant of Holland or West Friesland shall be engaged with others living out of the said provinces, in buffes or jagers, under penalty of ship and cargo, and 600 guilders, to be recovered though the fact has been committed 20 years past.

The first taken herrings are not to be sold, unless they have been ten days in pickle, and not then, till marked by the inspectors between the neck and belly hoop, on penalty of 300 guilders; and, in case of non-payment, to be confined to bread and water for a month; and all herrings brought into the said Provinces, without such mark, to be publicly thrown into the sea.

Each master of a bus is to declare to the secretary of the port from whence he sails, where he is going to fish, to what port he is to return, and what mark he is to use, that it may be registered, under the penalty of 120 guilders.

The curing of the herrings shall be completed three weeks after they arrive, whether they be sold or not, and shall be re-packed

packed more than once, according to the nature of the herring, and custom of the place; if not in the above limited time, the buyer to have no redress.

Herrings shall not be repacked or heightened with fresh pickle, but in the public streets, or customary places, with open doors, where any may enter, under penalty of 240 groats.

No herrings to be packed or heightened to be sent abroad before the cure-master has inspected them, and ascertained that they are duly packed. Nor are small herrings to be packed up with great, but each shall be filled up with those of a like kind, and taken at the same time and branded with theirs and the city's mark.

No barrels sent abroad shall have less than fourteen hoops.

The herrings caught after St James's day, (July 26.) and salted with fine salt, may be exported as wreck westward; the barrel to be bound with sixteen hoops, having the date

(32)

date of the year on the belly, and mark of the purchaser thereon.

No Spanish or Portugal salt shall be put in casks, before the cure-master has examined it, on penalty of 25 guilders for every hundred weight; nor shall they carry to sea any other but the above for the herring fishery, and that twice to be examined by the cure-master, who must open each barrel before it is shipped, and stamp them with his mark; in case of failure, the master to forfeit 36 guilders; and he is likewise to declare that these herrings were cured with the said salt.

Each cure-master may make the master of the bufs open his barrels twice in his view, to have two inspections, and at each time to pay half a farthing, the one to be paid by the buyer, and the other by the seller.

Any person who cures herrings with French salt from St. Martins, Olderdame, Borea, Browart, South France, the West Indies,

(33)

Indies, or Isle of May, to forfeit the herrings.

Fish taken after St James's day, (Aug. 24.) and Bartholomewtide, may be salted with fine salt, boiled with sea-water, according to agreement with the city of Cologn.

There shall not be sent abroad to the Westward, or France, Flanders, and Brabant, any herrings but what have been taken and packed after Bartholomewtide, and marked with the grand Rouen Brand: Nor shall any be sent to Hamburgh, Bremen, Cologn, or other ports, that may be cured with coarse salt, whether they be wrack, or refusal fish, on penalty of six guilders each barrel, and naval correction.

Herrings once exported, shall not be brought back, or cured anew, on pain of forfeiture of the fish.

E

A

A Warning against the not Handling, Sorting, Salting, and laying of the Herrings in a proper Manner by the Masters.

THE Lords Deputies of the Great Fishery of Holland and West Friesland, with the utmost indignation having been certainly informed, that some masters, neglecting their duty, do not manage, sort, salt, or lay in a proper manner, the herrings, notwithstanding the good orders given by the general placart, respecting the catching, salting, and management of the herrings, renewed by their High Mightinesses the Lords States of Holland and West Friesland, dated the 10th of May 1751, and amplified the 30th May 1656, especially enjoined in the 12th, 13th, 14th, and 15th Articles, and of which, pursuant to the 41st Article of the said Ordinance, an exemplar is annually given to the masters, and solemnly sworn to, as a further warning
to

to prevent all abuses and neglects, decreed by the foresaid Lords deputies, by virtue and authority of the said placart; from whence it is to be apprehended, that the now already much lessened foreign sale of the Dutch herrings, and the good repute thereof, will entirely cease, and, on the contrary, become in disesteem, to the great detriment and prejudice of the trade, and consequently to the ruin of the Great Herring Fishery; being so apparent a loss to the trade and welfare of the country, and the inhabitants thereof, in case it is not speedily and rigorously examined into—
The Lords Deputies aforesaid, by the advice and consent of the committee, consisting of owners of ships, merchants, and herring-traders, for the prevention of those enormous abuses, and neglect of duty, and for the conservation and restoration of the Great Herring Fishery, have thought proper to desire and ordain, and do hereby desire and ordain, by way of renovation and amplification of the before-mentioned
good

(36)

good orders, That the herring masters shall not mix different sorts together, or sort them, as, first sort, which contain full, middle, and small. But the first shall be sorted with the first, the second with the second, and the third with the third; and, on occasion of an extraordinary great capture, the time not permitting to sort them properly, the masters, at their coming on shore, shall be obliged to report them as unsorted herrings to his owners: That, farther, the herrings shall be properly salted; and the large barrel herrings to be salted in no less a proportion than four barrels of salt to every last, (i. e. 12 barrels,) the smallest sort of barrels excepted; the herrings to be likewise properly gutted, and afterwards laid close crossways in the barrel; ordering all and every master to conform themselves to this rule, under pain of 300 guilders, over and above the action, in case of perjury, at the charge of the masters whose herrings shall not be properly sorted, in manner as before mentioned; to whom likewise no further grant shall be given for the catching of herrings:

But,

(37)

But, with respect to the herrings not being laid close crossways in the barrel, a penalty shall be levied of six guilders per barrel; the aforesaid penalties to be in conformity to the 40th article of the Placart before mentioned; one third to the informer or informers, whether they be sailors or other persons; one third for the officer who makes the challenge; and the last third part for the poor. The herrings so improperly salted, viz. the first sort mixed with the second; *item*, the second sort mixed with the first, to be reckoned unsorted; and, with respect to the mixt first and second sort, to be sold with the third sort as third sort, and to be reckoned and paid in that manner by the buyer; likewise at the charge of the master. All the rest of the before mentioned given orders, and thereunto annexed penalties, remaining in their full force: And to the end that no one should be able to pretend ignorance thereof, the Lords Deputies aforesaid order that these shall be published and affixed in all proper

(38)

proper places. Done at Delft, the 23d day of May 1749. By order of the Lords Deputies,

M. L. *Secretary.*

1749. **T**HE Burgomasters and Regents of the city of Schiedam give their consent unto *A, B, C*, that he shall be permitted to go with his Herring-Ship to the North-Sea, there to catch herrings, and hath solemnly sworn to us by Oath, that he is properly furnished, according to the Size of his Herring-Ship, with Tackle, Salt, Barrels, Seamen, and all other Necessaries required in the Herring-Trade. Likewise, that he will not, before the 24th of June, nor after the 31st of December next coming, cast a Herring-Net in the Sea, to catch Herring; that also he will not deliver over to any body, whomsoever it might be, any Herrings whilst at Sea, nor suffer that they be given over out of his ship by any other person, directly or indirectly,

(39)

directly, in any manner whatsoever, but only to those ships from Holland and West Friesland, who produce the proper act of consent, having on the top a herring-buss, being the seal of the great fishery, stamped thereon, and signed by the secretary of that city from whence he comes: To which respective ships he shall be impowered to deliver over his caught herring, until the 15th of July 1749, inclusive, and no longer: That he shall notify exactly, upon the list of the marked barrels, in what night or nights the herrings thus delivered were caught: Farther, that he shall not fill up the herring-barrels more than once with pressed herrings, and take care, that as little of the bloody pickle thereof shall be spilt as possible: And further also, that he shall bring in all his caught herring into the provinces of Holland and West Friesland; and likewise, with three of his own sailors, enter, within three days at farthest after his arrival, the said caught herrings faithfully; taking also all possible care, that the herrings

(40)

rings may be laid even in their lays, from the bottom to the top ; and that the same be not cast in with baskets or buckets into the barrels, mixed, wrong laid, or adulterated : That he shall not sell, change, or give away, by manner of gift, any salt, pickle, hoops, hoop-wood, rigging, thread, hook-lines, or any other fishing-tackle. *Item,* he shall not sell, barter, or give away any sort of merchandise, under what denomination soever might be in Zetland, Scotland, or any other land ; taking likewise no sort of goods for freight to this or that place, or suffer the same to be done directly or indirectly, on the penalty mentioned in the warning, and to regulate himself farther, according to the placarts and ordinances made with relation to the herring-fishery, and which, for that intent, are given with him ; so truly as he wishes God Almighty may help him.

The seal of the great fishery is hereon stamped, and signed by the secretary of the city the 10th day of June 1749.

The

(41)

The author wished to have given here an abstract of the British regulations concerning the taking, gutting, sorting, laying, salting, and curing of herrings ; but, after the most diligent search in the different acts of Parliament that regard the white herring fishery, he finds nothing worth transcribing here. These acts of Parliament do nothing but specify the manner that the busses must be fitted out and equipped, to entitle them to receive the bounty.

The superior attention paid by the Dutch to this great nursery for seamen and source of national wealth, appears strongly by the foregoing regulations, and the penalties inflicted on those who transgress them. The Dutch regulations are very distinct and proper ; and, what is of greater moment, they are rigorously enforced, neither of which is the case in Britain. To help the reader's memory, the most important of these regulations, and the different practice of the British and Dutch, shall be contrasted.

F

The

(42)

The Dutch are only allowed to fish when the fish are in season.

The Dutch gut the herrings directly when caught, and in a different manner from the British.

The Dutch are obliged to keep separate the herrings caught in one night, from those caught in another, and to notify, in the list of the marked barrels, on what night each were taken.

The Dutch oblige each master of a buss to register, with the secretary of the port from whence he sails, the mark that he is to use, or put upon the herring barrels that season, in order that it may be the more easy to trace and punish those found guilty of improperly gutting, salting, laying, sorting, or curing the fish.

The Dutch allow no salt to be used in the herring fishery, except Portugal and Spanish, nor is it allowed to be shipped for the fishery until the cure-master has examined it, and stamped his mark on the cask or barrel containing it.

The Dutch cause all their herrings to be sorted into first, seconds, and thirds.

The curing of herrings in Holland is a distinct operation from that of salting. It is a process whereby the coagulable lymph or putref-

The British fish whether the fish be in, or out of season.

The British are not careful to gut them directly when caught, and it frequently happens that they do not gut them at all.

The British are allowed to do in that respect as they please.

The British masters of busses are not obliged to make use of any distinguishing mark.

The British allow every sort of salt to be used in the fishery, home or foreign, pure or impure.

The British have no such regulations.

The salting and curing of herrings in Britain is either understood to be one and the same process, or is meant to be the operation

(43)

cible part of the blood of the fish, contained in the liquor, is separated. And it further depends on a process whereby the oil contained in the purified liquor is prevented from growing rancid; and this last process, at the same time that it prevents the fish from taking in so large a quantity of salt, gives the flavour so much admired in the Dutch herrings.

The Dutch oblige all the herrings caught, to be brought into their own ports, there to be cured, which must be done within three weeks after their arrival, whether they be sold or not.

There is a distinguishing mark for the herrings cured in each different port of Holland. This is a wise regulation, is a spur to industry, and encourages competition.

The Dutch, in supplying the different markets, seem to pay attention to the condition the fish are in, to the purity and size of the salt, and to the season of the year.

ration of repacking, with a little more salt, the herrings after they are brought on shore, in which operation the bloody brine that is so carefully preserved and purified by the Dutch, is thrown away.

The British have no such regulations. They are allowed to ship them in the state of sea-steaks, as it is called, without landing them to be cured in Britain.

There is no such distinguishing mark used in the ports of Britain.

No such attention is paid in Britain. The season of the year, condition that the fish are in, purity of the salt, are all disregarded; and, as the saying is, all is fish with us that comes into the net; and will always be the case until proper regulations be made, and strictly enforced, and until, by an alteration in the mode of granting, and by a diminution of the present extravagant and absurd bounties, adventurers shall be obliged to catch and cure fish in earnest, and not to go a-fishing for the bounties.

Method

Method of salting and curing Herrings.

SALTING.

THE herrings should be immediately gutted when taken, (this, for dispatch, is done with the finger and thumb, not with a knife). The gills, liver, and stomach, are the only parts that are tore away. The long gut, to which a fat membrane adheres, is drawn so far out of the body of the fish, and is left pendant like a watch chain. As soon as gutted, the herrings should be salted with the usual quantity of Spanish, or best purified salt, taking care to stow them close in the barrel, and to lay each layer in a contrary direction to the one immediately below. When the barrel is full, it should be coopered up, and stowed away in the vessel's hold, until a quantity be got to send or carry to market. The greatest care should be taken to have barrels perfectly tight, so as to preserve the
 bloody

bloody liquor or brine. It cannot yet be said from experience how long the herrings should remain to pine in the first salt or pickle, as that depends partly on the size of the grain of the salt, the condition the fish are in, and the season of the year; 14 days may be sufficient with small salt; but, when great salt is used, it may require three weeks or a month.

The curing of herrings is a distinct operation from that of salting, and is necessary to prevent the tendency that the bloody liquor or brine has to putrify, and consequently to spoil the fish. The proper curing of herrings further depends on a process whereby the oil contained in the prepared liquor or brine, by its being rendered miscible with water, and reduced to a faponaceous state, is preserved from the action of the air, and from turning rancid.

Directions

(46)

Directions for Curing.

After the herrings have been salted as directed, and have remained a sufficient time in salt, to pine, or throw their liquor, empty the barrels containing the herrings upon a large dresser, with a ledge or moulding round it, and inclined one way, to allow the brine to run into a hoghead or vessel placed to receive it; put the brine into a large hammered iron pan, or cast metal boiler; let it boil; skim it, draw off the liquor, when skimmed, into a wooden vessel; let it cool. Take the semen masculinum, or milt of 30 herrings for every barrel that it is proposed to cure according to this method, bruise or triturate the milts in a mortar; add of the liquor as you triturate, and when sufficiently dissolved, and in the state of a rich emulsion or saponaceous liquor, add it to the boiled liquor in the wooden vessel; then lay the herrings in the barrels with a layer of salt betwixt each row,

(47)

row, in the same manner as was directed in the salting of them; cooper up the barrels, and fill them with the prepared liquor at the bung hole, or at a hole in the end of the barrel.

*Reference to the mark * in the margin of page 7th.*

THE amount of the increase of the duties on coal shipped for Ireland, when charged at the London duty of 8 s. 7 d. per chalders, is not inserted for want of an authentic account of the quantity of coals shipped for Ireland from Whitehaven, Workington, and Wales. The average annual quantity shipped from Scotland for Ireland during eleven years, viz. from 1st January 1768, to 1st January 1779, was 9375 Winchester chaldrons.

The

The duty on ditto at the London duties, or 8 s. 7 d. is L. 4023 8 9

The duty on ditto at the Irish duties, or 1 s. 1 ⁴/₁₀ d. is 515 12 5 ⁸/₁₀

Difference of the duties on the export from Scotland L. 3507 16 3 ¹²/₁₀

The export of coals from England to Ireland is above ten times as great as from Scotland, the difference of duties, reckoned at ten times, will therefore

be - - - L. 35,078 2 11

Add the difference of duties in Scottish coal 3507 16 3 ¹²/₁₀

Total annual gain to the revenue L. 38585 19 2 ¹²/₁₀

At the same time that it is suggested to charge the Irish with the same duties as are paid in the port of London, it must be allowed, that heavy duties on articles of which it is an object to encourage the sale and

and export, is absurd. But, while the legislature shall continue this method of raising a revenue, there is no impropriety in putting the Irish on a similar footing with ourselves. One shilling per Winchester chalders at the pits throughout Great Britain, would raise a greater revenue than is at present collected by the impolitic heavy duty on water-born coals. A heavy duty on any article, although not a prohibition, is certainly a limitation of the sale. How far it is proper to do so, I leave it to others to determine; and how much the coal trade, and consequently the shipping of Great Britain, would be increased, were the coasting duty on coals diminished, and an equalizing duty laid on all coals consumed in Great Britain of 1 s. per Winchester chalders, will appear fully, when it is considered that the coal trade, under the present heavy duties, is carried on to such an extent as to find employment on the east and west coasts of this island for 2000 sail of vessels from 40 to 600 tons burden. The number of sea-

G men

(50)

men employed cannot be less than 14,000, independent of the shipbuilders and carpenters employed in building and repairing the vessels; who, together with the keelmen employed on the Tyne and Ware waters, may be reckoned as part of our naval force, and will amount to above 6000 more, in all to 20,000 seamen. This and the fisheries are the only nurseries for seamen, that will give us a superiority in that respect over the French. How glorious the idea, that, while the French employ 20,000 landmen to cut wood for them, we employ 20,000 seamen to fetch coals for us! And does it not import us to increase the said nursery, to double it even, if possible, by encouraging the carrying trade of our coals, which never can take place while coals carried coastways, or exported, continue burdened with such heavy duties. Several respectable Dutch merchants have informed me, that, were the duties on coals lowered, there would not be a turf or peat dug in any of the provinces of Holland where
coals

(51)

coals could be carried to. This is not confined to Holland; the other northern nations would likewise give a preference to coals, as the cheapest firing. It may be alledged that this would be putting foreigners, as to the cheapness and advantages of coals, on a footing with ourselves. And why not? Can it with propriety be said of coals, more than of any other articles we export, on many of which drawbacks or bounties are granted? Do not we give a bounty of 5 s. per quarter, when wheat does not exceed 44 s. May it not, then, be said, that we are taxing our own countrymen to feed foreigners? But to the said bounty on export and equality of prices at home preserved thereby, Britain has, perhaps, been indebted for its improvements in agriculture. That point being now gained, it may not be so necessary to continue the same, at least, so large a bounty. But this is a matter upon which a hasty opinion should not be formed. But, to return to the coal-trade: Were foreigners even to get
coals

(52)

coals as cheap as we, would there not be a balance due by them to us for the prime cost of the coals and for freight? and would they not, in so doing, pay a tax to the increase and support of the marine of Britain? What has been advanced may be said to be conclusive as to the propriety of lowering the coasting and export duty on coals; and that the ministers and rulers of Britain would attend to these great, and to other national objects, is the earnest prayer of one who has the real interest and honour of Britain more at heart than any other object.

F I N I S.